The Proceedings of the 13th Annual National Symposium on Student Retention

November 6-9, 2017
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November 6, 2017

Dear Colleague,

The papers and abstracts contained in this publication were approved for presentation at the 13th Annual National Symposium on Student Retention in Destin, Florida. This Symposium is just one of the strategic initiatives undertaken by the Consortium for Student Retention Data Exchange (CSRDE) at the University of Oklahoma. The CSRDE, comprised of approximately 400 colleges and universities, is dedicated to sharing data, knowledge, and innovation that helps advance the retention and success of college students.

In 2005, the National Symposium on Student Retention was developed in response to the needs of administrators and practitioners from our member institutions for current, evidence-based research on student retention and success. We have experienced increasing national recognition over the past 13 years. I attribute the success of the Symposium to the quality contributions of the conference authors whose papers went through a peer-review process.

As you read through the Proceedings, you will find examples of best practices and programs which may serve as interesting models for your institution. You will also find research related to theoretical models; data and technology; first-year, online, transfer, and graduate students; faculty engagement; academic advising; and efforts with special populations such as at-risk students. This Symposium provides a forum to recognize the work of researchers in the field and make their work available to practitioners in a collegial, interactive environment.

It is our hope that this publication assists in your efforts to improve student retention and success at your institution.

All the Best!

Sandra Whalen, Editor
Director, CSRDE

P.S. I would like to acknowledge Brittnee Morton, Office Manager & Conference Coordinator, for coordinating the paper review process. This publication wouldn’t be possible without her efforts.
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Keynote Address-Metacognition: The Key to Increasing Retention and Graduation Rates for All Students!

Saundra Yancy McGuire, Louisiana State University

Abstract: 21st Century students come to college with widely varying academic skills and motivation levels. Although all students who are admitted have the ability to succeed, many students do not have effective learning strategies and resort to memorizing information just before tests. They then lose confidence in their ability after they fail their first round of exams. This is especially true of many underprepared students who were less likely to have been enrolled in a challenging academic environment before they get to college. This interactive talk will present findings from cognitive science and wellness research that can be used to engage all areas of an institution in improving student success. The session will present specific strategies that have resulted in significant increases in student learning in undergraduate, graduate, and professional school environments. We will focus on ways to teach students simple, yet powerful learning strategies to ensure success in their courses, their careers and in life.
Data Surfing for Retention Success: From Trendlines to Breaklines

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Abstract: Today’s higher education culture and environment recognize the raising “tide” and ground swell for attention to effective student retention interventions. This panel will feature three case studies focusing on effective institutional strategies utilizing innovative data and program coordination across and within colleges and universities. The case studies represent a variety of institutions—public and private—with an emphasis on undergraduate programs. The panel will discuss and evaluate each case study spotlighting the innovative outcomes and institutional collaborations utilized to reach these outcomes. The case studies include teaching and learning assessments, accreditation criteria, financial capabilities, and cultural and motivational factors. The panelists will analyze projects such as early alert systems, university dashboards, and curriculum and course outcome models. The presentation will provide a synthesis of these key factors and challenges for improved comprehensive infrastructures’ initiatives and innovations. Valued trendlines will be discussed and participant dialogues will be encouraged by each panelist, with open Q and A.

Introduction

Higher education faces multiple pressures to address accreditation, retention, cost, shifting modes of delivery, and questions about relevance. Retention efforts increasingly encompass a variety of institutional departments to use actionable data to support student success. “College and university leaders face mounting pressure to find effective and efficient ways to improve their core business: educating and graduating students” (Brown & Kurzweil, 2017, p. 22). Data and technology have the potential to answer many internal and external questions. For example, institutions have access to multiple tools and resources that can aggregate disparate data points into impressive-looking reports and dashboards that may not capitalize the power of data. This makes it difficult to realize the potential of data collected, especially how to prioritize, organize, combine, analyze, relate, and initiate change from data resources. Big Data analytics refers to how to efficiently and effectively organize, aggregate, analyze, and correlate massive volumes of data to identify recurring themes and trends instead of cataloguing the status quo (Daniel, 2015). Inconsistent knowledge of how to access data or inefficient practices of data integrity policies challenge the effective use of overflowing institutional data banks. However, data banks are essentially only valuable through triangulation of data with institutional academic and student services. This triangulation requires institutions to interpret data first through the college and university’s mission.
with special attention to the alignment between data and prioritized outcomes. Based on innate mission differences, institutional researchers have found unique ways of aligning data priorities establishing new trendlines for campus-wide retention success. The following case studies demonstrate collaborative data coordination efforts at selected public and private two-year and four-year colleges.

**The Cornerstone Community of Practice Experience**

At a state college in Florida, a team of faculty and staff successfully implemented a First-Year Experience course (named Cornerstone Experience) and program as part of the college’s reaffirmation of accreditation with the Southern Association of Colleges and Schools Commission on Colleges (SACS COC). The state college engaged widespread involvement through a variety of means in an effort to engender college-wide support and buy-in. Quantitative and qualitative data were collected and assessed as well as data from faculty-led assessments which helped to inform decision-making during the creation, development and implementation of the course. The course, SLS 1515: Cornerstone Experience, is grounded in four foundational frameworks (Critical Thinking, Applied Learning, Relevancy, and Success Strategies). Additionally, students are introduced to the college’s General Education competencies, as they specially explore issues about the nature and techniques of critical thought based on the Elements of Reasoning and the Universal Intellectual Standards model (Paul & Elder, 2005). These elements were adopted by the faculty representing departments across the college. In turn, the four foundational frameworks utilized data collection and faculty analysis. Learning outcomes, assignments, and assessments were coordinated with the participating faculty. Currently the course is housed in the colleges’ Learning Management System (LMS) and through the use of specifically integrated software, students are required to complete their assignments in the LMS thus allowing data to be extracted and analyzed for each of the assignments. Full-time and part-time faculty, representing numerous disciplines, teach the Cornerstone Experience course. The college’s model ensures cross-departmental faculty participation throughout the “community of practice.”

Engaging college-wide support was essential to the success of the Cornerstone Experience course. Numerous committees were launched, focus group interviews were conducted, and common assignments and assessments were developed. A cohesive strategic action plan was developed based on the Alexander and Gardner recommendations for stakeholder interactions (Alexander & Gardner, 2009). Data from college-wide focus groups and committee meetings helped to inform the creation, development, and implementation of the Cornerstone Experience course. Rubric norming sessions were held enabling faculty to teach the course to standardize assignment grades. Data was collected from each of the required assignments and graded paper examples were posted on the Cornerstone Experience Community of Practice webpage. For example, the critical thinking course assignment was measured on a 4-point rubric and results demonstrated mean scores consistently “above 3” in each rubric dimension (Van Gaalen & DeLuca, 2015-2016, p. 18). The results of the data were then shared with faculty throughout the academic year.

Data from the first three years of implementation of the Cornerstone Experience course has demonstrated the efficacy of the seminar as evidenced by achievement of student satisfaction and engagement, focus group responses and positive correlations between course participation and retention (Van Gaalen & DeLuca, 2015-2016). Kelly (2006) noted students engaged in an organized first-year experience activity were more likely to succeed. In addition to demonstrated course achievement, cohort graduation rates since the cornerstone experience implementation for two-year first-time-in-college (FTIC) degree students have increased from 1.6% to 3.5% over the time of the study (Van Gaalen & DeLuca, 2015-2016). “Three-year graduation rates have also increased from 9.6% to 10.1% over the time of the study” (VanGaalen & DeLuca, 2015-2016, p. 18). According to Keup and Barefoot (2005) research findings, first-year experience course student participants indicated the course provided positive effects in their college experience. Since the implementation of the state college’s first-year experience course, the
Data obtained has successfully demonstrated the achievement of indicated outcomes, including increased graduation rates.

**Data Coordination as a Catalyst for College Cultural Changes**

Current student populations have high aspirations to complete a degree that must be matched with strong support (Ruffalo Noel Levitz, 2016). With student learning data becoming more accessible it is important to track students (individually and collectively) to maximize interventions or evaluate programs and initiatives to implement initiatives for first-year retention, at-risk student populations, and course completion. Institutional culture and infrastructures are key to successfully leveraging data.

This growing ubiquity and granularity offer new opportunities for institutions, researchers, instructors, and other organizations to put student data to myriad uses: researchers can better understand student learning and behavior; institutions can identify institutional barriers to persistence and completion; advisors and instructors can proactively reach out to struggling students; and students can view their progress in real time and share representations of their accomplishments in new, more personalized ways. (Alamuddin, Brown, & Kurzweil, 2016)

A metropolitan Colorado community college developed a number of work-around processes for data acquisition and learned the essential lesson: technology and access to data must serve the college’s mission, students, faculty, and staff. These advancements were adopted due to the college’s strategic planning initiative, led by the newly appointed college president. However, the infrastructure and data necessary to support the president’s request for strategic planning were limited. These limitations were catalysts for remodeling campus retention strategies incorporating and integrating data analysis.

Because the college had built an institutional research (IR) culture focused on enrollment, it was difficult to shift to a focus on retention. The college moved through a cultural transformation to achieve a reform approach based on education research substituted for easily accessible IR data. State-wide developmental math course mandates summoned the college to address and implement this transformation. As of Fall 2016 math classes, students were registered for the math pathway-appropriate college-level math course with a co-requisite remediation support course as a default (as opposed to being registered into the typical developmental math sequence with no college level courses). Students could unregister from the co-requisite remediation support course (one credit) if they could demonstrate college-level readiness. The college implemented co-requisite math at scale in Fall 2016. Initial data indicate that the college students are benefitting significantly from this innovation. Between Fall 2015 and Fall 2016 the college experienced a 25.46% increase in the number of students earning A/B/C grades in a transfer-level math course (from 1131 students to 1419 students). These numbers are expected to improve for spring 2017, as a number of improvements were put into place based on the fall experience, such as “front-loading” the co-requisite class to before the college class instead of after.

The following were critical steps taken for the college’s cultural change. First, the college ensured that data would be analyzed for decision making. Second the college institutional research office was structured to support the data gathering and analysis. Third, professional development activities on data use were available across all college departments and staff. A majority of these activities were co-sponsored by the college institutional research and enrollment management offices. Given the drive toward data in all decisions, the college became more adept at determining which data are relevant and how the data sets are then distributed to the viable stakeholders. Testing new concepts informed by IR data and synthesized analysis is now yielding better results for students and the college.

**Designing, Sharing, and Using a Dashboard to Promote Student Outcomes**

Improving the data collection and usage became a more intentional and centralized process at a private, Midwest, four-year institution. Over the past two years, the campus has developed a focused Revitalization and Growth plan designed for immediate growth and improvement, laying the foundation for a new strategic planning process. The plan’s major component focused on retention growth throughout the undergraduate college. This focus called for the development for a useful tool to allow college stakeholders to review, discuss, and analyze the key data points related to student demographics,
retention, and completion. The first step toward accomplishing the component began with the creation of a new college-wide dashboard.

The dashboard illustrates an intentional and centralized strategic planning process, prompted with data analysis. The Office of Institutional Research collaborated with the college deans, registrar’s office, and enrollment management to coordinate this process. According to Tinto (2012), “An institution needs to assess student experiences and its effects on retention. One way to do so is to employ detailed data on student progression through the institution, stratified by student attributes, with data on student experience as provided by the National Survey of Student Engagement” (p. 83). Although information was gathered in the past, it had never been pulled together in a comprehensive, clear, and concise method for leaders to quickly review for decision-making purposes.

Administration was eager to bring organization and clarity to ambiguous piles of data. The dashboard process involved a series of ongoing questions to determine which information was essential versus information better presented elsewhere. Everyday items were added, subtracted, moved, or reorganized in search of a presentable table that could be reproduced each semester to quickly update key leaders on essential items related to student success and completion. This view included: information regarding student demographics; college-wide information on enrollment, retention, and graduation rates; breakdowns across academic programs; and participation numbers and impact of key involvement areas such as residential students, athletics, and the performing arts.

Upon completion of the dashboard, information was widely distributed throughout the campus. Campus leaders understood the first way to improve student success began with a thorough review of current practices. The leaders also recognized the value of all campus stakeholder involvement. This all campus involvement happened at many levels including president’s cabinet, college meetings, the dean’s leadership team meetings, division meetings, and performance areas such as fine arts and athletics. By distributing the information, many areas across campus were encouraged to sift through the information, ask questions, and identify areas of concern and opportunity.

The campus was determined to review the data and use it intentionally. Immediately, the dashboard was used to hold the university accountable for student progress and success, identify at-risk populations on both an individual and aggregate level, and identify areas of concern that needed to be addressed systemically. Discussions regarding the dashboard have resulted in a renewed emphasis on the alignment for essential retention programs. In addition, the process resulted in enhancements for the recruitment and orientation process, the retention committee, as well as a revitalized focus early alert program. Faculty also cite expanded attention to core teaching and learning strategies for improved student classroom experiences. Understanding and using the data to align programs directly with the institutional mission and goals are essential elements to improve student success (Greenfield, Keup, & Gardner, 2013).

**Conclusion**

The three-case study based initiatives presented in this article focus on effective institution-wide retention collaborations. These collaborations successfully integrate best practices for data and program coordination providing enhanced student retention decision making. Success in college, as defined by student retention and academic performance, may be related to other variables or combinations of variables (Sparkman, Maulding, & Roberts, 2012). The best practices for effective big data collaboration from these initiatives are shared in three overarching themes of (a) creating an integral data-sharing community, (b) generating a culture for shared institutional research, and (c) utilizing data to engage collective student retention efforts. Surfing the overabundance of institutional data can cause waves of doubt and inefficiencies. Data surfing can lead to new decision-making trendlines emerging from effective institutional collaboration. These collaborative initiatives demonstrate valuable strategies for efficiently coordinating data resources for student success.
References


Abstract: Academic advisors’ roles and responsibilities have become increasingly complex as completion agendas, performance funding models, and access programs are put in place at both public and private institutions. Leaders are realizing how central quality academic advising programs are to student success, and the pressure is on for advisors to show how their work can impact persistence. Determining the roles of academic advisors, organizational structures, necessary partnerships, and advising outcomes can be difficult, not to mention the complexities encountered in designing information systems that deliver meaningful and actionable data to advisors. Given these challenges, the importance of the call for institutions to fundamentally transform academic advising is urgent. The presenters represent three universities that have recently adopted new approaches to academic advising. Utilizing strategic planning, data analytics and assessment, organizational change, and a transformation of their advising programs, each university designed a system to address the issues surrounding student persistence and success.

Introduction

The University of Tennessee, the University of Cincinnati, and the University of South Florida share an institutional commitment to quality academic advising, but each institution is on a unique journey. Three case studies illustrate different takes on strategies, tactics, and lessons learned from each institution’s experience with adopting new academic advising approaches. Similar themes surface across these case studies related to institutional will to change, stakeholder engagement, attention to operations, resource planning, and focus on outcomes.

Case Study 1: The University of Tennessee

As the University of Tennessee engaged in a refresh of its VolVision strategic plan, it became apparent that academic advising was perceived as being central to student success and persistence to graduation. Improvements in advising programs were implemented under the previous strategic plan, but it was obvious from assessment and student focus groups that gaps persisted in the consistency of delivery, understanding of professional and faculty advisor roles, accessing and scheduling appointments, career exploration opportunities, and the advising of students transitioning between majors, degrees, and colleges. Believing that advising was central to achieving the undergraduate goals of the university, the Provost charged the Associate Provost and Directors of Advising from the nine colleges to develop an advising strategic plan that not just improved advising but would transform advising at the institution.
The process implemented to address the Provost’s charge involved a series of retreats that focused on examining current research and literature on academic advising (Council for the Advancement of Standards in Higher Education, 2015; Gordon, 2006; Kuh, 2005; NACADA, 2006; Schreiner, 2013; Schulenberg, 2013), institutional student success data and reports, benchmarked institutions known for exceptional advising programs, university and college advising assessments, feedback from student focus groups, and results of an internal audit of advising policies, processes and technologies. The group also “mapped” the student advising experience. A number of issues emerged that required attention in order to fundamentally change the university’s approach to advising. Six key points were advanced as the framework for impactful change. They included:

- **An integrated academic advising model**: Integrate academic and career advising with self-exploration and experience learning, providing a common experience for all students
- **New advisor and faculty roles**: Students collaborate with a professional advisor throughout their undergraduate experience and engage in their discipline via multiple forms of faculty mentoring
- **Consistent student to advisor ratios**: Increase the number of professional advisors to achieve consistent ratios across colleges and meet national best practice standards.
- **Transition advising**: Add a new advising unit to support students in transition between colleges and transferring into the university
- **Focused retention strategies**: Use advisors as “front-line” on focused retention strategies (e.g. maintaining financial aid, navigating high-fail courses)
- **Advisor effectiveness**: Increase effectiveness through improved technology tools, reporting, processes, professional development, and assessment

*Advising: The Volunteer Experience* will be rolled out with the entering first-year class summer of 2017. The intended outcomes include improved persistence, graduation, and learning outcomes. The university’s new academic advising model will improve the student experience by focusing on the co-creation of a holistic undergraduate experience, greater access to advisors and faculty, improved student satisfaction with major decisions and academic plans, and greater participation in high-impact practices. In addition, stronger university partnerships will exist and a common advisor professional development program will be designed and implemented. Finally, more efficient use of faculty time will result along with fewer process problems and better use of data and analytics.

Implementing *Advising: The Volunteer Experience* requires a cultural shift across the University community and an alignment with the *Vol Vision 2020* plan and undergraduate goals. During the eighteen months spent on designing and developing the model, several important lessons were learned:

- Early and extensive vetting of a proposed new model is needed starting with university leadership and including all university partners – across divisions and units. Openness to constructive criticism must be a part of the process.
- A resource plan to fund a new model must be a part of the proposal. The plan should be built on specific goals, recent data, and a reasonable time frame for implementation. An assessment plan must be a part of the new model to show ROI.
- For a new university-wide academic advising model to be successfully implemented and meet the desired goals, there must be central coordination and authority at the Provost level. However, a critical success factor is engaging the academic advising community in the design and implementation of the model as well as empowering the community to make decisions based on their expertise and professional knowledge.
Case Study 2: The University of Cincinnati

The University of Cincinnati (UC) has experienced remarkable growth in student enrollment, retention, and graduation for more than a decade. Systemic investments in advising were made during that time, and the desire to maximize the impact of those investments required planning. UC’s Advising Strategic Plan was ultimately born from a culmination of initiatives designed to positively impact student success. Within a three-year period, the statewide Complete College Ohio initiative required institutional Campus Completion Plans to accountably increase the numbers of graduates; UC’s Creating Our Third Century plan instituted a new Student Success Collaborative grounded in advising; and the first university-wide mission and vision of advising was endorsed by Faculty Senate. The timing was ideal.

The Advising Strategic Plan process began by convening a 20-person representative task force, co-chaired by an advising administrator and a front-line advisor with guidance from the Assistant Vice Provost for Advising & Academic Services. The charge issued by the Vice Provost for Enrollment Management was to formulate a strategic plan designed to advance the quality, efficiency and effectiveness of academic advising. The charge included addressing the Complete College Ohio advising and technology strategies. Recommendations were to be guided by the new UC advising mission and vision, with a focus on maintaining the student as the center of the efforts.

The task force began with an analysis of the student and advisor experience at the university. Data were analyzed from the National Survey of Student Engagement (NSSE), the Student Satisfaction Inventory (SSI), and the UC Advising Survey, student-advisor ratios, the UC Advisor Job Satisfaction survey, unit-level advisor feedback, student success data, and other key university metrics. Throughout the process, the task force identified how their recommendations would align with the aforementioned initiatives, NACADA (the national professional organization for academic advising) exemplary practices, and selected research and literature (Aiken-Wisniewski, 2010; Council for the Advancement of Standards in Higher Education, 2015; DeSousa, 2005; Kuh, 2005, 2008). Goals and strategies were developed and vetted through town hall meetings. The final plan advanced through university governance with broad support. The process culminated with unanimous endorsement by Faculty Senate in Spring 2017. Goals and strategies identified to accomplish the charge are as follows:

- **Model exemplary advising practice for all UC students across the advising community.** This goal includes strategies to create technology-facilitated success networks, provide advising continuity for students with full-time advisors, and implement a faculty mentorship model.

- **Model exemplary practices for specialized student advising needs.** This goal includes strategies to reinforce specialized advising for exploratory and transfer students, create intentional partnerships between college and specialized advisors for student needs, and integrate student orientation experiences for special populations such as student athletes and international students.

- **Maximize the impact of advising resources through coordination across the advising community.** This goal includes strategies to implement an assigned advisor model with clear role identification, develop and maintain standardized advising outcomes, adopt more common advising terminology, strengthen relationship and communication among advising units, use enterprise and innovative technology for advising system accessibility, implement an early alert program, and better integrate career advising into daily advising practices.

- **Invest in the quality of advising through advisor hiring, retention, training, and development.** This goal includes strategies to establish and maintain student-advisor ratios that align with national practices, increase diversity among advising staff, formalize and systematize the advisor training and development program with a digital format, offer targeted leadership development to advisors and administrators, systematize the advising career trajectory, and establish an online advising portal for both students and advisors.
• **Become an industry leader in assessment of student advising practices.** This goal includes strategies to systemically align tracking of advising activity, identify and regularly assess key advising outcomes, and identify student outcomes to assess advisor effectiveness.

The Advising Strategic Plan included hiring of ten academic advisors to meet advisor-to-student ratio targets. Advising positions were aligned within a career ladder structure and supported with professional development, including NACADA training and an online advisor training program. The advising model shifted to an assigned advisor plus faculty mentor model and a new Center for Pathways Advising and Student Success was created. UC developed an online advising portal for students, advisors, and faculty and implemented an early alert system. Advising staff diversity increased and advising administrator training included diversity leadership. The development of a university-wide assessment plan is currently underway.

The intended outcomes of the Advising Strategic Plan, as charged, are to maximize the impact on the quality, efficiency, and effectiveness of student advising. This will be measured through student perceptions of advising quality and student engagement as indicated on NSSE, SSI, the UC Advising Experience Survey, and student contact data. In particular, improved outcomes are expected in: student use of advising, advising tools, and/or resources; strengthened structure and outcomes for transfer and exploratory students; improved student learning outcomes; and advisor confidence in the value of their tools and training to support advising efficiency and quality. Ultimately, these improvements are intended to contribute positively to student retention, persistence, graduation, and goal attainment. To date, the Provost’s office has allocated $825,000 in permanent funding to support this strategic plan and many of the early strategies are underway.

The lessons learned in UC’s process focus on people, technology, and outcomes:

- It is critical to create a highly participatory process that results in a plan built by the university community, particularly within a largely decentralized advising model. Appoint leadership from the trenches that you trust and provide clear guidance and structure. Accountability is easier to attain in implementation if the plan belongs to those who will have to implement it.

- Technology acquisition and implementation must be very carefully vetted, planned, and managed. Whether the tools support student information, advising engagement, early alert, academic planning, complex analytics, or simple appointment scheduling, a long list of variables will demand new time and resources. No single system will accomplish all of what is needed at most institutions.

- Accountability mechanisms are key to actualizing a strategic plan. Identify offices and individual personnel to be responsible for each strategy and report the plan’s outcomes regularly.

**Case Study 3: The University of South Florida**

The work of academic advising has long been recognized at the University of South Florida (USF) for its essential outcomes in supporting and enhancing key performance indicators by which we measure progress toward our institutional Strategic Plan goals including first-year persistence, timely graduation with minimal debt, the minimization of excess hours, and more. In recognizing these positive contributions, the USF academic advising community has been inspired by senior leadership to aspire for even greater contributions through redesign of policies, programs, services, structures, and more. A number of key efforts emerged especially during the last five years (as of this writing) in response to these aspirations, and this section focuses on the integration of three initially distinct but now unified efforts that are setting the stage for redesign of nearly all of USF’s student support services.

One of these efforts was the early 2015 submission of a proposal for an iPASS (Integrating Planning and Advising for Student Success) grant from the Bill and Melinda Gates Foundation that built...
on the Student Success Council’s strategic action plan recommendations for enhancing USF’s institution-wide academic advising program. The grant proposal focused on the design and implementation of an academic mapping/tracking system that facilitated both student academic planning and the generation of management information for administrative tracking. After its award, the grant work quickly became a key organizing “springboard” for academic advising redesign work through its collaborative change frameworks rooted in design thinking and change leadership.

Soon after, a charge by the President and Provost called for further immediate increases to USF’s first-year retention rate and the six-year graduation rate of the then-current cohorts. As systematic persistence work with individual students had not taken place at this scale before, the Vice Provost for Student Success (now the Vice President for Student Affairs and Student Success) convened a Persistence Committee composed of leadership from student support service areas across the institution including academic advising, academic advocacy, financial aid, career services, residence life, and many others, charging the group with drawing upon a case management process like that in healthcare to identify and resolve time-sensitive persistence challenges through personalized, integrated support of “whole” students.

As the formative case management process began to emerge through the Persistence Committee in 2016, the iPASS leadership team initiated an engagement with NACADA to bring three experts to USF for a multi-day program review and gap analysis of our institution-wide academic advising program. That engagement directly informed the development of USF’s first Academic Advising Strategic Plan through a highly collaborative process involving leadership, professionals in and out of academic advising, faculty members, and many others.

In fall 2016 an integration of all three initiatives began through a collaborative partnership of the Vice President for Student Affairs and Student Success together with the Chief Information Office (CIO) in commissioning the collaborative design and implementation of a Case Management system in Appian, USF’s Business Process Management (BPM) system, with the design team composed of front-line professionals from each area of the Persistence Committee, in addition to IT. With a long-term goal of creating a “Care Team” of multi-functional professionals assigned to every undergraduate student at USF, the objectives for the case management process and supporting system are to:

- Provide beginning-to-end care for individual students in a holistic, timely way
- Provide proactive support for students in need by identifying possible persistence challenges before they occur
- Expand capacity and generate efficiencies through redesigned communication processes
- Create an effective, dynamic network of service providers
- Move the needle on student persistence

What began as an initiative for supporting redesign of one professional area’s work (academic advising) has evolved to an even larger scale initiative focused on transforming the way that more than ten professional areas organize themselves to support increased levels of student success. Through reflection on this multi-year process, a number of design principles have emerged from learning opportunities including the importance of:

- **Collaboration, communication, and empathy.** Organizational efforts at this level of scale and complexity necessarily involve stakeholders at many layers of the institution with many different backgrounds, contexts, and goals. Cultivating open and sometimes challenging conversations around the different perspectives on the “why’s” of the work are a key aspect for developing common ground where shared action can take place.
- **Attend to people, processes, and systems.** Each one of these three, as well as all three of these together as a larger whole, need attention and cultivation throughout change processes. Since most modern work practices are by people who do processes supported by systems, a change in any one domain calls for adaptive changes in and across the others.
- **Focus primarily on creating healthy conditions for change.** Resistance is a natural response “to” change when it is perceived to be coming “at” oneself or a group from outside;
change leaders, then, should focus not on specifying what the change itself needs to be, but rather on creating the healthy conditions where sought-for changes can emerge from within and grow out.

Conclusion

The experience of the University of Tennessee, the University of Cincinnati, and the University of South Florida demonstrates multiple paths to academic advising transformation. Attention to the operational elements (people, process, technology/systems, resources) as well as high-level strategic vision and outcomes were critical to all three cases.

Each campus experience underscored the importance of institutional leadership, collaboration across units, and thoughtful stakeholder communication. For these campuses, student success was an important component to their strategic plans. The strategic imperative of improving retention and graduation rates allowed the advising efforts to gain buy-in across campus and achieve a necessary level of collaboration with essential partners such as faculty, financial aid advisors, and career development. While tactics were different in each case, the models converge at the strategy of placing students at the center of the advising transformation.

Another common theme was both adding professional advisors to achieve desired ratios and including a plan for ongoing career paths, professional development and training. The role of the advisors changed in these models, and the strategies took into account the need to support advisors in building and refreshing their skill sets.

Each university took an independent and unique improvement path, yet the similarities in the models include an effort to leverage information systems and data to support early intervention efforts and personalize the student experience through relationship development. This goal can be difficult in large university settings, but each model takes on the challenge with innovative ways to better target and personalize advising efforts rather than pursue a “one size fits all” approach.
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What’s in a Nudge? Utilizing Behavioral Science Based Interventions to Promote Student Success

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Abstract: Behavioral intervention strategies can address both the logistical and psychological barriers students face during college, improving student success and completion. These strategies fall on a continuum from simple reminders and alerts to the use of more sophisticated interventions targeting students’ decision-making processes. These types of behavioral interventions are often called nudges. A nudge utilizes behavioral insights to encourage people to act without removing their ability to choose whether or not to act (Thaler & Sunstein, 2009). Nudges use a variety of psychological concepts underlying human behavior to promote and support positive decision-making. These concepts include: social norming, the development of a growth mindset and sense of belonging, and utilization of implementation intention prompts. In addition, seemingly small, short-term behavioral interventions can have lasting effects on students’ behaviors by altering the students’ framework for making behavioral decisions, thus reducing achievement gaps between underrepresented populations and majority student groups. These “wise interventions” promote continued change by targeting recursive or self-reinforcing processes instead of merely prompting the student to change their behavior at one point in time (Walton, 2014). Practical operational strategies including targeting different student populations, implementation challenges, and lessons learned are also discussed.

Introduction

The Challenge of College Completion

Increasing college completion has been a consistent focus of both the federal and state governments as well as of higher-education-focused foundations and organizations, all of whom speak to a growing concern for our economic future as fewer students complete a bachelor’s degree in four years (Complete College America, 2011; Bill and Melinda Gates Foundation, 2012; The State of the Union Address, 2012). Completing a college degree can have a profound impact on the individual student and on our nation as a whole, both economically and in human capital.

While bachelor degree attainment rates have increased (21.3% of people 25 years old and over possessed a bachelor’s degree in 2003 compared to 31.7% of those 25 and older in 2013), graduation rates remain stubbornly low, with only 39% of bachelor’s degree-seeking students who attend a four-year institution completing a bachelor’s degree in four years, and only 59% completing within six years (NCES, 2016) In addition, having once led the world in college completion rates (ranked first in 1990), today, the U.S. is falling further and further behind (ranked 12th in 2013) (OECD, 2013).

Increased completion rates cannot be achieved without increasing student persistence, and increased persistence cannot be achieved without small, incremental increases in student success and self-confidence. In his seminal work, Leaving College: Rethinking the Causes and Cures of Student Attrition,
Tinto (1994) recognized the importance of pre-entry attributes on the persistence rates of college students. Many studies have since demonstrated that some pre-entry attributes place students at high risk for academic failure and attrition. Persistence and completion rate gaps have been found for students who are first-generation, minority, come from a lower socioeconomic category, and/or are academically underprepared. DeAngelo, Frank, Hurtado, Pryor, and Tran (2011) report a 14 percentage point gap in four-year degree completion for first-generation vs. continuing generation peers. Graduation rates for underrepresented minority groups lag behind their Asian American and white peers by 15-30 percentage points. Academically underprepared students also have large degree completion gaps of approximately 30 percentage points. In fact, fewer of the less academically prepared are graduating today as compared to a decade ago (DeAngelo et al., 2011). Membership in these underrepresented groups often overlap compounding the issues faced by these students. For example, low-income, first-generation students are even less likely to complete a bachelor’s degree, with only 11% of these students completing a bachelor’s degree in six years vs. 55% of their more advantaged peers (Engle & Tinto, 2008).

The challenge to higher education institutions is to find new strategies to more effectively support our students on their pathway to graduation and to do so efficiently given an ever shrinking pool of resources. Recent research in behavioral science, psychology and education can provide insight into psychological levers that can be utilized to encourage or “nudge” students into making better decisions from high school to college and to career.

Utilizing Behavioral Insights

Throughout the student lifecycle, from the college admissions, financial aid, and initial registration processes through their coursework, progress to degree and finally to commencement, students are confronted with a myriad of tasks, deadlines, processes, and challenges large and small that must be successfully navigated to remain on track for completion. These issues can be both logistical—deadlines, degree requirements, bureaucratic processes—and psychological—students’ sense of belonging, engagement, college-going identity, etc.—and can easily become insurmountable barriers that can knock students off-track either temporarily or permanently.

Numerous recent studies have found that seemingly small, short-term behavioral interventions can have a lasting effect on students’ behaviors, reducing achievement gaps between underrepresented populations and majority student groups both at the K-12 and post-secondary levels (Blackwell, Trzensieski, & Dweck, 2007; Walton & Cohen, 2007, 2011; Stephens, Hamedani & Destin, 2014; Yeager et al., 2016). These types of behavioral interventions are often called nudges. A nudge utilizes behavioral insights to encourage people to act without removing their ability to choose whether or not to act (Thaler & Sunstein, 2009).

A Continuum of Behavioral Interventions

Behavioral interventions exist on a continuum from the simple email reminders of deadlines to more sophisticated strategies targeting the psychological processes underlying the decision-making (Figure 1). Behavioral intervention strategies can be utilized to address both the logistical and psychological barriers students face during their college careers. Strategies addressing logistical barriers can be classified as reactive strategies. The strategy is designed to help the student react to an approaching logistical barrier. Emails or other communications to students about upcoming deadlines, registration periods, or reminders of tasks that need to be completed are all examples of this simplest type of intervention. The email acts as a trigger, reminding students that it is time to act and of the action required. Strategies that address the psychological barriers faced by students are classified as proactive strategies. These strategies utilize an understanding of the psychological principles and cognitive biases underlying the decision-making process. By addressing these issues, students can be nudged both to act now and, by changing how a student responds to challenges, primed to overcome barriers encountered in the future.
Just-in-Time Alerts

Most college and universities use some type of just-in-time alerts. Just-in-time alerts require an understanding of the logistical barriers that a student faces at all levels of the university and during the entire student lifecycle. These alerts can range from simple email reminders about approaching logistical deadlines to more elaborate early alert programs utilizing a retention management platform to automate communication of these alerts to students, advisors, faculty and student services staff. In addition, just-in-time alerts can include general reminders and notices to the entire campus community or targeted communications to individual students. Alerts can be manual, raised by faculty or administrative offices, or automated, utilizing data from student information systems (SIS), learning management systems (LMS), or other data systems on campus.

While communications surrounding institutional deadlines are most often utilized, more sophisticated communications targeting specific student groups or even individual students have become more common with the rise of retention management software platforms and customer relationship management (CRM) systems. Examples include: notification of students if they have not logged into their course LMS for a set period of time; early alert surveys of faculty that trigger emails to students with information on how to remediate their specific issues; and automated alerting of students to approaching curricular hurdles such as needing to complete a pre-requisite course by a particular semester to stay on track for on-time graduation.

Process Redesign

Student responses or non-responses to just-in-time alerts and communications surrounding upcoming potential barriers can be combined with qualitative student feedback concerning perceived obstacles to completing logistical tasks to provide the information necessary to redesign institutional processes from a student-centered perspective. Utilization of psychological concepts such as cognitive load or bandwidth (Sweller, 1988) and other behavioral levers discussed below can inform this process redesign ensuring that the new processes are developed to promote student success. This approach can be utilized at all institutional levels from processes within a single office or course to curriculum design at the major or degree level to enterprise-level processes. Indeed many of the lower-level logistical barriers faced by students during college are remnants of historical administrative processes and needs which, while no longer needed from a technology or process standpoint, are codified into the ongoing operation of the office or unit. Redesigning these historical artifacts can require as much knowledge of the
psychology of change management as knowledge of the student experience as these redesigns often involve a change in office or institutional culture. National organizations such as the National Center for Academic Transformation, Achieve the Dream, the University Innovation Alliance, Complete College America, the Lumina Foundation and the Gates Foundation Integrated Planning and Advising for Student Success program have all focused on helping institutions re-design their business processes from the individual course level through to the institutional and even, inter-institutional pathways to degree completion.

**Behavioral Science-Based Communications**

Behavioral science-based communications utilize psychological levers to nudge students into action. These strategies require a more sophisticated knowledge of both the psychological processes of decision-making and motivation and the variety of psychological barriers and challenges faces by students’ during the college student lifecycle. Stanford psychologist Gregory Walton suggests that nudges work best when they are “wise interventions,” meaning that they are targeted to the specific psychological processes that are contributing to the problem and are recursive or self-reinforcing (Walton, 2014). Behavioral science-based communications aim to be psychologically precise. Instead of merely communicating to a student about an approaching barrier, these communications are targeted specifically at the mental processes that underlie the student’s behavior, thus not only notifying them that an action needs to be taken, but nudging them into action.

While behavioral science-based communications may include just-in-time alerts that notify students of logistical barriers, these communications use language specifically crafted to target students’ mental decision making and action implementation processes. For example, one such strategy may be to prompt students to develop and commit to an implementation intention. Implementation intentions utilize a specific situational context as a trigger for performing an action—i.e. “If Situation X is encountered, then I will perform Behavior Y” (Gollwitzer, 1999). Implementation intentions can be utilized to increase the likelihood that students will act on their plans. When people are prompted to plan when and where they will perform a behavior, such as getting a flu shot or voting, they are more likely to follow through on the behavior (Milkman, Beshears, Choi, Laibson, & Madrian., 2011; Nickerson & Rogers, 2010).

**Recursive Interventions**

Recursive intervention strategies are both more sophisticated and more impactful because instead of merely prompting a person to change their behavior at one point in time, these wise interventions actually promote continued change by altering the person’s framework for making behavioral decisions (Walton, 2014). Prompting a student to form an implementation intention to study for a test can help the student succeed on that test, teaching the students to utilize implementation intentions as a strategy for goal achievement and time management is a recursive intervention. As with success, students will continue to utilize the strategy and may expand its use to novel challenges.

The frameworks we use as behavioral short-cuts in decision-making can also be called lay theories. Just as researchers use theories to help them understand underlying cause and effect relationships, people use lay theories to help them understand the cause and effect of challenges or adversities they encounter in their daily lives. While most of us are unaware of the lay theories we utilize, these lay theories can be particularly problematic for students in demographic groups who are underrepresented and/or face social disadvantage in higher education (Figure 2). Recent research suggests that helping students develop a new lay theory of the transition to college, which involves reframing the challenges and adverse experiences encountered as a normal and common part of the college transition, can result in increased coping and engaged behaviors such as seeking help when needed and utilizing campus support services (Figure 2) (Yeager et al., 2016; Stephens et al., 2014).

Recursive interventions require the most knowledge of the individual student or student group. Students in different demographic groups may have different underlying motivations and may respond differently to an intervention. For example, Stephens, Fryberg, Markus, Johnson, and Covarrubias (2012) demonstrated that the focus of most American universities on independent goals negatively impacted the
performance of first-generation students, while a difference education program explicitly discussing these differences improved first-generation students transition to college and academic performance in college (Stephens et al., 2014).

Psychological levers that can be utilized in designing recursive intervention strategies include social norming, social belonging, and the growth mindset theory of intelligence. Social norming is the process by which people use the observed behavior of others to inform their own behaviors when they encounter new situations (Cialdini et al., 2006). Social norming strategies can be utilized both to promote adaptive behaviors such as help-seeking behaviors and to discourage maladaptive behaviors such as binge drinking by correcting students’ misperceptions of the true prevalence of these behaviors (Haines, 1996). Social belonging has been found to be a primary predictor of student retention (Robbins et al., 2004). Social belonging and social norming strategies include helping students realize that many students experience challenges during the college transition, understand that these challenges including feelings of not belonging are transient, and respond with appropriate actions to persevere through these challenges (Figure 2) (Yeager et al., 2016). A third psychological lever that can be employed is the development of a growth mindset. Students with a fixed mindset believe that intelligence is a fixed trait and that their understanding of new material is related to their own inherent intelligence, not effort, and therefore seeking help would only reinforce their sense of inadequacy (Blackwell et al., 2007). Interventions that help students understand that intelligence is not fixed and can improve with practice have been shown to improve student academic success, particularly in underrepresented demographics (Yeager & Walton, 2011).

![Figure 2: Theoretical model by which lay theories affect disadvantaged students’ behavior and academic outcomes across the transition to college (Yeager et al., 2016)](image)

Importantly, even though these interventions are small and occur across a short time period, the effects can last for years due to their self-reinforcing nature—as students encounter and successfully overcome new challenges, their new beliefs in their ability to overcome additional challenges are supported and reinforced (Figure 2) (Yeager et al., 2016; Stephens et al., 2014). Thus, the effects of this behavioral intervention on student achievement and success could persist well beyond their first year, to college completion and into their careers.
Translating Research to Practice

Paul Smith’s College

*Impacting Student Success, Retention and Completion Through Alerts and Process Redesign*

Winning three national awards for its comprehensive student success program (CSSP), Paul Smith’s College (PSC), a small (~1,000) private college in the Adirondack Mountains of New York State, utilized the Starfish Retention Management Platform to create a campus-wide information and communications hub to monitor student progress. The CSSP utilized a mix of automated and manual just-in-time alerts which were sent to students as well as advisors and other student support staff who had relationships with those students. These just-in-time alerts fell into three major categories: classroom performance feedback from the Week 4 Early Alert Survey of faculty, Midterm Grade Alerts for grades below a C, and continuous monitoring with both automated and manual alerts being raised on students. Effectiveness of the alert emails was demonstrated in a natural experiment during the Fall semester of 2010 when a technical problem prevented the normal midterm grade below a C warning emails from being sent until 2-3 weeks late (week 10-11 vs. the end of week 8). As seen in Figure 3, students who had a D at Midterms were less likely to end up passing the class with a C or better when the emails were delayed (54%) vs. semesters when the emails were sent on time (60-62%).

![Figure 3: Effectiveness of Midterm Grade Alert emails warning of grades below a C (Taylor, unpublished data)](image)

Summary data on the alerts were used to redesign business processes in the student support areas. Course level information allowed for more precise targeting of tutoring resources to high challenge courses. In addition, utilization of key performance indicators such as tracking successful student outreach contacts as a result of Week 4 Early Alerts indicated a need to redesign the processes of student outreach. Retooling the outreach processes through better advance planning, organization and communication strategies resulted in a tripling of the number of students successfully helped in the first week after the Early Alert Survey (McAleese & Taylor, 2011). Continuous refinement of the communication strategies using social norming to improve help-seeking behaviors and sense of belonging, as well as intervention strategies targeted to different student groups at different points in the semester (Taylor & McAleese, 2012) has resulted in a continuing increase in the responsiveness of students to outreach attempts and an increasing number of students taking advantage of voluntary support programs (Figure 4).

Utilizing a mix of automated and manual just-in-time alerts sent to both students, advisors and student support staff, PSC’s program resulted in an increase in net student revenue of over $2 million in...
the first two years of the program and over $6 million over 5 years. These increases were due to increased retentions rates for all classes, freshmen to juniors. Two-year, on-time graduation rates for associate degree seeking students increased by 74% from a prior three-year average of 18% to over 30% (Fall cohorts from 2005-2007 vs. 2012) and four-year, on-time graduation rates increased 22% for bachelor’s degree seeking students (Fall cohorts from 2003-2005 vs. 2010) (Taylor, unpublished data).

Ohio University

Normalizing the Transition to College for First-Generation Students

As a research-intensive institution and the largest institution of higher education in southeast Ohio and the surrounding region with approximately 40,000 students, Ohio University (OHIO) pursues innovation and cutting-edge scholarship while balancing its mission of access, education, and hope to its community—the impoverished, rural Appalachian foothills. Representing approximately one-third of the entering class, OHIO first-generation students are also more likely to fall into other demographic groups that historically underperform in high education including underrepresented minorities and low socioeconomic backgrounds. Despite high-impact support programs such as the OHIO First Scholars program, OHIO first-generation students lag continuing generation students in end-of-first-semester GPA (2.76 vs. 2.99, respectively), first-year retention rates (75.2% to 82.4%), and four-year graduation rates (39% vs. 48%, Fall 2012 entering cohort). With a grant from the Konneker Foundation, OHIO will be utilizing both a lay theory intervention and text-based mobile nudging to reduce the achievement and completion gaps between new first-generation students and their continuing generation peers. Beginning in June 2017, the MyOHIO ADVICE (Attaining Degrees via Influencing Community and Engagement) program is designed to provide first-generation students with a recursive, educational session during their Bobcat Student Orientation. This short (~40 minutes) in-person session helps students build a sense of identity and community in their shared first-generation status, introduce the concept of implementation intentions, and norming both valuing interdependent goals and help-seeking behaviors. This recursive intervention will be reinforced and supported throughout the students’ first year with text-based mobile nudges and reflective exercises designed to reinforce the lay theory intervention.

OHIO is also an institutional partner of the University of Virginia on a $4 million Institute for Education Sciences grant awarded to the University of Virginia to study the effects of nudging on students who are nearing completion of their college degrees.
SUNY College at Brockport

*A Multidimensional Behavioral Interventions in Student Affairs*

A comprehensive public college nationally recognized for its focus on the success of its 8,000 plus students, SUNY College at Brockport has been a leader in utilizing behavioral interventions throughout the institution. In particular, Student Affairs provides rich opportunities to infuse “nudges” throughout the student lifecycle, specifically in the co-curriculum. Residence life areas are uniquely positioned to use behavioral science research to inform both policy and practice, providing opportunities to intervene both reactively and proactively in comprehensive ways. While student retention programs are often challenged by student participation, residence life provides a direct audience of primarily first- and second-year students along with access to students without the reliance on students physically going to a support service office, thus removing another barrier to action.

SUNY College at Brockport provides a useful case study to highlight various reactive and proactive behavioral intervention strategies that maximize nudges and other retention efforts in student affairs, specifically in residence life. This multidimensional, departmental approach is coordinated with divisional and institutional efforts in financial aid, academic affairs, student retention, and across various departments.

Reactively, the Residential Life/Learning Communities (RLLC) Early Warning System identifies nontraditional early warning predictors and intervention opportunities. Residence hall staff reports and addresses early warning indicators such as lack of engagement in residence hall activities, perceived isolation, class attendance concerns, lack of involvement in academic intervention efforts, and lack of responsiveness to referrals, specifically to counseling and advisement. This system exists in the same database as disciplinary files, providing a more complete picture of student behavior that allows the professional staff in each residence hall to reactively intervene and provide resources for success. The RLLC Early Warning System is integrated with other institutional retention initiatives such as the Early Warning Team and the Behavioral Intervention Team, highlighting intentional collaboration to support student retention.

The strategic management of the resident assistant (RA) program, specifically related to recruitment and retention, is aimed at decreasing logistical and psychological barriers. Much research highlights the need for more diverse representation in student leadership roles, which can improve retention through increased sense of belonging among students (Carter, 2006; Harper et al., 2011; Deluga & Masson, 2000). Institutional data was collected in 2014 related to the experiences of ethnic minority RAs, providing opportunities for recruitment and program improvements that led to the successful increase in student staff diversity (14% in 2014 to 33% in 2016).

A more sophisticated approach to “nudging” students towards success is the Living Learning Communities (LLC) Program, which bridges formal academic experiences with intentional, strategic co-curricular programming and support. Since the LLC program’s inception in 2008, LLC students were retained at a higher rate compared to non-LLC students living on campus, ranging from 4.1% to 7.4% (average of 5.3% higher). LLC students (47.80%) were more likely than non-LLC (41.21%) students to graduate in four years or less. The retention rate of students who participate in the LLC program is 10% higher than the general student population. Through the intentional LLC programs and resources, students learn how to respond when they meet a challenge in the future, such as navigating complex college processes like advisement. LLC students form supportive relationships with faculty, decreasing intimidation, and increasing sense of belonging. Another element of this program is the tutoring program that is offered within the residence halls at nontraditional hours to meet student needs. These programs and services not only remove logistical barriers but also assist with the psychosocial and academic adjustment to college, increasing sense of belonging while providing tools and strategies for success.

University of North Texas at Dallas

*Mobile Nudging to Completion*

University of North Texas at Dallas (UNT-Dallas), a transfer-majority campus of 2,200 undergraduates, integrated mobile nudging as part of a coordinated effort to support “near-completer”
students—that is, students at 50% of their degree completion or higher. A historically under-researched population, near-completers often continue to face the same types of informational, behavioral, and psychosocial barriers experienced as underclassmen, but without the structured supports that typically focus on first-time students. Understanding credit transfer, course selection, or major requirements can present real obstacles for these students, who often understandably spend the bulk of their cognitive bandwidth on juggling work schedules and family commitments, leaving little left to attend to the details of various procedural requirements. Throughout Fall 2016 and Spring 2017, a subset of UNT-Dallas juniors and seniors received mobile behavioral nudges designed to help students manage their time, feel more connected to peers and to campus, and boost the academic mindsets and habits correlated with college success. Sent 2-3 times per week to students’ mobile devices, nudges leverage psychosocial levers such as social norming, the development of a growth mindset and sense of belonging, and utilization of implementation intentions.

At UNT-Dallas, the partnership with Persistence Plus led the campus to embark on a process redesign that adjusted how they approach communication about graduation applications. Specifically, UNT-Dallas students were reminded via mobile nudge of an upcoming graduation application deadline and prompted to indicate whether or not they planned to graduate in the Fall term; of respondents, 15% indicated they were “unsure” of their plans. Thus, the mobile nudge that reminded students of the graduation application deadline revealed an information barrier students were facing about their own academic progress, a barrier that risked students who may be eligible for graduation not actually doing so on time. Identifying this particular student knowledge gap and subset of students affected allowed UNT-Dallas to design and execute a tailored outreach and subsequent redesign. Through system analysis and direct student outreach, academic advisors learned that many of the students were transfer students who were not sure whether their prior courses had transferred—even when they had come from colleges with strong articulation agreements with UNT-Dallas. Some students had received outdated information from a degree audit tool and the college was able to dispel the misinformation. And in some cases, students were eligible to graduate and UNT-Dallas told them to file so that they would walk across the stage on time.

Middlesex Community College

Reducing Attrition through Goal Setting and Social Belonging

Mobile nudging has also played a key role in the student success strategies at Middlesex Community College (MxCC) in Middletown, Connecticut. Through goal-setting and accountability as well as social belonging boosts, mobile nudges at MxCC promote continued change in student behavior through recursive interventions rather than one-time change (Walton, 2014). To achieve this, text-based mobile nudges encourage the development of weekly goals, both prompting students to self-establish goals, as well as suggesting key goals such as meeting with a faculty member, visiting a tutor, or helping a peer. Student responses to one goal-setting prompt (“It's good to get the week started off right by checking something off your to-do list. What's one goal you have for today?”) can vary from personal to academic as students juggle their many commitments (“Join a club,” “Read & annotate 3 of the poems due Thursday,” “Hand in my quiz before the weekend for medical terminology”). By encouraging goals established around a particular time frame (e.g. “What’s one goal you have for today?”), students recursively learn the skill of balancing short-term and long-term goals. Mobile nudges also included a focus on social belonging, that is, the important sense of “fit” with an institution and the feeling that your personal presence as part of a social group matters. To facilitate perceptions of belonging, MxCC students received nudges asking them to name who on campus has been most supportive (“Everyone needs help & support from classmates, profs, and staff to get through college. Who’s your biggest supporter at MxCC?”) By both normalizing the need for support and pushing students to self-identify on-campus supports, the nudge aims to boost campus connection, an important form of a recursive intervention. As personal connection to campus increases, so does one’s sense of commitment to completion (Walton, Cohen, Cwir, & Spencer, 2012).

Since 2013, MxCC and Persistence Plus have collaborated to provide nudges to incoming students, and outcomes are promising: The participating cohort at MxCC had a seven-percentage-point
higher fall-to-spring retention rate (73%) in 2013-2014 than the general population (66%). Even more striking was the 78% retention rate of first-generation college-goers in the participating cohort—a population that has, on average, twice the rate of attrition of students who are not first in their family to attend college (Chen, 2005). Results have continued to prove out over multiple academic years, including a randomized controlled trial of returning part-time students that indicated a fall-to-spring retention rate three percentage points higher and a spring-to-fall retention rate five percentage points higher than students in the control group; effects remained especially strong within the first-generation college-going population.

**Conclusion**

Behavioral science offers a number of critical insights into the design and implementation of student intervention strategies which are both effective and efficient at scale. Behavioral science-based interventions exist on a continuum ranging from simple, just-in-time alerts and communications to more sophisticated and more impactful practices such as recursive, educational programming designed to alter students’ underlying thought and decision-making processes (Figure 1). Many institutions already employ these simple alerts and communications to notify students of upcoming barriers. By utilizing the knowledge gained from these alerts and listening to student feedback, institutions can address the logistical barriers that students face on their pathway to graduation in multiple ways: 1) remove the barrier entirely, 2) improve the bureaucratic processes of complying with the barrier, or 3) improve the communication strategy notifying students of the barrier and providing the information needed to successfully overcome the barrier. With an increased understanding of behavioral science-based interventions, key psychological levers can be employed to nudge students into actions consistent with their short and long term goals by reducing psychological barriers to action. Finally, short-duration but highly impactful recursive interventions can proactively prepare students for future challenges during their college career by removing psychological barriers to persistence and completion.

Mobile nudging intervention strategies can be utilized both as a stand-alone support for students and/or as follow-up support for in-person behavioral intervention programs. Supporting students by implementing a mobile nudging intervention strategy requires a number of campus considerations such as access to student mobile numbers, cohesion of mobile nudge strategy within other ongoing supports, and capacity to respond to ongoing insights from mobile nudging results. Access to student mobile numbers is the most basic of considerations: do we have a majority of student cell phone numbers for the target population? If the intervention will be implemented across entirety of student body, what is the approximate percentage of accurate student cell phone number data? Second, a mobile nudge intervention is designed to fit within the existing web of supports, so third party vendors or the offices running the nudging campaign require up-to-date information regarding student supports and best paths for students to access help.

Finally, the campuses that benefit most from a mobile nudge strategy are those that have capacity and willingness to refine practices and redesign student-facing processes quickly as a result of nudge feedback indicating that students are struggling with a particular process, deadline, or shared obstacle.
References:


A Mixed Methods Approach to Understanding the Five Dimensions of Personality and Academic Persistence

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Abstract: More than 50% of doctoral students drop out of their doctoral programs (Gardner & Gopaul, 2012). The purposes of the current mixed-methods sequential explanatory study were to examine the relationship between doctoral student personality types and persistence and to explore doctoral students’ perceptions of the impact of personality types on their persistence. The theoretical framework of educational psychology and retention guided the study. The overarching research questions were used to determine whether a significant correlation existed between doctoral students’ personality types and their persistence, and to determine how doctoral students’ perceptions of personality types influenced their academic persistence. A mixed methods sequential explanatory study was conducted using the correlational and multiple case study designs. In the first stage, 47 participants completed the college persistence questionnaire and the 5-factor model. In the second stage, 11 participants completed semi-structured interviews. The statistical tests included the cross-tabulation with associated chi-square, independent samples t test, and analysis of variance. The thematic analysis was used to uncover themes from the interviews. Results indicated a statistically significant relationship between neuroticism and academic persistence. Within-case analysis showed themes in the personality traits extroversion and conscientiousness. Cross-case analysis themes included cognitive load, finances, dissertation chairs, committee, professors, and institutional and peer support.

Research Problem and Purpose of Study

The issue of student retention across all postsecondary educational level has spanned 30 years, but researchers have focused exclusively on undergraduates. The lack of studies focused on graduate students is problematic because more than half of doctoral students drop out of their academic programs (Gardner & Gopaul, 2012). When doctoral students prematurely end their educational journeys, they encounter emotional turmoil, and both the institutions and the students experience financial losses. Understanding students’ behavioral tendencies may provide educational stakeholders with the information needed to take a proactive approach to addressing academic persistence. Therefore, the purposes of the current mixed-methods sequential explanatory study were to examine the relationship between doctoral student personality types and persistence and to explore doctoral students’ perceptions of the impact of personality types on their persistence.

Theoretical Framework

The theoretical framework is based on the following retention and educational psychology theories: Knowles’s adult learning theory (andragogy), the Five Factor theory, Summerskill theory of retention, Vygotsky social learning theory, and Bandura social cognitive theory. The essential empirical foundation for understanding adult learners dates back to Knowles’s (1984) theory of andragogy—the way in which adults learn—which included the assumptions that adult learners are self-directed, experienced, developmental, and problem-centered. Psychologists proposed that personality traits fall into five categories, which include openness to experience, conscientiousness, extraversion, agreeableness,
and neuroticism. Summerskill’s (1962) theory explained that the reasons why students leave college were complex but related to psychological factors. Vygotsky’s (1978) theory of social learning showed that social interactions play a role in cognitive development. The Bandura Social Cognitive Theory posits that behaviors are what individuals learn through internal motivation (Bandura, 1986).

Research Questions

Quantitative Research Questions
The quantitative research questions in the current study were as follows:
Is there a significant correlation between doctoral students’ personality type and persistence?
Subquestions included:
1. Is there a significant correlation between doctoral student’s openness to experience and their persistence?
2. Is there a significant correlation between doctoral student’s conscientiousness and their persistence?
3. Is there a significant correlation between doctoral student’s extraversion and their persistence?
4. Is there a significant correlation between doctoral student’s agreeableness and their persistence?
5. Is there a significant correlation between doctoral student’s neuroticism and their persistence?

Qualitative Research Questions
The qualitative research questions for the current study were as follows:
How do doctoral students’ perceptions of personality types influence their academic persistence?
Subquestions included:
1. How do doctoral students describe their personality types?
2. How do doctoral students describe their academic persistence?
3. What are doctoral students’ perceptions of the influence that personality types have on their academic persistence?

Research Design, Data Collection, Methods, and Data Analytic Procedure
The mixed methods sequential explanatory study employed the correlational design and the multiple case study designs. The initial sample included 170 participants; only 47 participants completed both instruments. The final sample included 47 participants in the quantitative stage and 11 participants in the qualitative stage.

The researchers used the convenience and snowball sampling methods to gain participants for the current study. In the quantitative phase, participants received the links to the study from SurveyMonkey® via LinkedIn® and Facebook®. A question on the SurveyMonkey® questionnaire asked participants to take part in the qualitative part of the study. The instruments used were the Five-Factor Model and College Persistence Questionnaire Instruments. The Five-Factor Model, a validated instrument, asks participants to rate their personalities on a 5-point Likert scale in the following categories: include openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism. The validated College Persistence Questionnaire instrument included variables associated with retention and scored on a 5-point Likert scale.

The Statistical Package for Social Sciences® (SPSS) computed the statistical tests for the quantitative strand. The statistical tests included the cross-tabulation with associated chi-square, independent samples t-test, and Analysis of variance (ANOVA). In the qualitative portion of the study, the multiple case study was used which occurs with the analysis of within case followed by the cross-case analysis. The thematic analysis allowed the researchers to narrow down a vast amount of information into...
patterns or themes. After the data collection process, the researchers reviewed in-depth the material to create familiarity with the data and to search for themes and patterns. The next step involved using a Word® Cloud tool to produce the initial codes. After that, the initial themes were sorted into main themes or subthemes, and the remainder discarded. The latter stages involved reviewing the themes, naming the themes, and writing the report. The themes were analyzed with each case and across all cases.

**Results**

The study suggested that persistence is trait dependent; meaning personality traits influence academic persistence. In the quantitative strand, the personality trait of neuroticism showed the highest persistency; students who scored high in neuroticism persisted.

For the qualitative component, the results of the within case analysis are followed by the cross-case analysis. Doctoral candidates rated their personalities highest in conscientiousness and on both ends of the extraversion scale. They also described their academic persistence as strong and explained that their upbringing influenced most their academic persistence. Concerning their personality, candidates explained that their strong sense of self and independence helped them to persist academically.

Doctoral graduates rated themselves low in extraversion and high in conscientiousness. When asked to describe their academic persistence, doctoral graduates related their responses to self-determination and family. They explained that self-control was the most important factor in academic persistence.

Doctoral students highlighted dominance in the personality traits of conscientiousness, extraversion, and agreeableness. Participants explained that their academic persistence was strong because they wanted a better quality of life. Participants further explained that their self-motivation caused them to persist through the program.

Doctoral students who dropped out of their programs (Doctoral Drops) scored low in agreeableness and on both ends of the extraversion scale. Participants indicated that they exhibited high conscientiousness for the duration of the program, but funding affected their decisions to remain in the program. Participants reported that their positive attitudes influenced their discipline, which in turn influenced their academic persistence.

The cross-case analysis showed themes of personality types, cognitive load, finances, dissertation chairs, committee, professors, and institutional and peer support.

**Conclusions and Recommendations**

The quantitative analysis revealed a statistically significant relationship between high scores of neuroticism and academic persistence in doctoral students. In the qualitative analysis, namely, the within case analysis, participants described themes highest in conscientiousness, and on both ends of the extraversion scale, indicating that some were introverted and others extraverted. In the across case analysis, again the themes of conscientiousness and extraversion emerged. Other themes included cognitive load, finances, dissertation chairs, committee, and professors.

It was unexpected to identify a statistically significant relationship between neuroticism, a negative trait, and academic persistence. Interestingly, participants provided responses in the qualitative analysis that aligned closely to neuroticism, but during the interviews, many did not describe themselves as neurotic. The unexpected result of neuroticism could be due to counterfactual thinking. In other words, missed opportunities or negative feeling that surface from missed opportunities will often trigger future positive behaviors. Another reason participants may not have rated themselves high in neuroticism—or in some cases rate themselves at all—could be based on the embarrassment of describing themselves in a negative light. This idea supports Roger’s (1951) Concept of the Self, which suggested that discrepancies exist between a person’s self-perception and the ideal self.
The limitations of the study involved the amount of participants and the survey questions. It would have been beneficial to have a larger sample, but many participants did not complete both instruments. Linking both surveys would have allowed the 170 participants to complete all the information instead of completing only one of the instruments. In retrospect, asking demographic information on the quantitative surveys could have yielded more data.

Results from both the quantitative and qualitative sections of the current study indicated that academic persistence is trait-dependent; there is a strong relationship between some personality types and academic persistence. When asked to describe their personality, participants in the study often asked for an example, or they described their personalities in terms of Type A or Type B. Presumably, the lack of awareness of personality types also existed at an administrative level in higher-level institutions. Therefore, the result of the study can benefit high education leaders, doctoral students, and those who offer psychological services.

Recommendations for future practice include (a) provide psychological support for students and faculty, (b) require program chairs and committee members to provide doctoral students with feedback in a required time, (c) implement peer mentoring programs, (d) provide more financial assistantship programs for graduate students, and (e) provide an Introductory Life Skills Course, which teaches emotional management. Recommendation for future research includes the investigation of (a) the role of the cognitive load theory in doctoral student education, (b) neuroticism and academic persistence in doctoral students, and (c) emotional intelligence as a predictor of academic persistence.

The purposes of the current mixed-methods sequential explanatory study were to examine the relationship between doctoral student’s personality type and persistence and to explore doctoral students’ perceptions of the impact of personality types on their persistence. The main aims of the study were to draw awareness to the high attrition rates in doctoral programs and to recommend ways of reducing the high attrition rates in doctoral students. Themes that emerged included the personality traits of extraversion, conscientiousness, and neuroticism. Other themes included cognitive load, finances, faculty, and support.

Acknowledgement

This short paper is based on my dissertation. The full article can be found at: https://juniperpublishers.com/pbsij/pdf/PBSIJ.MS.ID.555598.pdf
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A New Perspective of Studying Underrepresented Minority College Students’ Second-Year Retention: The Possibility of Data Visualization of Predictive Analysis

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Abstract: Previous studies have explored considerable indicators that are significantly associated with the outcome variable of underrepresented minority (African-American, Hispanic, Native American and Pacific Islander) students’ second-year retention. However, the challenge of applying predictive analytics in higher education is that it requires at least some amount of statistics background to build up, interpret and understand the predictive models. Hence, the current study focuses on the amplification of predictive analysis at Portland State University by applying SPSS and IBM WATSON analytics to examine underrepresented minority students’ freshman to sophomore retention at the University. The findings of logistic regression analysis have been imported into IBM WATSON and visualized data analysis has been performed in order to provide meaningful data evidence for decision making in the university.

Purpose of the Study

The purpose of this study is to investigate the predictive relationship between the demographic, academic, financial, sociological, psychological, technical factors and underrepresented minority students’ freshman to sophomore retention at Portland State University (PSU). This study conducted logistic regression analysis to see if there’s a significant correlation between underrepresented minority students’ second-year retention and the factors of demographic, academic, financial, sociological, psychological and technical categories (sociological, psychological and technical data have been collected through a survey instrument—UMSSSS—during the second phase of this study). The goal of this study is to help administrators and researchers to further understand the problem of underrepresented minority students’ adjustment at PSU so that more measures will be taken to facilitate their adjustment to the new learning and living environment at the University.

Statement of the Problem

Underrepresented minority students play a significant role in enhancing the campus diversity at Portland State University. These students have become an essential component of the overall multicultural structure of PSU. Previous studies (Carter, 2006) found that the research about underrepresented minority students usually emphasize the field of cultural adjustment, academic stress, emotional anxiety, life satisfaction and so forth when they study in colleges and universities. These studies examined underrepresented minority students’ overall interpretations of higher education campus culture and their learning and adaptation experiences. However, very few studies provide a deep explanation of the framework of social support theories related to underrepresented minority students’ academic success, and the inclusive analysis of the correlation between the predictors of sociological, psychological and technical support and underrepresented minority students’ academic success while studying at U.S. higher educational institutions (Rose-Redwood, 2010).
Literature Review

Researchers have found out that it is difficult to accurately define academic success, especially in underrepresented minority student study. Nevertheless, educational researchers and higher educational institutions agree that two measurements contribute importantly to underrepresented minority students’ academic success including GPA (grade point average) and completion of degree. These two measures have been frequently used to assess underrepresented minority students’ academic success. Previous researchers believed that these two measures evaluate different aspects of underrepresented minority students’ academic success (Wimberley, McCloud, & Flinn, 1992). However, GPA alone cannot necessarily predict a student’s academic success which is an inclusive concept involving the elements of knowledge learning, research skills, employability, potential earning, professional development, comparative ability and so forth.

Previous researchers—for example, Hlebec, Kogovsek, and Ferligoj (2011)—also studied the potential predictors of underrepresented minority students’ academic success. They reviewed the educational persistence models and motivational theories which performed meta-analysis of previous studies concerning academic success in underrepresented minority students. In these studies, nine categories were included to predict underrepresented minority students’ academic success: achievement motivation, academic goals, institutional commitment, perceived social support, social involvement, academic self-efficacy, general self-concept, academic-related skills, and contextual influences (including financial support, size of institution, and institutional selectivity). They found that none of these categories were reciprocal to academic success. However, they considered GPA as the main measure of academic success. They also discovered that among all these predictors, academic self-efficacy and achievement motivation were most significantly associated with underrepresented minority students’ GPA. This means that these two factors were the best predictors for GPA. However, the other seven factors were not significantly associated with underrepresented minority students’ academic success (Hlebec et al., 2011).

This inclusive measurement of academic success will effectively assess the essential characteristics of a successful underrepresented minority student. It is true that the definition of “academic success”, especially for the group of underrepresented minority students, is hard to make. However, there is no doubt that GPA is only one aspect of this multidimensional measurement. Underrepresented minority students need to do much more than earn a good GPA in order to achieve academic success. For example, successful underrepresented minority students must have the ability to perform effective self-regulated learning in order to build up a strong knowledge background for their study. Underrepresented minority students also need to effectively practice interpersonal communicative skills in a multicultural learning community. They should have a complicated and practical skill capacity including qualitative and quantitative inquiry skills, computer and technical skills, foreign languages, historical knowledge, global awareness, and so forth. They should be capable of collaboratively working in a multicultural academic environment. They also need to develop leadership for the purpose of managing their study projects through to completion, and take responsibility to make decisions during this process with strong self-motivation and participating desirability. Previous studies also supported that underrepresented minority students’ freshman to sophomore retention significantly affected the achievement of all those academic goals (Kuncel & Hezlett, 2007).

Underrepresented minority students’ academic success is perceived from a multidimensional perspective involving complicated social elements. However, it is agreeable that successful underrepresented minority students have learned to “effectively balance the social and academic aspects of their study, expect to succeed, and may be described as social proficient, goal oriented, and intrinsically motivated” (Ellis & Worthington, 1994, p. 10). Previous studies also found that academically successful underrepresented minority students tend to be more employable, have higher self-esteem (Filozof, Albertin, & Jones, 1998), and pose fewer problems to the society.
Design of the Study

A mixed research methodology has been applied in this study and it provided both descriptive and inferential analysis to predict if there is a significant correlation between underrepresented minority students’ second-year retention and the demographic, academic, financial, sociological, psychological, and technical factors. These factors include gender, age, admission population, student population, HS GPA, PSU cumulative GPA, Pell eligible status, first-generation status, athlete status, sociological support, psychological support, and technical support. Underrepresented minority students’ freshman to sophomore retention was the dependent variable and the demographic, academic, financial, sociological, psychological, and technical factors were the independent variables. Demographic, academic, and financial data have been collected from Banner student information system; sociological, psychological, and technical data were collected through a survey instrument designed by the researcher of this study. Data fields that fall into the demographic, academic, financial, sociological, psychological, and technical categories were reviewed and analyzed through SPSS (Statistical Package for the Social Sciences) and IBM WATSON. A phenomenological research method has also been applied to investigate underrepresented minority students’ perception of the relationship between academic success and sociological and psychological support.

Research Questions

To identify and analyze the relationship between underrepresented minority students’ second-year retention and the demographic, academic, financial, sociological, psychological, and technical factors, the following questions have been asked:

1. Is there a significant correlation between underrepresented minority students’ second-year retention and the demographic, academic, financial, sociological, psychological, and technical factors?
2. Can we predict underrepresented minority students’ second-year retention from measures of demographic, academic, financial, sociological, psychological, and technical factors?

Significance of the Study

This study will contribute to the body of knowledge in the area of underrepresented minority students’ academic success. The study will enlighten Portland State University administrators in the application of administrative measures to assist underrepresented minority students to achieve their academic success. From another perspective, this study will help underrepresented minority students realize and face their current situation and offer them information to seek support for obtaining academic success.

This study will also add to the existing knowledge on academic success of underrepresented minority students by analyzing the correlation between multiple factors and second-year retention. The regression has been analyzed to predict the relationship between variables under the categories of demographic, academic, financial, sociological, psychological, and technical factors. The analysis of second-year retention is significant because previous studies have confirmed that second-year retention significantly contributed to college students’ academic success (Prevatt et al., 2011), especially for the group of underrepresented minority students.
Data Collection

Demographic, academic, and financial aid data have been collected from Banner student information system; sociological, psychological, and technical data were collected through a survey instrument designed by the researcher of this study.

The researcher created a mailing list of the underrepresented minority students from Portland State University. Their contact information was obtained from the Banner student information system at PSU. This list includes the participants’ name, email address, and phone number. Through the application of Survey Monkey software, participants were sent an electronic version of the Underrepresented Minority Students Social Support Survey (UMSSSS). An email requesting acceptance to participate in this survey was sent. It demonstrates the purpose of this study and its objectives, and also assures participants of data confidentiality. See Appendix A for a copy of the underrepresented minority students’ cover letter.

Responses from participants were expected to be received within two weeks, and those participants who did not respond within this set time received an automatic reminder from the researcher. Participants received follow-up emails twice in these two weeks after the initial email. See Appendix B for the underrepresented minority students’ reminder. Data collection for sociological, psychological, and technical factors lasted about two months after the initial date of this research. Participant confidentiality was ensured through the application of identity protection function of the Survey Monkey software and through the Internal Review Board (IRB) research corporation training.

Data Analysis

For research questions one and two, the data fields collected from Banner student information system were processed in an SPSS data file. The statistical methods to analyze the correlation between underrepresented minority students’ demographic, academic, financial, sociological, psychological, and technical variables and second-year retention were determined by the following research questions:

1. Is there a significant correlation between underrepresented minority students’ second-year retention and the demographic, academic, financial, sociological, psychological, and technical factors?
   Descriptive statistics were applied to analyze this research question. Pearson Correlations were applied to determine if there is a significant correlation between underrepresented minority students’ second-year retention and the predictors.

2. Can we predict underrepresented minority students’ second-year retention from measures of demographic, academic, financial, sociological, psychological, and technical factors?
   Descriptive statistics were applied to analyze this research question. A logistic regression model was conducted to determine if underrepresented minority students’ second-year retention can be predicted from measures of demographic, academic, financial, sociological, psychological and technical factors. A phenomenological research methodology was also conducted to investigate underrepresented minority students’ perception of the relationship between academic success and sociological and psychological factors.

Findings

This study examined whether correlations existed between the dependent variable (underrepresented minority students’ second-year retention) and the independent variables (demographic, academic, financial, sociological, psychological, and technical factors).
The population for this study included 2,565 underrepresented minority students. All the demographic, academic, financial, sociological, psychological, and technical data collected from Banner student information system and the survey instrument have been validated. Thus, all of the cases were assessed as valid data and were all used in this study.

A logistic regression model was conducted to present the research questions involving the demographic, academic, financial, sociological, psychological, and technical variables. The final report of this study was organized into four sections according to these two research questions. Section 1 interprets the descriptive findings of the independent variables and dependent variables about their means and standard deviations. Section 2 applies the Pearson correlation analysis to examine the relationship between the independent variables (predictors) and dependent variables (outcomes). Section 3 conducts the logistic regression model and the phenomenological approach according to research questions one and two to examine the significance of the model, and the significance and contribution of the predictor variables to the outcome variables. Section 4 examines the validity of the logistic regression model.

Findings of Research Question One

Research question one stated: Is there a significant correlation between underrepresented minority students’ second-year retention and the demographic, academic, financial, sociological, psychological, and technical factors?

The Pearson correlation analysis was conducted to examine the relationships between the independent variables or predictor variables—demographic, academic, financial, sociological, psychological and technical factors—and the dependent variables or outcome variables—second-year retention. Thus Pearson’s correlation matrix (Table 1) and significant levels of correlation coefficients were reported at a-level of .50.

As we can see in Table 1, the results of the Pearson correlation analysis indicated that the dependent or outcome variable—second-year retention—was significantly related with ten independent or predictor variables, with correlation coefficients ranging from .16 (Second-Year Retention/Gender) to .79 (Second-Year Retention/Pell Eligible Status). Ten Pearson correlation coefficients (Gender, Age, Admission Population, Student Population, HS GPA, PSU CUM GPA, Pell Eligible Status, First-Gen Status, Athletes Status and Sociological Support) were positively significant at a-level of <.05; however, the predictor variables of Gender and Age had a small correlation with the outcome variable Second-Year Retention with correlation coefficients of .16 (Second Year Retention /Gender), .17 (Second Year Retention /Age). Psychological Support and Technical Support did not have a significant correlation with the outcome variable at a-level >.05.

<table>
<thead>
<tr>
<th>Table 1: Pearson Correlation Matrix (N = 2,565)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Gender</td>
</tr>
<tr>
<td>Gender</td>
</tr>
<tr>
<td>Age</td>
</tr>
<tr>
<td>Admission Population</td>
</tr>
<tr>
<td>Student Population</td>
</tr>
<tr>
<td>HS GPA</td>
</tr>
<tr>
<td>PSU CUM GPA</td>
</tr>
<tr>
<td>Pell Eligible Status</td>
</tr>
<tr>
<td>First-Gen Status</td>
</tr>
<tr>
<td>Athletes Status</td>
</tr>
<tr>
<td>Sociological Support</td>
</tr>
<tr>
<td>Psychological Support</td>
</tr>
<tr>
<td>Technical Support</td>
</tr>
<tr>
<td>Second-Year Retention</td>
</tr>
</tbody>
</table>

Note: Significant Levels: * p<.05; ** p< .01; ***p<.001.
Findings of Research Question Two

Research question two stated: Can we predict underrepresented minority students’ second year retention from measures of demographic, academic, financial, sociological, psychological, and technical factors?

With twelve independent variables served as predictors and Second-Year Retention served as the outcome variable, Table 2 shows that the most significant predictor to estimate Second Year Retention was PSU CUM GPA ($\beta=.56$, $p<.01$), followed by HS GPA ($\beta=.28$, $p<.01$), First-Gen Status ($\beta=.24$, $p<.01$), Pell Eligible status ($\beta=.19$, $p<.05$), Social Support ($\beta=.19$, $p<.05$), Athletes Status ($\beta=.19$, $p<.05$), Admission Population ($\beta=.14$, $p<.05$), Student Population ($\beta=.10$, $p<.05$). However, the predictors of Gender and Age had a significant regression correlation with the outcome variable Second-Year Retention only after the second operation of the logistic regression model. Psychological Support and Technical support did not have a significant predictive correlation with the outcome variable.

The overall model was statistically significant with $R=.622$, $R^2=.386$, adjusted $R^2=.364$, $F(8,91)=22.089$, $p<.05$. The predictors together accounted for 36.4% of variance on the outcome variable second year retention.

<table>
<thead>
<tr>
<th>Variables</th>
<th>$B$</th>
<th>SE $B$</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.988</td>
<td>0.17</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>0.24</td>
<td>0.05</td>
<td>.18</td>
</tr>
<tr>
<td>Age</td>
<td>0.18</td>
<td>0.07</td>
<td>.16</td>
</tr>
<tr>
<td>Admission population</td>
<td>0.12</td>
<td>0.03</td>
<td>.14*</td>
</tr>
<tr>
<td>Student population</td>
<td>0.14</td>
<td>0.05</td>
<td>.10*</td>
</tr>
<tr>
<td>HS GPA</td>
<td>0.36</td>
<td>0.06</td>
<td>.28**</td>
</tr>
<tr>
<td>PSU CUM GPA</td>
<td>0.88</td>
<td>0.17</td>
<td>.56**</td>
</tr>
<tr>
<td>Pell eligible status</td>
<td>0.35</td>
<td>0.04</td>
<td>.19*</td>
</tr>
<tr>
<td>First-Gen status</td>
<td>0.50</td>
<td>0.08</td>
<td>.24**</td>
</tr>
<tr>
<td>Athletes status</td>
<td>0.37</td>
<td>0.05</td>
<td>.19*</td>
</tr>
<tr>
<td>Sociological support</td>
<td>0.35</td>
<td>0.04</td>
<td>.19*</td>
</tr>
<tr>
<td>Psychological support</td>
<td>0.30</td>
<td>0.06</td>
<td>.20</td>
</tr>
<tr>
<td>Technical support</td>
<td>0.16</td>
<td>0.05</td>
<td>.12</td>
</tr>
</tbody>
</table>

Note: Predictors: (Constant), gender, age, admission population, student population, HS GPA, PSU cumulative GPA, Pell eligible status, first-generation status, athletes status, sociological support, psychological support and technical support. Dependent Variable: Second year retention. Significant Levels: * $p<.05$; ** $p<.01$; ***$p<.001$.

Table 3 summarizes the themes of the individual interviews by applying phenomenological research method to investigate underrepresented minority students’ perception of the relationship between academic success and sociological & psychological support:
Table 3: Themes developed for sociological & psychological support

<table>
<thead>
<tr>
<th>Transcribed Interviews</th>
<th>Themes</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benchmark</td>
<td>Sociological Support and GPA</td>
<td>All the participants agreed that GPA is a necessary indicator of academic success;</td>
</tr>
<tr>
<td>I do Think it is Important</td>
<td>Sociological Support and Retention</td>
<td>They argued that there are more important factors that contribute to academic success for college study;</td>
</tr>
<tr>
<td>GPA is not Indicative of a lot of Skills and Traits</td>
<td></td>
<td>They all believed that social support may affect the success in GPA and retention</td>
</tr>
<tr>
<td>Different Type of Assessment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grades do not Reflect the Knowledge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality Experiences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Directly Influences GPA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Might Affect GPA Negatively</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Support will Affect GPA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Directly and Indirectly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homesickness</td>
<td>Psychological Support and Academic Success</td>
<td>All the participants agreed that appropriate psychological support would help relieve emotional stress;</td>
</tr>
<tr>
<td>Emotional Distress</td>
<td></td>
<td>All the participants believed that psychological support would significantly affect the achievement of their academic success.</td>
</tr>
<tr>
<td>Trouble with Friends and People you are Dating</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign Environment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disappointed or Frustrated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional Disturbance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotionally Exhausted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not being Accepted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skype</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friendships</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supportive Network</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sharing Experiences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office of Social Justice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belief in Yourself</td>
<td></td>
<td></td>
</tr>
<tr>
<td>External Emotional Support Group</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Conclusions

This study has examined the relationship between Second-Year Retention and demographic, academic, financial, sociological, psychological, and technical independent variables for underrepresented minority students at PSU by applying a mixed research method. In order to answer the research questions,
a logistic regression model was established to assess the correlations between predictor variables (Gender, Age, Admission Population, Student Population, HS GPA, PSU CUM GPA, Pell Eligible Status, First-Gen Status, Athletes Status, Sociological, Psychological and Technical Support) and outcome variables (Second-Year Retention). A phenomenological study was also performed to investigate underrepresented minority students’ understanding of academic success. A number of conclusions are listed below, based on the results of the data analysis:

1. The most significant predictor to estimate Second-Year Retention is PSU CUM GPA, HS GPA, Pell Eligible Status, First-Gen Status, Athletes Status, Admission Population, Student Population and Sociological Support.
2. Other independent variables (Gender, Age, Psychological & Technical Support) are not significantly associated with Second-Year Retention for the first operation of the regression model.
3. Based on the findings this study, the PSU Underrepresented Minority Students’ Second-Year Retention Model has been established as Figure 1 shows:

![Figure 1: PSU underrepresented minority students’ second-year retention model](image)

4. In this study the statistical findings from SPSS are consistent with those generated from IBM WATSON analysis. IBM Watson Analytics automatically grades data field relationships based on their “predictive strength”, where predictive strength measures how accurately one variable predicts another. A predictive strength of 100% would indicate perfectly correlated variables. In Figure 2, cumulative institutional GPA and second-year retention have a predictive strength of 75%. Students with higher cumulative GPAs are much more likely to be retained to their second year. Figure 3 depicts the same relationship, but in an area chart with 0 (not-retained) on the left and 1 (retained) on the right. Figure 4 demonstrates the relationship between student population (an admission category where the lowest number corresponds with having a GED and the higher categories correspond with transfer students with substantial college credit hours) and second-year retention. The predictive strength of this relationship is also 75%.
This graph generated from WATSON demonstrates the trend that the higher the cumulative GPA is, the more likely this student population tend to retain for the second year.
Figure 3 reflects the same trend as in Figure 2. It shows that the higher the cumulative GPA range, the more likely this student population will return to PSU as sophomores.
Figure 4

This chart manifests the relationship between second-year retention and admission type. It indicates that students with higher transferred credit hours are more likely to return to the second year.
References


Appendix A

Underrepresented Undergraduate Minority Students’ Cover Letter

March, 2017
Address
City, State, Postal Code

Dear underrepresented undergraduate minority student (Last Name)

Sociological, psychological and technical factors are considered to be very important predictor of college students’ academic success. However very limited research has been done to measure the correlation between underrepresented undergraduate minority students’ second year retention and sociological, psychological and technical factors. Therefore, I’m requesting your participating in this research concerning underrepresented undergraduate minority students’ academic success in Portland State University

Enclosed is a brief underrepresented undergraduate minority students’ social support survey. It will take approximately ten minutes of your time to complete. The survey will be submitted to the Institution Review Board (IRB) regarding the protection of human subjects. Hence, all names of participants will remain anonymous in the final research report. If you decide to participate in this research, please respond to the questionnaire in two weeks from the day you receive the survey. If you decide not to participate, please email me at pharma2@pdx.edu. If you have any question, please feel free to contact me with this email address.

I appreciate your time and cooperation.
Best Regards
Sincerely,
Ping H Harman, PhD
Institutional Research Analyst
Office of Institutional Research and Planning
Appendix B

Underrepresented Undergraduate Minority Students’ Reminder

April, 2017

Dear underrepresented undergraduate minority student (Last Name),

This is a reminder of the underrepresented undergraduate minority students social support survey that was sent to you approximately two weeks ago. If you have already responded to the survey, a lot of thanks to you. If you have not, I will really appreciate your feedback which is essential to the completion of this research.

Please feel free to contact me by pharma2@pdx.edu or you can also reach me by phone at (503)-725-3426.

Thank you very much for your cooperation.

Best Regards
Sincerely
Ping H Harman, PhD
Institutional Research Analyst
Office of Institutional Research and Planning
Academic Probation Support: Engaging Large Numbers Online

Amanda Phillips  
Academic Recovery Specialist, Students First Office  
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Dana Saunders  
Director, Students First Office  
The University of North Carolina at Greensboro  
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Abstract: In 2014, the University of North Carolina at Greensboro was required by the UNC Board of Governors to update the institution’s Academic Standing Policy. These changes expanded the requirements for Academic Good Standing to include both a GPA and academic progress component. The new criteria significantly increased the number of undergraduate students who fell on Academic Probation. Between 2013-2014 school year and the 2014-2015 school year students on academic probation rose 67% in Fall and 43% in Spring. The increase necessitated a transition from the current lecture-style course required for students on probation to an online, self-guided format. After two years of continued curriculum development, the course enrolls 600-900 students each semester. Students, on average, complete the course at 80-90% pass rate and are retained at a higher rate than the previous in-class format. This paper will outline the changes in course enrollment and completion, and students’ retention at the University. It will also examine the pedagogical strategies most effective in the large online probation course to support students’ academic success and emotional resiliency. These include personalizing course content, providing immediate feedback, and structuring support outreach.

Introduction

On May 2nd, 2014 The University of North Carolina General Administration published Transmittal number 83 announcing changes to the UNC Policy Manual. Among those changes, the definition of Academic Good Standing was specifically impacted. Good Standing was to be determined by earning and maintaining a minimum cumulative GPA of 2.0 and by earning 67% of attempted semester credit hours. At the University of North Carolina at Greensboro (UNCG), this meant raising the GPA requirements for freshmen (0-29 hours) who had previously been permitted to remain in Academic Good Standing if they earned a minimum 1.75 cumulative GPA. This policy change also required the University to establish an academic penalty for students who did not meet the mandated ratio of attempted to completed semesters hours beyond the penalty already required by federal financial aid policies.

An Intervention Planning Team was created which included academic support staff from across the University to determine the impact of these changes on the Academic Recovery populations (academic probation, academic suspension, and academic dismissal). Preliminary data analysis estimated that the academic probation population (students earning below a 2.0 or below a 67% ratio of earned to attempted hours) would increase anywhere from 20-30% in the first semester that the policy was implemented.

From 2007-2014, UNCG required students on Academic Probation to complete an eight-week course titled “Student Academic Success”. Each course section was limited to 30 students and taught by paid course instructors. Continuing to offer this course with a 20-30% increase in students on probation would be fiscally impossible to maintain in a climate of budget cuts. Instead, the Intervention Planning Team was tasked to be creative in ways that the increase of students could be supported with no additional funding. Despite widespread reservations, the team ultimately recommended that an online course be developed that could be offered to more students and maintained by a single professional coordinator. The course, titled ARS 100: Reclalm, Regain Recover, which is currently offered through the University’s Learning Management System (LMS), now spans a full semester, guides students through modules where they can practice self-directed learning, and provides multiple opportunities for
customized and individualized support. The new design allows UNCG to minimize the fiscal needs to maintain the course, while still providing impactful academic support to a large number of struggling students. The class sizes are shown in Table 1. This paper will provide the reader with information about ARS 100, an overview of the course structure, technology used to maintain communication and engagement among the large numbers, and the course results.

<table>
<thead>
<tr>
<th>Students on Academic Probation by year</th>
<th>Spring</th>
<th>Fall</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013-2014</td>
<td>156</td>
<td>626</td>
</tr>
<tr>
<td>2014-2015</td>
<td>215</td>
<td>823*</td>
</tr>
<tr>
<td>2015-2016</td>
<td>354</td>
<td>920</td>
</tr>
<tr>
<td>2016-2017</td>
<td>482</td>
<td>1106</td>
</tr>
</tbody>
</table>

*Semester that the new policy went into effect

Literature Review

“Teaching Online means altering the ways in which we conceive of our work as teachers. It means rethinking our views and our abilities. It means rethinking how we develop materials as well as how we spend our time.” (Major, 2015, p. 1). Universities are creating online courses in response to a growing demand for more courses and distance education options. There has been a wide variety of research completed for online courses. However, that research is typically limited to specific subjects and spread amongst other research making it difficult to find. Students on academic probation often report a lack of academic and social integration on campuses (Tinto, 1993) and fewer connections with academic advisors (Austin, Cherney, Crowner, & Hill, 1997). Furthermore, Coll and Stewart’s (2008) study found probationary students and previously suspended students demonstrated “lower career decidedness, lower perceptions of faculty interests in students, lower perceptions of faculty teaching ability, and less satisfaction with their own intellectual development” (Dill, Gilbert, Hill, Minchew, & Sempier, 2010, p. 277). With this knowledge in mind, it is imperative that online courses required for students in academic difficulty be designed to support these students’ specific academic needs. Studies showed that “[finding] points to three factors that contribute significantly to the success of online courses. These are a clear and consistent course structure, an instructor who interacts frequently and constructively with students, and a valued and dynamic discussion” (Swan, 2001, p. 327).

Course Structure

As Swan (2001) emphasizes, “significant correlations were found between structural consistency among course modules and student satisfaction, perceived learning, and interaction with instructor” (p. 323). Generally, the structure of a seated course is familiar to students and leaves little room for student confusion. However, there is not a formal structural design for online courses nationally. Many schools provide a Learning Management System (LMS) for online instructors and some institutions hire an instructional support specialist. However, for the most part, the instructor for the course is tasked with the creation of the structure. In findings from Swan’s (2001) research, “the greater the consistency among course modules, the more satisfied students were, the more they thought they learned, and the more interaction they thought they had with their instructors” (p. 232). Thus, the course structure is arguably a critical variable for online courses.

Instructor Interactions

Teaching in an online environment also presents new challenges in creating a sense of instructor presence for students. In his book, Excellent! Online Teaching, Aaron Johnson (2013) says “What the
online teacher needs more than anything is to develop a set of habits: regular and clear communication, demonstrating compassion, and developing the discipline of prompt feedback.” (p. i) It is important to have an intentional change in communication techniques when teaching online. Major writes “Since we no longer have physical markers, such as our appearance, dress and nonverbal gestures, we have to find new ways of creating and communicating a persona” (Major, 2015, p. 164). Having a presence in the online classroom is important to the student engagement in the coursework. Baker (2004) said of his study “The primary implication drawn from the results of this study is that the instructor significantly influences the learning process, even in the online classroom.” (p. 10). He goes on to explain that not just presence but immediacy in responsiveness and feedback are important factors in online classroom learning (Baker, 2004).

**Engaged and Valued Discussion**

Swan’s (2001) research also reported that “students were more satisfied with courses and believed they learned more when greater value was placed on discussion” (p. 325). Discussion gives the students a way to interact with the knowledge, their peers, and their instructor. Johnson (2013) suggests “When a teacher is available to their students, those students will be more likely to engage in the learning process. Your communication shows that you are approachable, responsive, and interested in your students and what they are learning” (p. 40). Since active engagement and communication are different for online courses than seated courses this has to be an intentional part of the online instructor’s role. Major (2015) provides several strategies for instructors to actively engage students. The strategies included “students are more likely to be interested in topics that involve them directly” and “students tend to be more engaged in activities that feel real to them” (Major, 2015, p. 217-219). Giving students real-life scenarios that directly relate to them can make a big difference in online engagement, discussion, and perceived value.

**Course Design Methodology**

**Course Structure**

The structure of an online course is vital to ensuring students can easily access required information. It is detrimental to an online course if assignments are too difficult to find or students cannot easily submit work. When hundreds of students are enrolled in a single section, a strong course structure is the difference between assignments being submitted and an insurmountable number of email questions. The course design for ARS 100 is simple, clean, and leaves little room for error. The course is housed in Canvas, UNCG’s LMS. A range of topics are built into the curriculum, including academic policy, wellness, resources, goal setting, course withdrawal, communication, values, and learning strategies. Similar topics can be found in many recovery programs at many other institutions, but the focus of this paper is not on the topics of the course. Instead, it is intended to highlight the presentation of these topics in an online platform and the management of the probation student population. The lessons span 13 weeks and are presented though modules, which are described in more detail below.

**Consistent Module Design**

As mentioned above, the consistency of the module design enables students to anticipate what is coming next in the course. Instead of worrying about how to complete the assignment, students focus on learning the information. Each module is set up with an introduction video, an interactive module, a quiz, and take-away notes. Figure 1 shows a view of what students see when signing onto the course website.
Videos are very important introductory components throughout the ARS course structure. The videos are packed with information, but remain short and simplistic. Each week the instructor can be found in different places around campus introducing that week’s topic and giving some rationale for how that topic could help students on academic probation. The weekly videos are a large component of the course structure and create a quick connection between the students, the instructor, and the curriculum. After watching the brief introduction video, students complete an interactive module.

Figure 2 shows two examples of how the interactive modules appear to the students. These modules contain the curriculum originally designed by the instructor and support staff at UNCG. The interactive modules are designed so that students experience roleplay scenarios. Each week introduces a new student “avatar” (a fictional student designed to emulate a real scenario) and a new topic, yet the structure of the interactive modules remains the same. The roleplay modules also give the instructor a way to provide immediate positive and constructive feedback to students as they answer the questions. More information about the immediacy of the feedback throughout the course will be discussed below.

In order to advance through the module students must select the correct answer to each question. After answering all of the avatars’ questions the student receives a quiz code. This is a code that students must earn to access weekly quiz and complete the weekly assignment. The interactive modules remain open for students to re-take for two full weeks. Some students choose to retake the modules more than one time when they desire to become more familiar with the information or want to access suggested websites.

During the initial course design, there was some concern that students would take the quiz without first reviewing the interactive module. In anticipation of this concern, all quizzes were set up to request a moderation code. The code provided at the end of the weekly interactive module is entered and allows access to the corresponding quiz. Information about the quiz code is covered in the syllabus and syllabus quiz. Figure 3 is an example of how students receive the code and how they submit before accessing the quiz. In the first week, students do inquire about how to access the quiz if they did not completely read the syllabus or are in a hurry. A canned response email about reading the syllabus is all it takes to redirect those students to complete the interactive modules. After the first week, there are rarely additional questions. Students get multiple (3-5) attempts to receive the highest grade possible on the quiz. Most quizzes grade automatically and while the correct answers are not shown students can see...
which questions they got incorrect. Students are required to earn an 80% in the course in order to earn a passing grade. When students earn below an 80% on an assignment the instructors leave a comment on the quiz suggesting that the student complete the interactive module again, reach out with any questions, and resubmit the quiz for a higher grade.

Figure 2: Interactive module design

Figure 3: Quiz code requirements

After successful completion of the quiz, students can open, download, and save a document called a “take-away”. The take-away is a one page handout about the information they learned in the module. The take-aways can be found at the end of each module and are moved to a separate section of the website once the module closes. Since the modules open and close throughout the semester the take-away sheets are a way for students to have continuous access to the information that is deemed most important. Students can also keep these take-away sheets for different semesters allowing them permanent access to the information. The take-away sheets are also used to study for the final cumulative exam.

The consistent structure of introduction video, interactive module, quiz, and take-away is maintained every week of the course. Figure 1 shows what each week looks like for students throughout the semester. Students do not have to guess about where to go on the webpage, how or where to submit assignments, or what is expected of them. This structure also allows the instructor to manage assignment
availability and due dates. Due dates are strictly enforced because exceptions are hard to make for single students in classes of hundreds. However, the course design allows students to easily see when assignments are due. With a consistent and simple course structure the students can focus on learning the information and completing the assignments, and the instructor can focus on being present to support the students.

Accessibility and Usability

While consistent course structure is important for supporting all students’ access to course information, there are additional concerns with online course accessibility and usability for students with learning disabilities. The necessity for accessible learning is important no matter the size of the class, but a class of 700-800 has a high likelihood to include students who use accessibility software. Many design features of ARS 100 allow for accessibility of all students. The self-paced course allows students ample time to review the information. All quizzes are untimed and, except for the final, all allow a student multiple attempts to achieve the necessary score. All videos are closed captioned and each screen has been tested and is accessible by screen readers. While all of these modifications take time upfront, ARS 100 is ready for any student from any type of learning background. Making these preparations ahead of time allows the instructor to focus throughout the semester on the students’ learning outcomes instead of making the material accessible.

Instructor Interaction

The intervention team was most concerned that students would no longer be required to interact in person with a recovery specialist. In the earliest implementation of the course, before modifications were made to include videos and weekly emails, students were often confused about how to get support for the course. After the first semester, steps were taken to improve instructor interaction. Throughout the semester there are specific, intentional points of contact with students. Some of those are explained in more detail below.

Introductions and Overviews

The course introduction is a chance for the instructor to create a persona, give directions for how to begin the course, explain the mechanics of the course, and create a tone for the remainder of the seminar. ARS 100 begins with an introduction module, which includes an introductory video, the course syllabus, a syllabus quiz, and a personal academic reflection. This introduction module, previously seen in Figure 1, is the first attempt in creating an instructor support and presence. The course introduction video begins with the instructor introduction giving the students a small view into his/her interests and life. These homemade, quick informational snippets are intended to help humanize the instructor and help students feel that the instructor is supportive and approachable. The video continues on to provide students with a view of instructor’s office and information about coming to office hours. Screencasts of how to start the course work are provided so that the instructor is introducing the students to the course structure. Finally, students are invited to contact the instructor or stop by the instructor’s office if they need extra support.

One portion of the introduction module is an academic reflection that students complete to give the instructor some insight to each student’s previous academic career. Based on students’ answers to these questions, select students are contacted about opportunities to complete academic appeals that could help expedite their academic recovery and even restore their academic standing. This assignment both gives the students a chance to reflect on their academic history and gives the instructor a chance to make personalized intentional contact with students.
Feedback Immediacy

Interactive Modules

As mentioned above, the interactive modules require students to answer questions correctly to move through the module. This prevents students from clicking the same answer for every question to just finish the work quickly. If a student answers the question incorrectly, they are routed to a page that gives them a short example of why their answer is wrong and asks them to try again. Then, the student is routed back to the question they missed. Once the student chooses the correct answer, they are routed to a page that affirms their answer selection and provides a more detailed explanation for why it is correct. This immediacy in feedback allows students to work at their own pace while also not having to struggle to find help for the correct answers. By the end of the module, all students have answered each question correctly no matter how many times they chose the wrong answer. Students responded positively to this feedback as well. In the course evaluation, explanations for right and wrong answers were often something mentioned as a valuable part of the course. Figure 4 below shows an example of the feedback provided when a student answers the question incorrectly.

Quiz Feedback

Each week the students are required to take a quiz to show mastery of the topic taught that week. At the end of most quizzes, students receive an automatic grade. Canvas provides an opportunity for students to go back to the quiz and see which answers they got correct and incorrect. Each incorrect answer elicits brief feedback explaining why that answer is incorrect and additional information to help guide students to the correct response. On these weeks, students do not have to wait for an instructor to grade or give feedback because that work was done ahead of time. Three of the weeks do require an instructor to grade the assignments. During those weeks, it can take 3-7 days for students to receive feedback, but instructors work diligently to grade assignments as quickly as possible. On one of the three assignments, 50-80% of students scoring the lowest get personalized feedback. Students are addressed by name and provided feedback specific to their answers. On the other two manually graded assignments, the feedback is largely canned responses given to those missing the most points; however, the responses are

Figure 4: Immediate feedback for incorrect answers

Each week the students are required to take a quiz to show mastery of the topic taught that week. At the end of most quizzes, students receive an automatic grade. Canvas provides an opportunity for students to go back to the quiz and see which answers they got correct and incorrect. Each incorrect answer elicits brief feedback explaining why that answer is incorrect and additional information to help guide students to the correct response. On these weeks, students do not have to wait for an instructor to grade or give feedback because that work was done ahead of time. Three of the weeks do require an instructor to grade the assignments. During those weeks, it can take 3-7 days for students to receive feedback, but instructors work diligently to grade assignments as quickly as possible. On one of the three assignments, 50-80% of students scoring the lowest get personalized feedback. Students are addressed by name and provided feedback specific to their answers. On the other two manually graded assignments, the feedback is largely canned responses given to those missing the most points; however, the responses are
specific for only the questions that the student missed. This personalized feedback on assessments provides the students with a sense that the instructor is actively reviewing the students work, supporting their successes, and providing additional guidance in areas where a student has struggled.

**Starfish Outreach**

UNCG uses the early alert software Starfish to monitor and provide feedback on student progress throughout the semester. Starfish flags are incorporated into the weekly outreach for ARS 100 students. Any student who misses an assignment receives a flag with a reminder to complete the work. These flags are available for other designated members of the university. Those members can include advisors, professors, sorority/fraternity leaders, and housing and residence life staff. Many times, students who are not responsive to the ARS 100 course are responsive to other support systems on campus. When a student submits their work late after being flagged, the instructor will resolve the flag with a message to the student thanking them for completing the work. This immediacy in raising and lowering flags allows the student to stay aware of their academic performance in the course.

The ARS 100 instructor can also see flags that are raised on students from their other course instructors. While the number of flags can seem overwhelming at times, a system for outreach was created so that students at the most risk receive support. A list of students who receive three or more flags in their classes (not including ARS 100) are compiled by the Starfish coordinator and given to the ARS 100 instructor each week. Those students receive personalized check-in calls from the instructor. Many phone calls result in action taken by the student to improve their communication, attendance, study habits, and academic skills. The phone calls also allow the instructor to provide support before the issue becomes insurmountable for the student.

**Valued Discussion**

While opportunities for peer engagement is often a best practice for online course, the student-teacher ratio in ARS 100 makes the typical discussion boards unmanageable. Instead of having the students discuss the course topics among themselves, the course offers manageable discussion in other ways. Discussion about course content is mainly provided through the weekly interactive modules. However, some quizzes give students a chance to share personal information with the professor. Similarly, Starfish outreach phone calls and intentional outreach emails provide opportunities for the students to begin a discussion about academic probation with the recovery specialist. There is no course requirement for peer-to-peer interaction. Instead, role play of “peer-to-peer” discussion is created through the interactive modules. Instructor-student interaction is also encouraged and supported throughout the course.

**Creating Discussion through Interactive Modules**

Each module introduces a different avatar that is experiencing an issue or has questions about that week’s topic. The avatars appear in Figures 2, 3, and 4. The avatars were designed with the course demographics in mind. Consideration was made for race, gender, sexual identity, and age to increase the probability that students would be able to see parts of themselves represented in the avatars’ stories and experiences. Additionally, the scenarios used were created from scenarios that are often experienced among UNCG probation students. This allows the course to personalize the avatars to seem like real UNCG students experiencing relatable issues.

Some avatars have just come from advising appointments, lunch with a friend, or are working on a class assignment. The avatars are requesting advice from the participating student and their backgrounds and stories are told throughout the interactive modules. Students are asked to consider what might be best for that avatar specifically—similar to if a friend were asking for help. This requires students to really consider the options available. When the student must consider the situation from many points of view
they are more likely to synthesize the information similar to what happens when reading peer responses in discussion boards.

The weekly quizzes also included an opportunity for “peer-to-peer” contact. Each week, an avatar named Mac had a new issue and asks ARS 100 students for help. Seeing the familiar face each week provides students a sense of community even if just between the two of them. One student responded to the course evaluation saying “Except Mac, That guy needs to get it together. I have no problem helping him, but every week he’s found a new issue to have. I hope he’s all good.” While likely meant to be funny, this shows the level of engagement the student felt with the avatar from the quizzes. The quizzes were designed to emulate situations that students might encounter. That was determined a success by many students responding similarly to a student who said “I also liked that the weekly quizzes dealt with real life situations.”

While the avatars cannot fully equate to peer-to-peer interaction it has provided the much needed and desired discussion among peers. Students have responded to course evaluations positively saying “I know they aren’t real students but those are real situations and lets me know that I can get back to where I need to be.” For now, using roleplay situations with avatars is a good substitute in a course that has too many students to manage actual discussions.

Course Results

Eligibility to Continue

Considering the shift to an online course and the increase in population, the goal for the first year of the course was for students to be eligible to continue at the same rate as students in previous semesters who were supported in the lecture-based course. Student eligibility to continue, and not student retention, is used to measure the success of the course. This decision was made because there are times when students are eligible to continue but make a choice to return to community college or take time off to address mental health concerns. Self-advocacy is taught in the course and it is considered a success for a student to advocate that their best option is to take time away from the university with the intent to return.

Eligibility to continue is determined by the student’s term GPA, cumulative GPA, and hours earned. A student must earn a 2.3 term GPA to be allowed to remain at UNCG on Academic Probation. If a student earns a 2.0 Cumulative GPA they have restored Good Academic Standing. In either situation, the student is considered eligible to continue at the university. Figure 5 shows students’ eligibility to continue over time. The online course began in the Spring of 2015. After that pilot semester, the changes mentioned above were implemented in the program, increasing student/instructor interaction and student engagement. Since Fall 2015 students have been eligible to continue at a higher rate than even in the seated class.
Student Retention

Student retention is currently one of the most valued metrics of undergraduate success throughout the field of higher education and, at UNCG, there have been institution-wide efforts which have renewed the focus on undergraduate retention. Retention data for the ARS 100 course has been tracked since the Spring 2016 and preliminary data is promising. In Spring 2016, 519 of 920 students (56%) were eligible to continue at UNCG and 467 (51%) of those students were retained. In Fall 2016, 329 of 482 students (68%) were eligible to continue and 313 of those students (65%) were retained. Figure 6 shows the eligibility to continue rate compared with the retention rate.

Figure 6: Comparison of eligibility to continue and retention for ARS 100 students
This data is promising because, on average, over 90% of probation students who are not suspended from the university choose to remain enrolled at UNCG. Figure 7 compares first-year retention at the university—which was 92% in Fall 2016—to eligible probation student retention which was 95% in 2016. It is still early to determine graduation rates of students in the program. However, this is an opportunity for future research.

![Eligible Students Retention Fall 2016](image)

*Figure 7: Comparison of eligible student retention, Fall 2016*

**Student Satisfaction**

Overall, the online course has been successful in terms of student eligibility to continue and student retention. Student satisfaction is also considered an indication of a successful course redesign. It is important to note that this course is required and many students are initially despondent with their previous academic performance. Responses on the final evaluation report that 89% of students rated the course Good or Excellent and 88% reported that they were actively engaged in learning the course material.

**Conclusions**

This paper is not meant to persuade a change from a program with direct student interaction. Increased instructor interaction is still the number one response for course improvements on ARS 100 course surveys. Rather, this paper is to encourage schools that are seeing unmanageable student numbers on Academic Probation to consider online tools that are effective in engagement and interaction. Many schools support only first-year students or academic recovery support is divided among majors and colleges. Instead, this online course design offers a viable solution to large numbers of students needing support.

The instructors of this course are still concerned with increasing interaction among students and identifying the most at-risk student populations for more direct and intentional outreach. Course development is ongoing for anticipating and handling technical issues.
References


An Administrator’s Woes: Transformational Leadership in an Innovative, Minority-Serving Organization Aimed at Remediation Elimination

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University of Arkansas at Little Rock  
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Abstract: Effective leadership is a blend of theory and practice, and the shared experiences of leaders help current and future leaders refine their approaches. Transformational leadership has resulted in subordinates feeling that their work is more meaningful and a lower level of stress. Additionally, team members are challenged to find new ways to solve a problem that may exceed their job descriptions, allowing space for individuals to bring themselves fully to the role, increasing employee engagement (Kahn & Fellows, 2013; Macey & Schneider, 2008). However, the transformational leader’s role requires not only a transformation of the organization and its members, but also as importantly a transformation of themselves—as a leader. The ever-changing landscape of higher education, politics, multiple constituents, and competing values creates a need for constant self-examination and emotional intelligence in order to achieve programmatic goals. This paper weaves theories of transformational leadership, emotional intelligence, and employee engagement together with practical application through the lens of a leader’s personal experiences establishing a 10 million dollar organization aimed at improving outcomes of African American students in a distressed high school district. An exploration of the struggles, successes, and required skill sets, concluding with recommendations for practitioners, will be discussed.

Introduction

In 2013 a summer bridge academy (SBA), aimed at eliminating remedial courses for entering college freshmen students at the University of Arkansas at Little Rock, successfully bypassed 95% of students out of college math and considerable numbers out of college reading and writing (see Table 1). Some spectators deemed such success just a fluke, resulting solely because this class was unique or had just tested poorly on the ACT and/or SAT, landing all of them in remedial math. Few felt like these results could be repeated. However, it was repeated the next year and the year that followed. SBA was primarily funded through a grant from the Winthrop Rockefeller Foundation that ended in 2015. The university was able to support a few students in 2016, but could not support the program in 2017. Fortunately, Bank of America, which has been a consistent supporter, has provided some support for SBA, which will allow students to participate in 2018.

SBA reached out to minority students who had been accepted to the university, but had test scores that landed them in remedial math. As we looked at the students’ ACT scores, it became clear that many students needing help in math, also needed help in reading and writing. The 21 day, residential program, provided ample time to address some of these other critical needs, as students who struggled with reading could have trouble succeeding in the core curriculum and classes following. Therefore, a few weeks before the students entered SBA, we expanded the program to include reading and writing. Learning from the lessons of the first year and with the provision of more planning time, the results improved in following years in reading and writing.

SBA laid the groundwork for what would be a much greater challenge. It proved that amazing things could occur in a short period of time with a little creativity, innovation, and a lot of passion from the people involved. The lessons learned in 2013 provided the core of the next seemingly insurmountable
feat—a pipeline program that served underrepresented students in a struggling school district. Never did I imagine what would occur in less than one year after this inaugural bridge.

<table>
<thead>
<tr>
<th>Cohort</th>
<th>Number of Participants</th>
<th>Bypassed Developmental Reading</th>
<th>Bypassed Developmental Writing</th>
<th>Bypassed Developmental Mathematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBA Summer 2013</td>
<td>43</td>
<td>45% (of those required)</td>
<td>79% (of those required)</td>
<td>95%</td>
</tr>
<tr>
<td>SBA Summer 2014</td>
<td>36</td>
<td>90% (of those required)</td>
<td>100% (of those required)</td>
<td>97%</td>
</tr>
<tr>
<td>SBA Summer 2015</td>
<td>28</td>
<td>92% (of those required)</td>
<td>100% (of those required)</td>
<td>96%</td>
</tr>
<tr>
<td>SBA Summer 2016</td>
<td>20</td>
<td>80% (of those required)</td>
<td>83% (of those required)</td>
<td>90%</td>
</tr>
</tbody>
</table>

The Charles W. Donaldson Scholars Academy (CWDSA)

While many believed challenges would lie in repeating this success rate with new classes of entering freshmen, the real challenge came in creating this desire in students who deemed themselves unworthy. The success of the 2013 bridge captured the attention of Civil Rights Attorney John Walker who was working to create an egalitarian field amongst blacks and whites in the greater Little Rock area. In fact, the landmark desegregation case began in the early 1980’s, and local school districts now sought to settle once and for all, but to do so, the federal courts would have to declare them unitary. One district within the Little Rock metropolitan area, the Pulaski County Special School District (PCSSD) was not declared unitary. This meant that there was considerable work left to be accomplished, which led to our team.

Only a visionary like Attorney John Walker would have noticed our meager accomplishments achieved in one three-week period and considered that it could lead to something that would help students in this distressed district. At the time, as the coordinator of the summer bridge program, I was charged with achieving a goal of helping students who had tested into remedial math, and then helping them become academically prepared to test out of it before classes started. However, the data from the students in this district showed that over 95% of the students entering the Charles Donaldson Scholars Academy’s (CWDSA) Senior Summer Bridge had tested into remedial classes in all three subjects (see Table 2). We took the charge seriously, and knew we were embarking on something that could be transformational.

<table>
<thead>
<tr>
<th>Subject</th>
<th>SBA 2014</th>
<th>CWDSA 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math</td>
<td>17.1</td>
<td>15.8</td>
</tr>
<tr>
<td>English</td>
<td>18.3</td>
<td>15</td>
</tr>
<tr>
<td>Reading</td>
<td>18.3</td>
<td>16.8</td>
</tr>
</tbody>
</table>

In late June of 2014, CWDSA was granted with 10 million dollars from the federal courts to design and execute a scholarship program with wrap around services for students from PCSSD. The team expected to receive at least a year to get things in proper order and actually establish what we had
envisioned. Instead, we were welcoming students in fewer than 20 days from the ruling, which created a whirlwind unlike any other I have seen. Ultimately, I was challenged as a leader to create success for a group of students who may or may not have wanted to attend college, which was a daunting task. The year-round initiative would serve students starting in the 9th grade, at least one Saturday per month and through summer programming. The Senior Summer Bridge would model SBA in that it would be a 21-day on campus residential program, while rising 10th - 12th graders would complete a four-day summer experience that allowed them to get a taste of life on a college campus.

Ultimately, CWDSA would aim to help students graduate from high school without the need of remediation, enter college with concurrent credit, increase high school and college graduation rates, and help students gain confidence regarding success in college. Adding to the uniqueness of this partnership, Philander Smith College, a metropolitan historically black college and university, would allow students to experience a small, private, liberal arts education, appealing to the students who would rather have the more intimate setting and obtain a scholarship from CWDSA. Two distinctly different universities in the Greater Little Rock, Arkansas area and a school district had come together to provide an opportunity for students to attend college with a $10,000 scholarship ($2500 per year for up to 4 years). This presented an exciting challenge that I looked forward to tackling.

However, I was also challenged to transition a team, consisting of primarily student labor. While a few success coaches and an administrative assistant would be added, it was clear from the court’s ruling that administrative costs were to be kept to a minimum in order to provide more scholarships and experiences for the students. It became apparent that our approach would have to be different from the one typically used in traditional, higher education settings. This approach would require a lean team of people who bought into the lofty goal of success for all students, regardless of background, socioeconomic status, and previous academic performance or predicted performance as determined by standardized testing. This intrapreneurial feat would reflect more of a startup culture that relied on the knowledge one possessed versus the degree, passion that members held as opposed to the titles, and an optimistic vision one could see versus the statistics. CWDSA would not only serve to transform students’ lives, but also the employees’ experiences through intentionally engaging members in work that was meaningful and suited to their strengths (Kahn & Fellows, 2013). In order to achieve the goals that were set before CWDSA, we had to think differently and innovatively—just as we had in the first summer bridge program of 2013. Through transformational leadership, emotional intelligence, and engaged employees, insurmountable obstacles were overcome.

For example, by working with students earlier in the year through Saturday Academy and focusing on stronger preparation for standardized tests and college curricula, students would minimize their overall need for remediation (See Table 3). This was evident in 2015, after the team had more time with the seniors before they arrived that summer.

Table 3: Comparison of 2015 SBA & CWDSA senior ACT scores

<table>
<thead>
<tr>
<th>Subject</th>
<th>SBA 2015</th>
<th>CWDSA 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math</td>
<td>17.4</td>
<td>18.1</td>
</tr>
<tr>
<td>English</td>
<td>18.1</td>
<td>17.5</td>
</tr>
<tr>
<td>Reading</td>
<td>18.3</td>
<td>19.5</td>
</tr>
</tbody>
</table>

Also, the refinement of the curricula based on the experience we had in 2014 created future success with the graduated seniors needing to bypass remediation. After working with the students through Saturday Academy and refining the curricula, more students were successful bypassing remediation (See Table 4). The students in CWDSA needed more personalized attention, which required an increase in staff and mentors. This proved beneficial to students, evidenced through more students passing in the years following 2014.
Table 4: CWDSA Program Results

<table>
<thead>
<tr>
<th>Cohort</th>
<th>Number of Participants</th>
<th>Bypassed Developmental Reading</th>
<th>Bypassed Developmental Writing</th>
<th>Bypassed Developmental Mathematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWDSA Summer 2014</td>
<td>58</td>
<td>56% (of those required)</td>
<td>62% (of those required)</td>
<td>52%</td>
</tr>
<tr>
<td>CWDSA Summer 2015</td>
<td>55</td>
<td>64% (of those required)</td>
<td>78% (of those required)</td>
<td>96%</td>
</tr>
<tr>
<td>CWDSA Summer 2016</td>
<td>117</td>
<td>53% (of those required)</td>
<td>69% (of those required)</td>
<td>93%</td>
</tr>
<tr>
<td>CWDSA Summer 2017</td>
<td>74</td>
<td>58% (of those required)</td>
<td>70% (of those required)</td>
<td>84%</td>
</tr>
</tbody>
</table>

The Leader’s Lens

I currently serve as director of the Dr. Charles W. Donaldson Scholars Academy and also as Assistant Vice Chancellor of Student Affairs, wherein I am responsible for student experience and leadership programming within the division. I am also a first-generation doctoral graduate and one of the younger administrators at the institution. The institution is located in the heart of Little Rock, and has a 30% minority student population. As one of the few young and also African American, female administrators, I often feel a burden to help students see what is possible with education. However, it became very clear that the work to be done is endless and impossible without proper cultivation of the team. The organization was born because of the successful use of unorthodox strategies and a strongly intertwined, faith-driven team. Sustaining such an organization will require the same and much more. I write these words not as an expert, but simply as a person who is interested in sharing my experiences building an organization from the ground-up aimed at transforming the lives of minority students.

I feel that some of the most impactful moments in our lives occur because of another person’s story. As I have progressed in academia, I have noticed how often I ask a leader to share their experiences or stories of successes and failures. Mentors have taught me many lessons over coffee or dinner, all rooted in stories of their past experiences. I have been warned, guided, uplifted, and brought to tears by leaders’ reflections. However, the majority of articles that are written reflect the academic voice of the researcher, which is imperative to us as practitioners. However, personal stories are also beneficial as we shape our careers and experiences. This article is written from this space and what I aim to do is offer a deeper look into the inner motivations, dialogues, and thoughts of myself, the leader of this organization. Ultimately, I hope to share what I wish I had known in order to help practitioners avoid unnecessary mistakes. If the mistake has already been made, there is no need to repeat it.

Literature Review

Transformational Leadership

Transformational leadership was differentiated from the more classic transactional leadership style by James MacGregor Burns (1978, 2004). Burns noted that many leaders, as observed throughout history, led based on an exchange, whether it was lower taxes for votes or promotions for productivity. Transactional leadership is based on someone giving something specific in order to gain something specific. However, transformational leadership aims to “move followers to exceed expected performance, as well as lead to high levels of follower satisfaction and commitment to the group and organizations” (Bass & Riggio, 2006, p. 3). This leadership style is an amalgamation of the visionary leader and inspired teammates, versus a set of top-down directives that do not necessarily represent the team members’
passions. In fact, the successful transformational leader celebrates the growth of the team member who excels from an introductory level to mid-level management through innovation and execution.

The transformational leader understands that ideas, success strategies, and creativity do not necessarily reside with those who have the most seniority, but rather with those who are open to embracing and trying new ideas without fear of failure. Yukl (1999) encouraged leaders to create the vision with their team, devise a specific strategy to achieve the vision that occurs in small, measured actions, and exude confidence regarding the implementation. The direct influence of the leader, which models and rewards creative thinking, risk-taking, and loyalty, drives the transformation.

The extent to which leaders are transformational is measured by their influence on their followers in terms of the degree to which they feel trust, admiration, loyalty and respect for the leader and are willing to work harder than originally expected (Armstrong & Taylor, 2017, p. 685). Transformational leadership is highly contingent on one’s understanding and use of emotional intelligence as well as one’s ability to create an emotional connection with followers (Avolio & Yammarino, 2013; Armstrong & Taylor, 2017; Yukl, 1999). This personal approach to leadership creates a high linkage between emotional intelligence and transformational leadership.

**Emotional Intelligence**

Emotional intelligence is “the ability to monitor one’s own and other’s emotions, to discriminate among them, and use the information to guide one’s thinking and actions,” (Kumar, 2014, p. 1). Amazing leaders have been separated from brilliant minds through their understanding and application of emotional intelligence. Successful organizations require that people work as a team. Leaders with high levels of emotional intelligence understand, implement, and reward emotional intelligence.

While most organizations employ the brightest minds, their achievement and progression is often impeded due to attitude. Emotional intelligence challenges members to not only possess the degree, IQ, and credentials, but also the people skills to successfully reach the organizational goals as well as their own (Mittal & Sindu, 2012; Goleman, Boyatzis, & McKee, 2013; Parrish, 2015). Emotional intelligence is often the key differentiator between a transformational leader and transactional leader, which tends to focus on performance, leading to rewards or the withholding of rewards. In addition, leaders with higher levels of emotional intelligence possess trustworthiness, which in turn results in high levels of creativity and innovation (Dorinela, Gabriela, & Alexandra, 2011).

When organizational members lack trust, more time is spent on self-preservation than on creatively solving problems and achieving organizational goals (Goleman et al., 2013; Parrish, 2015). For example, the CWDSA program is funded by money that will eventually deplete. The employees trust that I will ensure the funding sources will increase, and that they will be able to continue working without focusing on their job depletion. At minimum, they trust I will let them know well in advance if they need to seek employment elsewhere. However, if an employee lacks trust that I have their best interest in mind, then they will spend time wondering how to secure a better role or job within the institution that is funded differently, taking away from their ability to successfully perform their role.

**Transformational Leadership, Emotional Intelligence, and Application**

Effective transformational leadership encompasses four aspects: 1) individualized consideration, 2) intellectual stimulation, 3) inspirational motivation, and 4) idealized influence (Avolio & Yammarino, 2013; Armstrong & Taylor, 2017). This section illustrates how transformational leadership is highly intertwined with emotional intelligence in practical application.

**Individualized Consideration**

A leader who is genuinely interested in the professional and personal progression of their team invests time in their individual development. They understand that the personal bleeds into the
professional, regardless of how separate people would like to believe they are. The leader provides coaching, mentorship, and empathy in order to see the team member evolve into a well developed professional. Ultimately, they work to help each team member discover an intrinsic motivation for their work and provide honest feedback and motivation. The leader’s level of empathetic understanding and social skill is important to the team member feeling truly considered (Armstrong & Taylor, 2017; Burns, 2004).

**Practical Application**

It is important for leaders to invest time to see their team members develop. However, time is a precious commodity, and the higher one excels administratively, time becomes more limited. In my experience, I found that spending time over dinner or lunch brought great satisfaction to team members, regardless of whether the time was spent individually or collectively. I try to have at least one informal engagement with each team member on an individual basis per month. This tends to be more difficult the larger the team grows, so the key leaders in the organization should be given this consideration in the least. Depending on the depth of the project, it could require more than one, but it is important to recognize that there are only so many hours in the day, so be strategic.

It should also be noted that once the team member gets used to this kind of consideration, it is hard to falter. I worked hard to develop one of my team members, but as my responsibilities grew, I had to spend more time developing the new team members and resentment developed. While I did not intend to ignore the relationship that I had developed with my team, they perceived the actions as my being removed and disconnected from them, and it was very challenging rebuilding what we had originally established. It is important to understand that when a relationship is formed, it must be maintained, and that requires that the leader be mindful of accountability in the relationship. While it would have been nice for the team member to understand that I was just swamped with new employees, it can be difficult for one to know how to manage what seems to be rejection. Knowing these ideas upfront and setting clear expectations will help the relationship remain healthy.

**Intellectual Stimulation**

This is reflected in the way the leader encourages creativity, promotes innovation, and develops those who are independent thinkers. These leaders do not retreat at the sight of unexpected situations, but rather embrace the unknown and seek it as an opportunity to create something new. The leader challenges followers to develop strategies through deep thinking and working together to solve seemingly impossible problems. In turn, the followers grow and reach new heights intellectually and professionally (Armstrong & Taylor, 2017; Burns, 2004). However, connecting with the team members and being sensitive to where they may feel inadequate is imperative to their opening up regarding their ideas. This is where emotional intelligence becomes vital, because it is different for each team member (Bradbury, Su, & Arora, 2007).

**Practical Application**

Within the university setting, it is not uncommon to have student employees. The CWDSA program is no different in that it employs its own share of student employees, in an effort to help them develop professional skills that will aid them in their future workplace. CWDSA aims to develop student leaders who are confident, independent thinkers who can make a decision and effectively solve problems. While there are some people on our team who have graduated from college, many of the student workers have been working at the with the program in some way since their freshman year of college.

I challenge them to solve problems and create strategies that are presented to me, rather than regularly telling them the answer to their questions. The result has been a core team of people who create innovative curricula, respond to unexpected situations, and propose solutions rather than questions. However, when introducing new team members, this established history can be intimidating because, regardless of age, many are taught to do as they are told versus creating new ways to solve problems. In this way, the CWDSA leadership team reflects the startup culture that has become so prominent today. In my experience, there are more people who have been taught to respond to a transactional form of
leadership wherein they accomplish a structured set of tasks in order to receive their compensation rather than a transformational, innovative culture.

As a leader, it is imperative to encourage those new members who may not have had the same type of structure. The reality is that the transformational leader works well with those who are independent thinkers. Team members who are not strong independent thinkers could feel like an outsider or as if they will not be able to succeed. The reality is that unless they begin to become creative problem solvers, they probably will not feel the inclusion from the team. As a transformational leader, it is important to recognize that the leaders on your team did not begin where they are now. Investing time and effort, clear expectations, and an opportunity to grow into this kind of leadership role is important for the new employee. Administrators should consider this issue before hiring and aim to employ the person whom can adapt easily into such an environment.

**Inspirational Motivation**

The leader is responsible for inspiring a vision that is tangible, exciting, and drives followers to achieve. Purpose and meaning must be attached to the followers’ roles in order for them to act in accordance to the goals at hand. Strong communication and plans for execution are imperative to followers being able to drive the mission. This requires that the leaders’ emotional intelligence encompass their ability to motivate others. In order to effectively motivate others, a leader must be attuned to what drives each follower to achieve. A leader with high levels of emotional intelligence knows how to motivate followers based on their own motivations (Armstrong & Taylor, 2017; Burns, 2004).

**Practical Application**

The success of CWDSA relies heavily on motivation, partly because my background as a motivational speaker has created a motivational foundation within the organization. Relationship building, candid conversation, and emotional connection are not uncommon in this tight knit kinship, and it extends to the design of experiences for student events. In order to be truly motivational, one must be willing to be vulnerable, open, and honest about their struggles, faults, and victories. This relational quality drives the team to excel beyond what they thought possible, but also creates a common bond amongst students, causing them to become motivation for each other. The successes that the CWDSA team has seen are highly contingent on the motivational structure that is embedded within the curricula. Once students begin to believe in themselves and their abilities, the impossible becomes possible and they reach heights they never thought would be a reality.

**Idealized Influence**

The transformational leader possesses high ethical standards that cause followers to respect them and want to follow (Armstrong & Taylor, 2017; Burns, 2004). In order to achieve this influence, the leader must possess high levels of self-awareness, another trait of emotional intelligence. These unspoken rules of politics often require that the leader navigate treacherous waters, and the team recognizes this and often will seek to help in some way. Operating in integrity and communicating tough decisions helps the team gain a stronger knowledge of what the landscape of leadership requires, and also helps develop them for when they face similar decisions.

**Practical Application**

Serving students at a predominately white institution and a historically black college presents unique opportunities to engage with very different organizational cultures. As a leader, it is not uncommon to want to shelter the team from certain political challenges, and in many situations it is important to do so. However, I have learned that when you are very much intertwined with your team, they feel the weight you are carrying and seek to relieve you of some of the burden. Sharing certain aspects of your experiences allows them to connect with you and also helps them understand how they can be instrumental. They also feel more connected to the mission and work to become a part of the
solution, even if it is just moral support. I have found that leaning more toward openness with the team creates more cohesion and helps everyone move forward together.

Conclusion

In conclusion, I will state again that this is not written from an expert perspective, but rather as a reflection of how constant refinement and continuous learning is required to reach goals many choose to avoid. Also, the positive results that we have seen are not solely the result of my leadership style, but a myriad of factors including creative partners, dedicated team members, and innovative pedagogy. Transformational leadership and emotional intelligence requires a vulnerability of the leader and a humility that challenges the leader to not only reach goals, but ultimately experience a transformation themselves. I have cried myself to sleep many nights upon the realization of how powerless I am to change certain people’s own perception of themselves. I remember Dr. Donaldson, the program’s namesake, speaking to a group of leaders a few years ago. He said that what kept him up at night was what happened with his team. Today, I understand what he meant. When you lead and love together, the world seems attainable, but you breathe every breath together, lose every student together, and walk the graduation stage with each one of those students who attain their degree… together.
References


Are Course Withdrawals a Useful Student Success Strategy?

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Abstract: Course withdrawals have significant cost and curricular implications for both students and institutions. Yet within the student retention literature, little is known about the context or impact of course withdrawals. We examined course withdrawals for first-year students from a sample of nine universities. Data reveal that a) demographic and contextual factors differentially influence the use of course withdrawals. Further, these data suggest that course withdrawals have negative consequences to second-year retention, even when compared to making grades of D or F. We discuss implications for academic advisors, retention specialists, and faculty leaders, as well as policy and future research considerations.

Introduction and Background

Withdrawal from college has been a consistent topic in the literature for decades. Since Spady (1970) and with prominent reference to Tinto (1975, 1993), an interactionist model of student retention has been most consistent. It is widely accepted that the academic and developmental context (institutional and external factors) plays an important role in facilitating student integration or engagement. A diverse body of research has reinforced that the interaction of demographic and contextual factors influence initial commitment, persistence and eventual goals for graduation.

For example, empirical research has examined student and institutional factors that correlate to premature departure from college. Scoggin and Styron (2006) found personal, financial, and work reasons the most common explanations. They found some gender and race interactions – whereas women cite personal reasons, men more often cited work, and Black students cited financial reasons more frequently. Meeuwisse, Severiens, and Born (2010) found similar results, that most students depart higher education due to personal or home reasons, followed by job prospects, poor quality of education, ability deficits, and finally a perceived negative culture. While they discovered that low income and minority students drop out at a higher rate, demographic differences were not significant when examining the reasons reported for leaving school. These studies are a small part of a broader body of work that explores themes such as social support and motivation (Christie, Munro, & Fisher, 2004), university organization (Yorke, 1999), financial obligations and gender (Davies & Elias, 2003), and culture (Read, Archer, & Leathwood, 2003) among other themes.

“Student’s performance and progress in post-secondary education is multidimensional and, we contend, not well captured by a single measure such as final course grades” (Stewart & Martinello, 2012, p. 28). Dunwoody and Frank (1995) suggest that course withdrawal is a complex interaction of student, instructor, and course. While not a precise measure of learning, Adelman (2006) described course withdrawal as “degree-crippling” (p. 8). In fact, Daubman, Williams, Johnson and Crump (1985) found that students who withdrew from college often had frequent course withdrawals prior to departure. However, unlike theory and research on retention, research specifically on course withdrawal has been sparse, the scholarship is dated, and the quality of studies has been varied.

Course Withdrawal

Parallel to the retention literature, the available research on course withdrawal most commonly explored the reasons for student withdrawal from courses. For example, Adams and Becker (1990) examined five large enrollment courses at the University of Minnesota. They found several factors
significantly and positively related to course withdrawal including higher number of credits attempted, more experience in college, previous withdrawals, and lower GPAs. Several of the factors not significant included transfer status, ethnicity, gender, athletic enrollment, income (those receiving aid), as well as if the course was in the student’s major or if there were a large number of students in the course. Oddly, although class size did not appear significant, they found that the faculty with higher teaching loads (the number of students taught) had significantly fewer students withdrawing from their courses. These are the most common findings in the aggregate, but Adams and Becker note that each specific course demonstrated different patterns (findings varied by course).

At one Canadian university, Stewart and Martinello (2012) found that transfer students were less likely to withdraw, although not statistically significant. Like Adams and Becker (1990), they found that course type mattered (e.g., withdrawal and course grades differed based on subject matter) and students with more credits were more likely to withdraw, although gender was not significant. Over time, studies on course withdrawal focused on specific disciplines. For example, Boldt, Kassis and Smith (2015) suggest that students with a previous history of withdrawals and those on merit scholarships were more likely to withdraw from business courses. Further, course withdrawals were more common in accounting courses as compared to introductory economics of business law classes. They found that Black students, students with more credits, and students with higher GPA and SAT scores were less likely to withdraw from courses. In a similar study, Nicholls & Gaede (2014) examined withdrawal circumstances in engineering courses. Findings too suggest a combination of significant (e.g., transfer, low GPA) and nonsignificant (e.g., gender, race) findings not only for who chooses to withdraw, but also extending time to graduation.

Some of the descriptive studies used surveys or interviews to query students about course withdrawals. In one of the earlier studies, Reed (1981) found satisfaction with performance (confidence), motivation (relevance) and impressions of the instructor (likable, helpful) as the main factors for students who withdrew from a random sample of five classes from Kansas State University. Although this and other early research (e.g., Bean & Metzner, 1985; Semb, Glick, & Spencer, 1979; Wollman & Lawrenz, 1984) sometimes characterize withdrawal as instructional failure, Dunwoody and Frank (1995) found students’ report the primary reason for course withdrawals as work responsibilities or family issues (38% of the variance was these personal reasons). Less variation was attributed to not liking the course, not understanding material or problems with the faculty. Recent studies (Meeuwisset et al., 2010; Scoggin & Styron, 2006) also found personal or home situations as the more prominent explanation for course withdrawal.

Even so, the Dunwoody and Frank study did note a disconnect between student and faculty perceptions. They found that 64% of the items noted for withdrawal were significantly different when comparing students to faculty perspectives, with faculty almost exclusively reporting non-academic reasons for withdrawal and viewing “their own influence as less important than the students did” (p. 557). Finally, in a recent study, Michalski (2014) used text analysis of student explanations for withdrawals. He found common academic explanations including schedule adjustments, delivery mode, and faculty, while common nonacademic rationales included family, financial, health and work issues.

In conclusion, results are mixed on why students withdraw, and little is known about the implications of course withdrawal. Adelman (2006) estimated that the probability of earning a degree is reduced by one half (and the majority leave in the first year) if the ratio of course uncompleted to course attempt is greater than 20%. We explore both utilization and impact of course withdrawals next.

**Research Questions**

The accessible literature includes mostly studies with small sample sizes and few or a narrow array of courses. We include multiple universities, thousands of students, and hundreds of courses to explore two primary research questions:

1) What demographic/contextual factors predict student withdrawal from a course?
2) What impact does course withdrawal have on first to second-year student retention?
We compare these findings to students earning a D or F in the same courses to understand a fuller picture of how the behavior of course withdrawal is utilized in the context of student success.

**Methodology**

**Sample**

The data for this study includes 126,034 students from nine different universities who first enrolled between August 2009 and September 2014 and are members of the PAR Framework division of Hobsons, Inc. The institutions are public four-year universities located in the upper mid-west and southeast United States that ranged from inclusive to selective admissions criteria based on Carnegie classifications. Data points were captured within a student’s first fall and spring term at their institution.

**Variables**

Similar to previous research, a number of variables were considered as possible predictors of course withdrawals, and as control variables in modeling the relationship between course withdrawals and failing to retain to the next year (stopping-out). In the models for stop-outs, variables describing course grades and course withdrawals were also included. The full list of variables and descriptions can be found in Table 1.

To avoid the possibility of data leakage, a phenomenon in which data not known until a later point in time or data on the outcome variable is inadvertently included among the independent variables, the values for each of these variables represent what was known only as of the student’s first term at the university for predicting withdrawals, and second term at the university for predicting stop-outs. Continuous variables were broken down into a small number of categories due to nonlinear relationships with the outcome variables and for ease of interpretability.
Table 1: Variables considered

<table>
<thead>
<tr>
<th>Variables Considered</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographics</strong></td>
<td></td>
</tr>
<tr>
<td>Age at Entry</td>
<td>Based on the age of the student when they first entered the university, and split in to three categories: (1) 18 and Under (2) 19 to 24 (3) 25 and Older</td>
</tr>
<tr>
<td>FAFSA</td>
<td>Indicates whether a student filled out a FAFSA prior to enrolling (Yes or No)</td>
</tr>
<tr>
<td>Gender</td>
<td>Gender of the student, coded Female or Male</td>
</tr>
<tr>
<td>Pell</td>
<td>Indicates whether a student received a Pell Grant as of their first (or second) term at the university (Yes or No)</td>
</tr>
<tr>
<td>Race</td>
<td>Race of the student split in to four categories: (1) African American (2) Hispanic (3) other Minority (4) White</td>
</tr>
<tr>
<td><strong>HS/Transfer Information</strong></td>
<td></td>
</tr>
<tr>
<td>High School GPA</td>
<td>Student's self-reported High School GPA was split in to five categories: (1) HS GPA &lt; 2, (2) 2 ≤ HS GPA ≤ 3, (3) 3 ≤ HS GPA ≤ 4, (4) HS GPA &gt; 4, (5) Not Reported</td>
</tr>
<tr>
<td>Prior Credits</td>
<td>The number of academic credits earned by a student prior to entering the university (this includes credits transferred from another college/university and college credits earned while a student was in High School) was split in to four categories: (1) 1 to 4, (2) 5 to 30, (3) Greater than 30, (4) No Prior Credits</td>
</tr>
<tr>
<td>Transfer</td>
<td>Indicates whether or not a student is a transfer student (Yes or No)</td>
</tr>
<tr>
<td><strong>Major/Course Taking</strong></td>
<td></td>
</tr>
<tr>
<td>Course Credits Attempted</td>
<td>For predicting withdrawals, credits attempted are based on a student's credit attempts in their first term. For predicting retention, credits attempted are cumulative credits attempted as of the end of a second term divided by the number of terms the student was active. This way the variable is on the same scale for students who stopped out prior to their second term, as it is for students who persisted to a second term. For both outcomes, the variable is split in to three categories: (1) &lt;12 credits attempted, (2) 12-14 credits attempted, (3) 15 or more credits attempted</td>
</tr>
<tr>
<td>Course Delivery Mode</td>
<td>If a student is attempting 100% of their credits online, the student's delivery mode is &quot;Fully Online&quot;. If the student is attempting 100% of their credits in person, their delivery mode is &quot;Fully Onground&quot;. For students taking both online and in person courses, their delivery mode is &quot;Blended&quot;</td>
</tr>
<tr>
<td>Developmental Education Taken</td>
<td>Indicates whether a student has attempted developmental education courses (Yes or No)</td>
</tr>
<tr>
<td>STEM Major</td>
<td>Indicates whether a student is majoring in a STEM field (Yes or No)</td>
</tr>
<tr>
<td>Undeclared Major</td>
<td>Indicates whether the student's major is undeclared (Yes or No)</td>
</tr>
<tr>
<td><strong>Course Performance</strong></td>
<td></td>
</tr>
<tr>
<td>C Ratio</td>
<td>The percentage of credits attempted resulting in grades of C. This is split in to four categories: (1) 0%, (2) 0%&lt; C Ratio ≤ 20%, (3) 20%&lt; C Ratio ≤50%, (4) Greater than 50%</td>
</tr>
<tr>
<td>D Ratio</td>
<td>The percentage of credits attempted resulting in grades of D. This is split in to three categories: (1) 0%, (2) 0%&lt; D Ratio ≤20%, (3) Greater than 20%</td>
</tr>
<tr>
<td>F Ratio</td>
<td>The percentage of credits attempted resulting in grades of F. This is split in to four categories: (1) 0%, (2) 0%&lt; F Ratio ≤20%, (3) 20%&lt;F Ratio&lt;100%, (4) 100%</td>
</tr>
<tr>
<td>Withdrawal Ratio</td>
<td>The percentage of credits attempted that were withdrawn. This is split in to four categories: (1) 0%, (2) 0%&lt; F Ratio ≤20%, (3) 20%&lt;F Ratio&lt;100%, (4) 100%</td>
</tr>
</tbody>
</table>

*Note. *These variables are only considered for the models predicting student retention and are calculated at the end of the student's first academic year, or as of the student's last date active at the institution, whichever occurred first

Data Analysis

To answer the first question of our study, what predictors or student characteristics were associated with withdrawing from courses, we used binary logistic regression to model whether or not a student had one or more course withdrawals within their first term. Separate models were built for each institution in the study. We did not look beyond the first term for this question, so we could focus on predictors universities can be aware of before a student begins taking courses and to avoid challenges of accounting for students who drop out after their first term. For this question, withdrawals were initially considered as a binary variable (zero withdrawals in the first term, or at least one withdrawal in the first
term), an ordinal variable, and as a count variable in a negative binomial regression. Because the models in which withdrawals were treated as a binary variable fit the data best based on the Akaike Information Criterion (AIC), withdrawals were treated as a binary dependent variable.

The second goal of the study was to estimate the impact of course withdrawals on student retention and to compare the impact of withdrawals to that of D grades and F grades. These variables were captured at the end of a student’s first year, and the student’s course delivery mode and course credits attempted were also updated to reflect their values at the end of the first academic year. In an effort to account for the nonlinear relationships between these variables and student retention, the varying number of course credits attempted among students, and to make the results as interpretable as reasonably possible, these variables were binned in to distinct categories as outlined in Table 1. The cut-offs for the bins were selected to be intuitive and actionable for university decision makers. For instance, for a student attempting 15 credits per term, withdrawing from 20% of courses corresponds to 3 credits (equal to one course per term in most courses at most institutions). For both F credits and withdrawal credits it was necessary to create a separate group for those who made Fs in or withdrew from 100% of their attempted credits as very few of these students retained to their second year. For this reason, and because these students may have had challenges not captured in the data, this report focuses on the middle two levels of F credits and withdrawal credits.

For simplicity, students with 1 to 20% of D credits, F credits, or withdrawal credits will be referred to as students with a low percentage of credits in the respective category, while students with 21% to 99% (or 21% to 100% in the case of D grades) will be referred to as students with a high percentage of credits within the respective category. Once again, binary logistic regression was used estimate the effect of withdrawing from courses on stopping-out (or not retaining) prior to the student’s second year and separate models were built for each participating university. All models were checked for multicollinearity among the independent variables by dummy coding categorical variables in a linear regression, and assessing the variance inflation factor (VIF). No variable had a VIF greater than 10, a common rule of thumb when checking for multicollinearity (Dormann et al., 2013), in any of the regression models. This is particularly important because we have multiple indicators of course performance in the model (C ratio, D ratio, F ratio, and withdrawal ratio). Ruling out the possibility of multicollinearity provides reassurance that the resulting coefficients and standard errors are stable estimates.

Effect sizes for independent variables are expressed as odds ratios, a commonly used metric to measure relationships between categorical variables in logistic regression (Allison, 2012). Odds ratios greater than one indicate greater odds of stopping-out, while odds ratios below one indicate lesser odds. The further the odds ratio is from 1.0, the stronger the effect.

Results

Predicting Withdrawals

The first phase of the study was to determine what variables might predict whether or not students withdraw from a course in their first term. The overall percentage of students who withdrew from at least one course in their first term was approximately 20%. This figure ranged from 15-25% across the nine universities suggesting some variability in the number of students withdrawing from courses across institutions.

After building logistic regression models for each institution, a handful of common predictors emerged. Among the demographic variables considered, Pell recipients had greater odds of withdrawing from at least one course at seven of the universities (odds ratios ranged from 1.13 to 1.85). African-American students had greater odds of withdrawing from at least one course than white students at six of the universities (odds ratios ranged from 1.24 to 1.46), and at four universities female students had lower odds of withdrawing from at least one course when compared to male students (odds ratios ranged from 0.82 to 0.93). Additionally, students who were between 19 and 24 years old at entry had higher odds of
withdrawing from at least one course than students who were 18 or younger at four institutions (odds ratios ranged from 1.16 to 1.38), while students who filled out a FAFSA had slightly higher odds of withdrawing at two universities.

Among the High School/Transfer variables, we found that students reporting high school GPAs above 4.0 had much lower odds of withdrawing from at least one course than students reporting high school GPAs below 2.0 at seven institutions (odds ratios ranged from 0.10 to 0.60). It is worth noting that there was some correlation between transfer students and prior credits, but not enough to warrant concerns of multicollinearity. Among these two variables, the most noteworthy finding was that students entering with 4-30 prior credits had lower odds of withdrawing from at least one course than students entering with no prior credits at four institutions (odds ratios ranged from 0.69 to 0.87). Students entering with over 30 prior credits had lower odds of withdrawing from three of those same institutions. Transfer students were more likely to withdraw at two of these four institutions, and also at one of the universities where having over 4-30, or over 30 prior credits was not a significant predictor.

The final group of variables considered for predicting withdrawals were those having to do with a student’s major at entry and the number and types of course credits a student attempted in their first term. The strongest finding among these was that students attempting 15 or more credits in their first term had much greater odds of withdrawing from at least one course than both students attempting fewer than 12 credits and students attempting 12 to 14 credits at all nine institutions. This likely reflects that these students have more credits from which they can withdraw from, especially since the outcome modeled is binary rather than the percentage of credits withdrawn. Students who attempted at least one developmental education (Dev. Ed.) course had greater odds of withdrawing than students who had attempted zero Dev. Ed. courses (odds ratios ranged from 1.16 to 1.45) at five universities. Undeclared majors also had greater odds of withdrawing at three of the universities.

For brevity, we have called out variables that were statistically significant in the models for at least two of our university participants. Full results for each institution, including odds ratios for each level of the independent variables and the corresponding significance level, can be found in Table A1 in Appendix A.

The Impact of Ds, Fs, and Withdrawals on Retention

The distributions of withdrawal credits during a student’s first year at the institution is heavily skewed. A majority of students had zero withdrawals and over 75% of students had 3 withdrawn credits or fewer. Table 2 shows how retention rates varied by the D, F, and withdrawal ratios across the full dataset. Differences between 0% and 1 to 20% (1 to 20% would correspond to one or two 3 credit courses for a student attempting 30 credits over two terms) were small for each of the three ratios. Much larger differences were observed among students withdrawing from over a fifth of their course credits. Retention rates were also lower for those withdrawing from a high percentage of their course credits than for those making Ds in a high percentage of their course credits, and lower still for those making Fs in a high percentage of their course credits. However, these are only raw retention rates and controlling for possible extraneous variables will help better estimate the impact of D grades, F grades, and course withdrawals on student retention.

Table 2: Percent of students retained by ratio of D grades, F grades, and withdrawn courses

<table>
<thead>
<tr>
<th>Ratio</th>
<th>0%</th>
<th>1 to 20%</th>
<th>21% to 99% (100% for D Ratio)</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/ % Retained</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>D Ratio</td>
<td>78,930</td>
<td>76%</td>
<td>21,319</td>
<td>80%</td>
</tr>
<tr>
<td>F Ratio</td>
<td>86,280</td>
<td>82%</td>
<td>22,439</td>
<td>81%</td>
</tr>
<tr>
<td>Withdrawal Ratio</td>
<td>82,706</td>
<td>79%</td>
<td>17,133</td>
<td>79%</td>
</tr>
</tbody>
</table>
Once again, logistic regression models were built, this time to examine the likelihood a student will stop out and not return to a second year. We start by exploring the results of having at least one course withdrawal, but no more than 20% of course credits withdrawn from, and then compare these effects to similar levels of D and F credits. The effects are expressed in odds ratios which estimate the impact on retention odds with all else held constant. The reference level for each of the course performance variables is zero percent. So the odds ratio for students with a small percentage of Ds for example, is estimated holding all else constant including all other course performance variables at zero percent. Controlling for C, D, and F grades and the variables mentioned in question 1, having a low percentage of withdrawals resulted in having 1.13 to 1.51 times greater odds of stopping-out than students with no withdrawals at four universities, and no significant effect at the other five. To frame this around the typical full-time college student attempting 30 credits over two terms, we have some evidence that withdrawing from one or two 3 credit courses has a slightly negative impact on student retention.

At six universities, students who had a small percent of D credits had lower odds of stopping out than students with zero D credits. We found it curious that students making Ds in a small percentage of their course credit attempts actually had lower odds of stopping-out than students making zero Ds in their first year. Across all institutions, students who made zero Ds tended to do very well academically, as the median GPA for this group was 3.24 and the median pass rate for all courses attempted was 100%. We believe the models may be picking up that students with zero Ds are more likely to transfer out to a different university, while students with a small percentage of Ds are doing well enough to persist to the next year but not so well that they can transfer to a stronger university. Although this is just conjecture as students with some Ds also might acknowledge or believe their performance may be a factor of a particular course rather than overall ability.

At seven of the nine institutions, students with low percentages of F grades had slightly higher odds of stopping-out than students failing zero courses. Again, to frame this in a meaningful way, for the average student attempting 30 credits in their first two terms, making D grades in one or two courses is not generally a significant risk factor in our data. Withdrawing from one or two courses was a small but significant risk factor at four of the nine universities, and failing one or two courses was a small but significant risk factor at seven of the participating universities. Taken as a whole, the evidence suggests a small number of course withdrawals are worse than a small number of D grades, but possibly preferable to a small number of F grades. Odds ratios for these effects, along with 95% confidence intervals and levels of statistical significance, are displayed for each institution in Table 3. This is a particularly noteworthy finding, suggesting that even a small percentage of course withdrawals can have a negative effect on retention and that students are better off earning a grade as low as a D than withdrawing from a course.

Table 3: Odds ratio estimates of stopping-out for D, F, and withdrawal ratios of 1-20% by institution

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<tr>
<td>Ratio</td>
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<td>1.13*</td>
<td>1.17**</td>
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<td>1.51***</td>
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<tr>
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<td>1.00)</td>
<td>1.72)</td>
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Note. *p < .05, **p < .01, ***p < .001.
As observed in Table 4, higher levels of withdrawal ratio had a stronger effect on the odds a student will stop-out. Students who withdrew from more than a fifth of their attempted credits (but not from all of their attempted credits) had 1.65 to 3.01 times greater odds of stopping-out than students who withdrew from zero credits in our sample. This effect was significant at the lowest alpha level for all nine institutions.

There is a small effect associated with a high percentage of D grades at four of the nine institutions. The impact of having a high percentage of F grades was fairly large and significant at all nine institutions at the smallest alpha level reported. Once again, viewing this through the lens of the average student attempting 30 credits over two terms, making D grades in three or more 3 credit courses still only has a small effect on odds of retention and is only significant for four of the universities studied.

However, if the same student made F grades in three or more 3 credit courses (excluding those who failed all course attempts) the student would have 2.52 to 5.85 times greater odds of stopping-out depending on the university. A similar number of course withdrawals would result in 1.65 to 3.01 times greater odds of stopping-out in our sample. The results here are also enlightening, as we observe fairly strong relationships between a high percentage of course withdrawals and student retention, and once again observe that course withdrawals may have worse consequences than a similar percentage of D grades.

In this section, we have focused on the effects of the main variables of interest in this study, D grades, F grades, and course withdrawals. The full results for the retention models can be seen in Table B1 in Appendix B.

Table 4: Odds ratio estimates for D ratios of 20-100%, and F and withdrawal ratios of 20-99% by institution

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<tr>
<th>Variable/ Institution</th>
<th>Odds Ratios by Institution</th>
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<td><strong>D Ratio</strong> 20-100% vs 0%</td>
<td>1.49*** (1.37, 1.61) 1.31*** (1.19, 1.45) 1.20** (1.09, 1.32) 0.95 (0.78, 1.06) 1.09 (0.86, 1.32) 0.93 (0.80, 1.05) 1.19** (1.05, 1.35) 0.92 (0.79, 0.86) 1.00 (1.00, 1.00)</td>
</tr>
<tr>
<td><strong>F Ratio</strong> 20-99% vs 0%</td>
<td>5.80*** (5.35, 6.29) 3.84*** (3.48, 4.25) 3.53*** (3.22, 3.88) 3.94*** (3.29, 4.73) 4.88*** (4.35, 5.48) 2.52*** (2.20, 2.88) 3.28*** (2.90, 3.71) 3.32*** (2.87, 3.86) 3.44*** (3.01, 3.94)</td>
</tr>
<tr>
<td><strong>Withdrawal Ratio</strong> 20-99% vs 0%</td>
<td>1.97*** (1.78, 2.17) 1.73*** (1.58, 1.90) 2.15*** (1.96, 2.35) 2.81*** (2.37, 3.34) 1.65*** (1.45, 1.88) 1.88*** (1.62, 2.17) 3.01*** (2.65, 3.41) 2.00*** (1.71, 2.34) 1.92*** (1.64, 2.25)</td>
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</tbody>
</table>

Note. **= p < .05, *** = p < .01. Note. The numbers in parentheses display 95% profile likelihood confidence intervals for the odds ratio estimates.

Conclusion

Intuitively, a student’s ability to continue on their educational path is challenging with numerous course failures in their first year. Even so, these data reveal that course withdrawal is nearly as damaging for first to second-year retention. Although some may view course withdrawal as a means to avoid a low GPA, it may instigate academic disengagement as damaging to course failure. Stewart and Martinello (2012) suggest that measures besides course grade, like course withdrawal allow for other, perhaps more detailed measures of student performance.

We cannot be definitive or precise about the reason for course withdrawal. Research from a variety of scholars (e.g., Mertes & Jankoviak, 2016) highlight motivation, quality, cost, administrative issues, dissatisfaction, and unmet expectations. In our data, demographic and contextual factors demonstrate findings that confirm previous research (e.g., higher withdrawals with low GPA; Adams &
Becker, 1990; Nicholls & Gaede, 2014), but also contradict previous research (e.g., significantly lower use of course withdrawals by African American students; Boldt et al., 2015).

Of the independent variables that were most consistent in our data, the strongest predictors of course withdrawals were low high school GPA and a higher number of credit hours attempted (15+). This is not surprising, as we would expect students with better high school records would be less likely to withdraw from courses, but is important nonetheless as it indicates universities may be able to use student’s high school GPA to better assess which students may be at risk of withdrawing from courses within their first term.

An interesting finding emerged with Free Application for Federal Student Aid (FAFSA) completion. While filling out a FAFSA could partially reflect a student’s income as well (higher income students may be less likely to fill out a FAFSA), this could also reflect lack of awareness of how to submit for federal student aid. Future studies that gather data on students’ socioeconomic status may be able to better tease out the effect of income and Pell grants on course withdrawals.

Finally, our data suggest a higher probability of course withdrawals for students with traditional risk characteristics (e.g., Pell recipients, male, developmental education). However, even these factors familiar to retention specialists were not always significant at every university in our sample. It appears that predicting students who might withdraw is a precarious endeavor. Even so, the impact of course withdrawals revealed in our second research question suggests a need to understand patterns of course withdrawal locally at one’s home institution.

Although we could not locate previous research on the impact of course withdrawals on retention to the second year, our data is clear. Many students withdraw from courses to avoid a poor grade impacting their GPA, which may not be a wise choice if the student is capable of making a D or better in the course. As mentioned in the results section, the evidence suggests a small number of course withdrawals are worse than a small number of D grades, but possibly preferable to a small number of F grades. Furthermore, the impact of having a high percentage of course withdrawals in the first year can be especially damaging to a student’s chances of retaining, even when compared to the impact of a similar number of D grades. Many institutions will not count a D toward graduation, however, earning a D in a course might indicate a level of effort or resilience and include additional learning of course material that may not be present in either course withdrawal or an F grade. Indeed, earning a D in a course had much less impact on stop out as compared to F or course withdrawal. We wonder if there are some psychological benefits of staying in the course parallel to the persistence to staying at an institution among academic difficulties. In contrast, these data clearly demonstrate that a grade of F or a choice to withdraw results in a much greater chance to stop out. While the finding is clear, the implications of the finding does create challenges for academic advisors. For those students who hover near the borderline of a D or an F, it is unclear if and when a course withdrawal would be an advisable choice.

Implications for College Faculty and Staff

Adams and Becker (1990) used the metaphor of a returning goods purchased and a warranty period on merchandise to students’ satisfaction with a course when exploring course withdrawal. They believe course withdrawal is an instructional or product failure (by class, not institution). Students search and sample courses on most campuses during a set “drop/add” period. Once students remained enrolled past this exploratory period the only way to escape a failing course may be course withdrawal.

Even though course withdrawal is not a precise measure of retention, as students can enroll in the course again later (Stewart & Martinello, 2012), we believe there are detrimental costs. Dunwoody and Frank (1995) found that students report that withdrawals were a large waste of both time and money. Further, course withdrawals have significant cost implications for institutions. Even beyond the clear impact on student retention, it is clear that course withdrawals can be problematic for the ecosystem of higher education.

Although varied, reasons for student course withdrawal is valuable information for faculty. As Dunwoody and Frank (1995) noted, the perceptions of students and faculty were not consistent in their study. These data also suggest finer, actionable data may be needed and available in learning management.
systems (LMS). It may be possible to create models that include variables such as frequency of access, duration of connection, and interactivity with the system that may better predict student success for advisement on course withdrawal. There is promising research (e.g., Arnold & Pistilli, 2012) toward this path already available.

Stewart and Martinello (2012) noted that course withdrawals look better on transcripts than certain grades. That may be so, but our data suggests concerns around retention may be more important than transcript appearance. Wheland, Butler, Qammar, Katz, and Harris (2012) also suggest advisors must push self-authorship for students, where advisors explain the consequences clearly on course withdrawals, and have students connect choices to academic resilience and future goals. We encourage advisors to recommend course withdrawal carefully, and consider the benefits of a course grade of D and the retention risk for each student individually.

Nicholls and Gaede (2014) suggest university policies matter a great deal on course withdrawal. Adams and Becker (1990) noted a policy at Stanford University where students may withdraw all the way up to the final exam. While this may be feasible at institutions with fewer retention concerns, it seems to be an anomaly. Humphrey & Yanochik (2008) suggest limiting students to five course withdrawals (12% of hours required for graduation) with only extreme exceptions (e.g., military requirements). Other options also exist for institutions to consider so that vulnerable students might avoid both a course withdrawal and an F grade. For instance, universities could consider letting students audit the remainder of a course and re-take for credit at a later point in time. This would enable students to avoid the F, without missing out on information in the course that could be helpful should they re-take it.

Limitations and Future Research

Like most research, conclusions are specific to or limited by sample and methodology choices. One such limitation in our study is that institution participants are not a random sample of universities across the country, and findings are not necessarily generalizable to other institutions. While the data reveal important concerns about the risks associated with withdrawing from courses, it is important for decision makers in higher education to consider how the effects may be similar or different at their institution(s).

Most of the retention research utilize grades as part of the modeling. But withdrawals are not necessarily grades. They are an indication of academic behavior and commitment to the particular class. Large scale data modeling with a range of universities can be useful, but course and departmental level qualitative analyses is also necessary. LMS pattern research (Arnold & Pistilli, 2012) is beginning to help faculty understand student behavior and academic engagement. Institutional research on DFW rates in bottleneck courses will be key for practice, and may hold broader implications for higher education policy research.

A voluminous amount of interventions, programs and policies have been designed to help integrate first-year students to the college environment. Additionally, reforms to increase college access have been a focus for decades and results have been promising. “In fall 2014, total undergraduate enrollment in degree-granting postsecondary institutions was 17.3 million students, an increase of 31 percent from 2000, when enrollment was 13.2 million students” (McFarland et al., 2017, p.1). During this same time frame, Hispanic student enrollment more than doubled and Black student enrollment increased by more than 50%. Increased enrollment, especially for underrepresented minority students, can be transformative for society. Even so, college success (completion/credential) is a much more important metric. Due to a variety of factors (e.g., quality of high school) around one-third of students need remediation (Byrd & MacDonald, 2005) and over two million students take developmental courses (Saxon, Sullivan, Boylan, & Forrest, 2005). It is an ethical responsibility to not only increase college access, but provide the optimal conditions for college success. Course withdrawals are a significant variable in the student success equation.
References


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<td>0.75</td>
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<td>0.75*</td>
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<td>0.67*</td>
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<tr>
<td>19-24 vs 18 and Under</td>
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<td>1.23**</td>
<td>1.07</td>
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<td>1.15</td>
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<td>25 and Older vs 18 and Under</td>
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<td>1.09</td>
<td>1.13</td>
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<td><strong>Credits Attempted</strong></td>
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<td>Less than 12 vs 15 or More</td>
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<td>0.45***</td>
<td>0.40***</td>
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<td>0.44***</td>
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<tr>
<td>12-14 vs 15 or More</td>
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<td>0.45***</td>
<td>0.49***</td>
<td>0.60***</td>
<td>0.40***</td>
<td>0.66***</td>
<td>0.53***</td>
<td>0.42***</td>
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*Note.* *=p < .05, **= p < .01, ***= p < .001.
### Appendix B

#### Table B1: Odds ratio estimates for predicting stop-outs across all institutions

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<tr>
<th>Variable/Institution</th>
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<th>2</th>
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<th>4</th>
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<tr>
<td>STEM Major No vs Yes</td>
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<td>1.14**</td>
<td>1.16**</td>
<td>0.83</td>
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<td>0.58***</td>
<td>1.02</td>
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<td>1.32***</td>
<td>0.99</td>
<td>1.03</td>
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<td>2.06***</td>
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<td>1.82***</td>
<td>1.09</td>
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<td>Race Black or African American vs White</td>
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<td>0.85</td>
<td>0.56***</td>
<td>1.32</td>
<td>0.72***</td>
<td>0.80**</td>
<td>0.74**</td>
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<td>Race Hispanic vs White</td>
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<td>0.98</td>
<td>0.96</td>
<td>1.58**</td>
<td>1.11</td>
<td>1.19</td>
<td>0.74</td>
<td>1.06</td>
<td>0.96</td>
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<td>Race Other vs White</td>
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<td>1.42***</td>
<td>0.85*</td>
<td>1.17</td>
<td>0.84**</td>
<td>1.08</td>
<td>0.88</td>
<td>0.99</td>
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<td>Pell Grant No vs Yes</td>
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<td>0.84**</td>
<td>0.99</td>
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<td>2.80***</td>
<td>1.58***</td>
<td>1.97***</td>
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<td>Undeclared Major No vs Yes</td>
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<td>0.60***</td>
<td>0.53***</td>
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<td>Delivery Mode All Others vs Fully Online</td>
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<td>0.64***</td>
<td>0.42***</td>
<td>0.65**</td>
<td>0.61***</td>
<td>1.01</td>
<td>0.72</td>
<td>0.47***</td>
<td>0.23*</td>
</tr>
<tr>
<td>Delivery Mode Fully Onground vs Fully Online</td>
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<td>0.53***</td>
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<td>Attempted Dev Ed No vs Yes</td>
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<td>0.77**</td>
<td>0.90</td>
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<td>0.86*</td>
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<td>0.85*</td>
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<td>1.18</td>
<td>1.77***</td>
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<td>1.78***</td>
<td>1.00</td>
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<tr>
<td>Age at Entry 18 and Under vs 25 and Older</td>
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<td>1.09</td>
<td>0.80*</td>
<td>0.72*</td>
<td>0.72**</td>
<td>0.87</td>
<td>0.90</td>
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<td>Age at Entry 19-24 vs 25 and Older</td>
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<td>1.18*</td>
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<td>Credits Attempted 12-14 vs Less than 12</td>
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<td>0.64***</td>
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<td>Credits Attempted 15 or More vs Less than 12</td>
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<td>0.82***</td>
<td>0.55***</td>
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<td>0.54***</td>
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<td>0.69***</td>
<td>0.74***</td>
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<td>C Ratio &gt;.5 vs Zero</td>
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<td>0.61***</td>
<td>0.58***</td>
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Note. *= p < .05, **= p < .01, ***= p < .001.
At-Risk Students: Redefined and Better Served

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Abstract: Increased access to and the growth of online education has resulted in an increase of non-traditional students entering higher education. Simultaneously, higher education institutions are being held more accountable for the both student and institutional outcomes such as academic performance and degree completion. These forces have placed added pressure on educational leaders to (a) better understand the risk factors associated with non-traditional students in the online environment and (b) incorporate strategies to improve retention and student success. Although research on non-traditional students and student attrition has been well documented over the past few decades, there is little research available to help educational leaders develop successful strategies to improve the retention of this student population. In this study, the authors present a model definition for at-risk non-traditional students along with the implications of class size on student performance and retention.

Introduction

With more than two decades of growth in online offerings at institutions of higher education (Allen & Seaman, 2013), leaders in higher education are challenged to identify strategies to retain students. More than seven million U.S. students are enrolled in online education and nearly 71% of chief academic leaders reported online learning as critical to their long-term strategy (Babson Study, 2015). As U.S. institutions offering online and open enrollment programs have continued to grow, more emphasis has been placed on persistence and completion (Carnegie Foundation for the Advancement of Teaching, 2011; Planty et al., 2008; U.S. Department of Education, 2011). However, many institutional leaders have noted their biggest hurdles in online education are associated with lower retention rates and job placement after graduation (Babson, 2015; Eaton, 2011). Historically, student retention rates are lower in online courses than in similar face-to-face courses (U.S. News and World Report, 2015). In fact, many online institutions are challenged to retain students beyond the first few courses and studies show that student attrition rates at online institutions are 3% to 5% higher than those of traditional institutions (U.S. News and World Report, 2015). Research on student attrition has been well documented over the past few decades (Astin, 1993; Braxton, Hirschy, & McClendon, 2004; Pascarella, 1985; Spady, 1970; Tinto, 1975, 1993), but with the growth of online education, open access universities and the heightened focus on institutional accountability, there is a documented need to better understand the risk factors associated non-traditional students and identify strategies to support their ability to persist through degree completion.

Educational leaders rely on institutional definitions of the terms associated with retention in a way consistent with their mission and vision. For the purposes of this study, the following definitions from the research are offered for consideration. Bean (1980) provided one of the earliest examples of retention when he defined it as students’ successful academic and social integration into the college community, marked by the feeling that one fits at the institution. That sense of belonging fosters positive educational attitudes and experiences. Astin (1984) supported Bean’s definition of retention as the degree of direct involvement of students in the academic and social life of their institutions. Soon after, Noel, Levitz, and Saluri, (1985) suggested that retention was a by-product of student success and satisfaction and ultimately an indicator of institutional success. Similarly, Cabrera, Castaneda, Nora, and Hengstler (1992) described student success as the match between students’ motivation and academic ability and
their academic and social characteristics. Tinto (1993) later offered that student success was achieved when students met clearly defined educational goals, whether they were course credits, career advancement, or achievement of new skills. Finally, in 2001, Levitz provided a clear and measureable definition of retention and described retention as the successful completion of students’ academic goals of degree attainment (Levitz, 2001). Given the work of Noel and Levitz, the following definitions are widely accepted within higher education: (a) persistence is the enrollment headcount of any cohort compared to its headcount on its initial official census date, (b) progression is the rate at which a cohort participates in any activity that an institution has determined to be correlated with persistence, (c) retention is the outcome of how many students remained enrolled from fall to fall as applied to any defined cohort, and (d) completion/graduation is the outcome of how many students within a cohort complete and/or graduate from an institution and is typically measured in two or three years for associate level programs and four, five, or six years for a bachelor level programs (Noel-Levitz, 2008, pp. 3-4).

Non-Traditional Student Risk Factors
Non-traditional students differ from traditional students in a number of ways, tend to be older, and typically face more challenges when returning to school. According to the National Center for Education Statistics, (n.d.), seventy five percent of non-traditional undergraduate students meet at least one of these seven criteria: (1) do not immediately continue their education after high school graduation, (2) attend college only part-time, (3) work full-time, >35 hours or more per week, (4) are financially independent, (5) have children or dependents other than a spouse, (6) are a single parent, and (7) have a GED, not a high school diploma. Among students with only one nontraditional characteristic, part-time attendance is the most common (36%), followed by full-time employment (23%) and delayed enrollment (23%). Among students with more than three nontraditional characteristics, having a dependent is the most common (80%). Non-traditional students come from every walk of life, age, and demographic. Students are often categorized into the following types of students: (1) delayed starters, (2) certificate seekers, (3) career re-toolers, (4) degree completers, and (5) continuing education returners.

Student success, persistence, and completion are of utmost importance, not only for the long-term success of students, but also for longevity of our universities (Shaw, Burrus, & Ferguson, 2016). The variables related to retention in online higher education include class rank, grade point average (GPA), previous online experience, internet training, and technology training (Dupin-Bryant, 2004). As universities become more data-driven, many are turning to predictive analytics to assess the risk factors associated with student success and retention (Shaw et al., 2016). Tools and assessment can be used to identify specific risk factors for individual students including SmarterMeasure or the Online Student Profile (OSP) System. These tools may assist in the identification of cognitive and non-cognitive student risk factors. Although, it is recommended that each university conduct an analysis of the risk factors associated with non-traditional student success, many factors have remained constant within the research including student motivation, life factors, transfer credit, GPA, and previous university experience/success.

Many institutions accept a certain number of at-risk or non-traditional students. However, community colleges, open enrollment universities, and those with a mission to provide access to underserved populations tend to have a higher population of students who may not be prepared for the college experience. Unfortunately, the least selective institutions often have the lowest student retention rates (Tinto, 1993). For universities wishing to serve an underserved population, it becomes increasingly important to be able to not only identify challenges associated with college readiness, but to predict if a student will be successful and use those assessment data to design student success-oriented interventions. There are many factors including demographics, learning style, GPA, class size, faculty interaction and reading ability (Astin, 1993; Harrell, 2008) influencing students’ likelihood of success.

Role of Faculty and Class Size
Findings from numerous research studies suggest a strong correlation between the engagement level of the faculty member and the success of the student. Faculty engagement can influence student
success in courses and programs and thus improve the persistence of students through a program of study. Because the literature so clearly connects effective teaching with student success, faculty should be provided an environment in which they can demonstrate a mentoring skill set to best support nontraditional student progress (Bégin & Gérard, 2013; Salter-Dvorak, 2014; Willis & Carmichael, 2011). Creating an environment where students are connected to their faculty and to one another can increase the likelihood of success. These environments can be created through careful thought behind class size, assignments, discussions, faculty development, and tools to support student-student and student-faculty engagement.

Researchers suggest that faculty teaching online courses should provide flexible options for student engagement, honor students’ previous learning, and acknowledge demonstrated competencies. Kochtanek and Hein (2000) noted that faculty in distance learning courses must act “as facilitators…providing students with opportunities to become more involved in the learning process, in setting their own learning pace, and in contributing to the refinement of the course as a whole as learning becomes more tailored to student needs” (p. 284). Specifically, adult—or non-traditional—learners benefit from flexibility, time for engagement, and opportunities to interact asynchronously to maximize life and school balance.

An additional factor for consideration as it relates to student success is that of faculty engagement. Faculty engagement in the online course (presence) and with students may build accountability. The level of faculty engagement and responsiveness at colleges and universities is an important facet of institutional quality and effectiveness. Online learning is more effective when faculty are able to provide prompt feedback, respect diverse learning styles, and communicate high expectations (Dixson, 2010). If students feel the instructor is not fully engaged in the course, or if the students found navigating the course or understanding the expectations difficult, then they might be more likely to drop out of the course or program.

Faculty can help facilitate student knowledge creation through collaboration and relationship building (Kochtanek & Hein, 2000). Specifically, it is recommended that faculty provide an interactive and cohesive environment that includes group work, regular assignments, and solid feedback as needed for success. Instructors should move away from recorded lectures, readings, homework, and tests and toward more interactive and active learning environments like virtual teams, games, case studies, etc. Faculty should be actively involved in the learning of their students, and be minimally active in discussions. Too much instructor participation in discussion boards, etc. can actually decrease student participation. They should also provide multiple ways of interacting with students to create their own social presence that the literature confirms is an integral component to a successful online course. A quality student-faculty relationship and healthy communication should be fostered (Bitzer, 2011; Salter-Dvorak, 2014; Spaulding & Rockinson-Szapkiw, 2012; Stallone, 2011). Lee (2012) encourages faculty to provide ample time for in-depth reflection and asynchronous interaction and encourages faculty to model participation in the discussion to stimulate student engagement. Proactive faculty, who are attuned to student needs, are more likely to intervene to promote retention. This proactive engagement, along with feedback designed to help students master content knowledge, often improves student success and retention (Hedge, 2013).

It is important to note that when students readily identify multiple ways of interacting with other students as well as of communicating with instructors, they tend to be more engaged in the course (Dunlap & Lowenthal, in press). However, in any group there is a range of preferences, with one strategy not fulfilling the needs of all students. Students’ perception of social presence can be enhanced by faculty selection of a carefully crafted set of instructional strategies and tools that reinforce social presence as a valued part of the teaching and learning experience.

The role of the faculty member in the success of the student is well documented. It seems apparent that smaller class sizes provide faculty with more opportunities to engage with students in both one-on-one and small group interactions. This is especially true in the online environment as “quality online teaching requires extensive interaction between the teacher and his or her students” (Dykman & Davis, 2008, p. 287) Unfortunately, costs associated with teaching smaller class sizes have often
overshadowed the positive impact on student success and the effect of class size is often overlooked in higher education retention policies (Matta, Guzman, Stockly, & Widner, 2015).

Smaller class sizes, ideally 15-20 students have a number of benefits for students in the online environment including (a) increased student-student and student-faculty interaction, (b) higher quality, (c) improved learning outcomes, and (d) better feedback on assignments (Dykman & Davis 2008; Hew & Cheung, 2013). These benefits are especially important for non-traditional students, at-risk students, and other underrepresented minorities. For example, Matta et al. (2015) noted larger class sizes negatively impacted the academic performance of Hispanic students and Bowden (2013) suggested that providing the ability for students to bond with their faculty members promotes first-year retention. Thus, the role of faculty and the impact of class size on a faculty member’s ability to support student success simply cannot be ignored.

Background

Colorado State University-Global Campus (CSU-Global) was created by the Colorado State University System Board of Governors in 2007 as the first independent 100% online state university in the United States. CSU-Global is focused on facilitating adult success in our global marketplace through career-relevant education including bachelor’s degree completion and master’s degree programs. CSU-Global works to serve non-traditional learners who stopped out of college previously, and currently work full-time to support families. Colorado State University-Global Campus offers fourteen undergraduate degrees and twelve graduate degrees. Students can enroll each month, with courses/terms lasting eight weeks. The academic calendar is such that there are three trimesters, fall, winter and spring. Within each of these trimesters are four terms, one beginning each month. For example, in the fall 2016 trimester there is Fall16A, Fall16B, Fall16C and Fall16D beginning in July, August, September and October, respectively. Students nearly always enroll in A/C terms and B/D terms so that the eight-week courses do not overlap.

At the undergraduate level, CSU-Global predominantly serves transfer students, who are required to have thirteen transferable credits from a regionally accredited college or university to enroll. Standard admission requires that students have 2.3 or higher GPA across course work attempted. If students do not meet the GPA requirement, or have non-regionally accredited transfer credits (e.g. nationally accredited school, military credit, etc.) they may apply for provisional admittance, and are reviewed by an admission committee. Students seeking provisional admittance are required to complete a provide a detailed professional resume and prepare a statement of purpose. Additionally, these students must complete a SmarterMeasures assessment, which assesses readiness based on factors such as technical competencies, self-motivation, time management, etc. Provisionally admitted undergraduate students must complete at least six (6) credits and meet satisfactory academic progress standards after their first two trimesters at CSU-Global. Provisional students who fail to meet these requirements are dismissed from the university. Given that CSU-Global is open admission, nearly 98% of undergraduate students who apply are admitted, and 25 to 30% of the admitted population each term are admitted provisionally.

The undergraduate student population has an average age of nearly 35 with almost 90% of these students aged 25 or older. Nearly five percent of undergraduates are active duty military and another nine percent are military veterans. Twenty-seven percent of students identify as racial/ethnic minorities. Undergraduate students are 54% female. These students, on average, have attended two schools prior to attending CSU-Global, with some students attending up to five schools. Undergraduate students transfer, on average, nearly 60 credits into CSU-Global. Over 93% of students report working while enrolled at CSU-Global with 86% working full-time. Seventy-two percent of undergraduate students attend school part-time. On average, undergraduate students attempt 1.4 courses per eight-week term.

Undergraduate students enroll in an optional orientation course prior to beginning their coursework, which introduces students to the online course structure, academic resources, such as the
library and tutoring services, etc. Nearly all undergraduate students begin in the ORG300: Applying Leadership Principles course, which reiterates this information for students.

Methodology

Given the undergraduate student population at CSU-Global is a diverse group of non-traditional students, initiatives geared towards the academic success and retention of these students are essential. Beginning in spring of 2016, CSU-Global launched a task force to review factors affecting the retention and success undergraduate students. While CSU-Global has several metrics to evaluate student success and persistence, this committee focused on reviewing and improving first-term pass rates and first- to third-term retention rates. This retention rate reflects the percent of new students who remain enrolled and attempt credit in their third term. Student attributes such as military affiliation, gender, race/ethnicity, and age, as well as academic attributes such as recency of attempted credits, number of transfer credits, admission GPA, and provisional admittance, were analyzed for statistically significant relationships using correlations, followed by t-tests or chi-square tests to evaluate differences between groups. These attributes are outlined in detail below in the Findings section. For provisionally admitted students, additional factors such as work history and assessment scores were also analyzed. After various attributes were analyzed and reviewed, the committee drafted new definitions of ‘at-risk’ and outlined possible initiatives geared toward these students, as well as initiatives aimed at the provisionally admitted population. At the time of report preparation, many of these initiatives have been launched in pilot groups to monitor the impact on student success and retention. However, the ORG300 retention initiative is the focus of this study.

Findings

Based on this analysis, the following variables were determined to have an impact on first- to third-term retention:

- success in ORG300
- number of transfer credits
- transfer (admission) GPA
- income level
- race/ethnicity (underrepresented minority status)
- military status
- provisional admission
- Smartermeasure self-assessment, specifically life-factors and technology competencies (for provisional admissions)

Additionally, it is important to note that African Americans, and to a lesser extent Hispanics, are enrolled as provisional students at a higher rate than white students (38.3%, 25.9%, and 24.5% respectively.), and that provisionally admitted students, regardless of race/ethnicity, retain at a lower rate than non-provisional students. Table 1 provides a full list of attributes reviewed.
Table 1: Review of attributes

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at time of enrollment - provisional admission</td>
<td>Lowest retention is &lt;25 at 68.5%, greatest retention is 36-40 at 78.9%, however, it is worth noting that this may be representative of having low transfer credits (differences not statistically significant)</td>
</tr>
<tr>
<td>Age at time of enrollment - all students</td>
<td>Fairly consistent across categories, with slightly lower rates in the 51+ category with 76.3% as compared to other categories with 80% or above (differences not statistically significant)</td>
</tr>
</tbody>
</table>
| Number of transfer credits                     | The less transfer credit, the lower retention, definitive break between 30-38 credits. A statistically significant relationship exists between TR credits and 1st to 3rd Retention, albeit a weak one, with a correlation of .088**  
Additionally, both African Americans and Hispanic undergraduate (UG) students transfer in less credits on average than White students (55, 57, 60 credits respectively). Finally, longitudinally, UG students that transfer in less than 55 credits, have higher attrition and lower graduation rates |
| Transfer GPA                                    | The lower the incoming GPA, the less likely students are to be retained.  
A statistically significant relationship exists between TR GPA and 1st to 3rd Retention, albeit a weak one, with a correlation of .092**  
Additionally, both African Americans and Hispanic UG students have lower TR GPAs on average than White students (2.64, 2.78, and 2.88, respectively).                                                                                   |
| Race/Ethnicity                                  | African Americans have lowest retention followed by Hispanics, and Whites, with average retention rates of 69.5%, 79.4 % and 80.9%, respectively. Inconclusive data for Asian and Native American, given small sample sizes. Phi = .077** (.01 level)                                                                                   |
| Gender                                         | Slight differences, with Females at 82% vs Males at 79%. However, gender may be a proxy for other variables such as % Military, etc. (differences not statistically significant)                                                                                                                                                      |
| Income                                         | Differences between income categories with above 75K having the highest retention at 90%, 50 to 75K at 85% and below 50K at 82%. Correlation = .053** (.01 level)                                                                                                                                                      |
| Previous work experience                       | The more work experience, the higher retention, however this may be a proxy for age (differences not statistically significant)                                                                                                                                                                                                             |
| Smartermeasure score                            | Life Factors and Tech Competencies were found to be statistically related to retention. For Life Factors - those scoring below 88, retention was 72% vs 77% for above 88. Correlation = .071* (.05 level)  
For Tech Competencies - those scoring below an 89, retention was 67% vs 73%. Correlation = .073* (.05 level)                                                                                                               |
| Military status                                 | Active have lowest rates with 72%, with Vets at 77%; Spouses/Depend highest at 86%, and non-Military at 82%. Phi = .063** (.01 level)                                                                                                                                                                                                      |
| Motivation for attending                        | No differences, and small sample size, will revisit once more data are available.                                                                                                                                                                                                                                                        |
| First generation                                | No significant differences, with similar retention rates for 1st Gen and not 1st Gen students                                                                                                                                                                                                                                            |
| Provisional status                              | Significant differences exist by Admit status, with provisional students retaining at a lower rate than other admit types, with Full Admits and Conditionals retaining at 84% while those admitted provisionally at 73% Phi = .108** (.01 level)                                    |
| Success in ORG300                                | ORG300 was found to be most statistically related to 1st to 3rd Term retention. Of students earning an A-C, over 90% were retained; while of those with a D/F/W, only 32% were retained Correlation = .571** (.01 level)                                                                                        |
| Number of courses taken during first term, provisional students | No significant differences between taking one or two courses, in regards to provisional students                                                                                                                                                                                                                                       |

*Data above reflect new students enrolling from July 2014 through December 2015 and the relationship between each attribute and first- to third-term retention rates*
At-Risk: Redefined

Based on the analysis of these data, the taskforce developed a set of proposed interventions designed to better assess incoming students, including the re-creation of the ‘at-risk student’ definition. Given that number of transfer credits and transfer GPA were found as statistically correlated with first-to-third term retention, the committee examined retention rates by combinations of transfer GPA and transfer credits. The retention rates for fully admitted students with thirteen to twenty-nine credits and 2.3 or above transfer GPAs (78.2%) were found to be similar to those students who are provisionally admitted with sixty to ninety credits and a 2.0 to 2.29 transfer GPA (77.7%). These data suggest that students who have a high transfer GPA but a low number of transfer credits may be as ‘at-risk’ as those students admitted provisionally, despite being offered full admittance. Furthermore, these data suggest that this group of ‘at-risk, but not provisionally admitted’ students, traditionally not perceived as in need of retention interventions, could benefit from the same intervention and services provided to provisionally admitted students. See Table 2.

Table 2: First- to third-term retention rates by transfer credits and transfer GPA

<table>
<thead>
<tr>
<th>Admission Group (transfer credits)</th>
<th>Retained</th>
<th></th>
<th>Not Retained</th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Count</td>
<td>Percent</td>
<td>Count</td>
<td>Percent</td>
<td>Count</td>
</tr>
<tr>
<td>Full Admit (60-90)</td>
<td>2,928</td>
<td>84.7%</td>
<td>528</td>
<td>15.3%</td>
<td>3,456</td>
</tr>
<tr>
<td>Provisional (60-90)/Under 2.0 GPA</td>
<td>140</td>
<td>74.1%</td>
<td>49</td>
<td>25.9%</td>
<td>189</td>
</tr>
<tr>
<td>Provisional (60-90)/2-2.3 GPA</td>
<td>241</td>
<td>77.7%</td>
<td>69</td>
<td>22.3%</td>
<td>310</td>
</tr>
<tr>
<td>Full Admit (30-59)</td>
<td>1,070</td>
<td>81.0%</td>
<td>251</td>
<td>19.0%</td>
<td>1,321</td>
</tr>
<tr>
<td>Provisional (30-59)</td>
<td>348</td>
<td>71.6%</td>
<td>138</td>
<td>28.4%</td>
<td>486</td>
</tr>
<tr>
<td>At Risk/ Full Admit (13-29)/2.3+ GPA</td>
<td>280</td>
<td>78.2%</td>
<td>78</td>
<td>21.8%</td>
<td>358</td>
</tr>
<tr>
<td>Provisional (13-29)</td>
<td>185</td>
<td>70.9%</td>
<td>76</td>
<td>29.1%</td>
<td>261</td>
</tr>
</tbody>
</table>

Data above reflect new students enrolling from July 2014 through December 2015

ORG300 Retention Initiative: Discussion and Preliminary Findings

Given that success in ORG300 was found to be the most statistically related to first- to third-term retention, and given that nearly all undergraduate students take this course as their first course upon enrolling, it is essential to provide further support in ORG300 to help at-risk, provisionally admitted, and other students who may struggle with this course. As such, in the fall 2016 trimester, CSU-Global implemented a series of changes in the ORG300 course.

For provisional and at-risk students, ORG300 was modified slightly to improve the quality of learning outcomes (Dykman & Davis, 2008) through improved student and faculty relationships and discussions (Lee, 2012) and increasing personalized feedback (Hew & Cheung, 2013). To specifically address these goals class size was reduced, announcements were targeted to reiterate library and university support services, faculty increased opportunities for high-touch interaction, and the University provided specific faculty training for instructors teaching these sections of ORG300.

To evaluate the impact of these changes in ORG300 on provisional and at-risk students, CSU-Global conducted a pilot study during the Fall16C term (September 2016) and Winter16B term (December 2016), using matched pairs of students, whereby one student was placed in the pilot version of ORG300, while the matched pair was enrolled in the standard version of ORG300. Matched pairs were created based upon transfer GPA, number of transfer credits, underrepresented minority status (URM) and gender, as closely as possible. At the time of report preparation, the first round of this pilot is complete, with another round—focusing on effects of those fully admitted students not falling into the new ‘at-risk’ definition—in progress. It is worth noting that students were never made aware that they had been identified as at-risk, or selected for the pilot or control version of ORG300. Similarly, while provisional students do know that they were provisionally accepted, they too were not made aware of the study or that multiple versions of ORG300 existed.

In regards to first term pass rates, pilot round one findings indicate that overall, both the URM and non-URM pilot groups had higher pass rates than their control groups, and higher than the students not included in the study. The URM pilot group had a course success rate of 84.6%, which is higher than...
the overall non-URM rate of 77.7% and the overall URM rate of 69.8% (see Table 3). Additionally, the pilot groups (both URM and non-URM) did not have any WA (non-attendance withdrawal) grades, indicating that pilot students were not withdrawn due to course inactivity, while those not in the study did have WA grades. Within the URM-Not in study group, 11.5% of the grades posted for students not in the study were WAs and similarly in the non-URM-not in Study group, 8.3% of the grades posted for students not in the study were WAs (See Table 3). While these differences between groups are not significant, which may be due to small sample sizes, they echo previous findings that greater faculty interaction encourages students to remain engaged in the course (Lee, 2012). Additionally, it is worth noting that in an analysis of pass rates by class size, students enrolled in smaller classes did not do as well as the pilot students did in their first term courses. Furthermore, in an analysis of class size alone (i.e. without the high touch faculty interaction, etc.) there was no significant difference in student pass rates.

Table 3: First term pass rates by study group and URM status

<table>
<thead>
<tr>
<th>Grade</th>
<th>A-C</th>
<th>D</th>
<th>F</th>
<th>W</th>
<th>WA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>URM</td>
<td>203</td>
<td>69.8%</td>
<td>1</td>
<td>0.3%</td>
<td>34</td>
<td>11.7%</td>
</tr>
<tr>
<td>Control</td>
<td>7</td>
<td>87.5%</td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Pilot</td>
<td>11</td>
<td>84.6%</td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Not in Study</td>
<td>185</td>
<td>68.5%</td>
<td>1</td>
<td>0.4%</td>
<td>33</td>
<td>12.2%</td>
</tr>
<tr>
<td>Non-URM</td>
<td>503</td>
<td>77.7%</td>
<td>12</td>
<td>1.9%</td>
<td>50</td>
<td>7.7%</td>
</tr>
<tr>
<td>Control</td>
<td>18</td>
<td>78.3%</td>
<td>0</td>
<td>0.0%</td>
<td>1</td>
<td>4.3%</td>
</tr>
<tr>
<td>Pilot</td>
<td>17</td>
<td>94.4%</td>
<td>1</td>
<td>5.6%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Not in Study</td>
<td>468</td>
<td>77.2%</td>
<td>11</td>
<td>1.8%</td>
<td>49</td>
<td>8.1%</td>
</tr>
<tr>
<td>Grand Total</td>
<td>706</td>
<td>75.3%</td>
<td>13</td>
<td>1.4%</td>
<td>84</td>
<td>9.0%</td>
</tr>
</tbody>
</table>

Data reflect new students enrolled in Fall16C (September 2016) and Winter16B (December 2016), and subsequent first term pass rates; a grade of WA indicates that the student was withdrawn for non-activity/non-attendance.

In regards to first- to third-term retention rates, pilot students had higher first- to third-term rates than all other undergraduates (not in the study). URM pilot students had a retention rate of 84.6%, which is higher than the non-URM overall retention rate of 81.2% and the URM overall retention rate of 76.1%. The non-URM pilot group had the highest retention rate of 88.9%. These differences between groups are not significant, which may be due to the small sample sizes.

Table 4: First- to third-term retention rates by study group and URM status

<table>
<thead>
<tr>
<th>Retention</th>
<th>Retained</th>
<th>Not Retained</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>URM</td>
<td>194</td>
<td>76.1%</td>
<td>61</td>
</tr>
<tr>
<td>Control</td>
<td>8</td>
<td>100.0%</td>
<td>0</td>
</tr>
<tr>
<td>Pilot</td>
<td>11</td>
<td>84.6%</td>
<td>2</td>
</tr>
<tr>
<td>Not in Study</td>
<td>175</td>
<td>74.8%</td>
<td>59</td>
</tr>
<tr>
<td>Non-URM</td>
<td>474</td>
<td>81.2%</td>
<td>110</td>
</tr>
<tr>
<td>Control</td>
<td>19</td>
<td>82.6%</td>
<td>4</td>
</tr>
<tr>
<td>Pilot</td>
<td>16</td>
<td>88.9%</td>
<td>2</td>
</tr>
<tr>
<td>Not in Study</td>
<td>439</td>
<td>80.8%</td>
<td>104</td>
</tr>
<tr>
<td>Grand Total</td>
<td>668</td>
<td>79.6%</td>
<td>171</td>
</tr>
</tbody>
</table>

Data reflect new students enrolled in Fall16C (September 2016) and Winter16B (December 2016) terms, and subsequent first- to third-term retention rates.
Conclusions

Institutions serving underserved and non-traditional students are often faced with increased challenges associated with student success and degree completion. Although these challenges may seem daunting, work can be done to improve both student and institutional outcomes. Using data to create institution-specific definitions of the at-risk population along with targeted interventions based on these definitions can help close the performance gap and improve retention. Despite these results being preliminary, and in some ways inconclusive, they are promising and suggest that the changes made in ORG300 may indeed help students to succeed in their first-term courses, remain retained in their third term, and subsequently in their long-term success as CSU-Global. More research is needed to monitor this population’s success through graduation. Additionally, it is recommended further studies include larger sample sizes and test other student support initiatives.
References


Educational Opportunity Program (EOP) at a Public Comprehensive College: Initial Findings From a Longitudinal Evaluation Study

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Abstract: Young people from low-income backgrounds in the U.S. are less likely to attend 4-year institutions and to earn a bachelor’s degree than their higher income counterparts. Programs such as the Educational Opportunity Program (EOP) are designed to address this disparity. In this study, we compared academic outcomes of participants in an opportunity program to other students at a public comprehensive college in the Northeast. We found that opportunity program students (African-American or Latino/a, low-income, first-generation) earned equivalent first-semester GPAs to more socially advantaged students with 1-2 standard deviation (SD) higher admission scores. Opportunity program students and non-opportunity program students also had comparable first-year retention and continuous enrollment rates. Opportunity program students, however, entered college with fewer college credits and earned a smaller proportion of credits attempted during their first semester. Furthermore, opportunity program students who transferred by the fall of what would have been their senior year were less likely to enroll in another bachelor-degree granting institution. These results demonstrate risks to academic momentum associated with disadvantage while providing evidence of the effectiveness of provisional admission and support during students’ early college years.

Introduction

Students in the United States who are African-American or Latino/a, from low-income backgrounds, or who do not have a parent who attended college have lower enrollment rates in bachelor degree-granting postsecondary institutions—particularly selective bachelor-degree granting institutions (see Bastedo & Jacquette, 2011)—than other students (Ma, Pender, & Welch, 2016; Musu-Gillette et al., 2016). On average, such students are also less likely to earn a bachelor’s degree within six years than students from backgrounds that have been historically well-represented on college campuses (Ginder, Kelly-Reid, & Mann, 2016; Ma et al., 2016; Nichols & Clinedinst, 2013).

National data show that college students who are from low-income backgrounds and students who are the first in their families to attend college are also far more likely than students from high income backgrounds and students from homes in which one or more parents attended earned a graduate or professional degree to begin their postsecondary studies at two-year associate degree-granting institutions (Bozick & Lauff, 2007; Nichols & Clinedinst, 2013), known in the United States as community colleges. Because both income and standardized admission test scores are directly related to four-year college enrollment, students who are underprepared academically and from low-income backgrounds have the lowest likelihood of enrolling in four-year colleges (Bozick & Lauff, 2007; Ma et al., 2016). Furthermore, students who attend community colleges have much lower rates of earning a bachelor’s degree than students who begin their studies at four-year institutions (see Nichols & Clinedinst, 2013), compounding socio-economic disparities in higher educational enrollment and attainment.
Provisional admission programs open doors to students who would not typically be admitted to four-year institutions. Under the auspices of such programs, students who demonstrate the potential to succeed academically are admitted despite high school grade point averages and scores on standardized admissions tests that fall below conventional cut-offs for admission. Upon acceptance, students are provided with academic and other types of support to assist them in meeting their potential. Access and support are cornerstones of such programs (Nichols & Clinedinst, 2013).

Despite their potential to inform efforts to reduce disparities in higher educational achievement and attainment, methodologically rigorous longitudinal investigations regarding the effectiveness of provisional admission programs at colleges and universities in the United States are rare in the published literature. With the goal of contributing to this body of research, we conducted a quantitative evaluation study of the Educational Opportunity Program (EOP), a provisional admission program at a selective public comprehensive college in the Northeast. Using institutional level data, we tracked the 2010 freshman cohort through the fall of 2013, comparing achievement, persistence, and retention of typical EOP students to (a) typical non-EOP students and (b) nearest non-EOP neighbors. The following research questions were posed:

1. To what extent did the EOP program increase the representation of students from African-American and/or Latino/a, first-generation, and low-income backgrounds on the campus of a selective public four-year institution in the Northeast?
2. In which domains and to what extent were prototypical (from African-American and/or Latino/a, low-income, and first-generation backgrounds) EOP student outcomes comparable to prototypical (from none of these underrepresented backgrounds) non-EOP students outcomes?
3. In which domains were prototypical EOP student outcomes comparable to nearest non-EOP neighbor (African-American and/or Latino/a non-EOP) student outcomes?
4. In which domains and to what extent were prototypical EOP students' outcomes better than would have been predicted based on admission scores alone?

We also traced the educational path followed by students who were not retained to examine the extent to which EOP students differed from other students in terms of: (a) continued pursuit of studies in higher education, and (b) type of institution attended (two-year vs. four-year) post-transfer, if any.

EOP Program

The Educational Opportunity Program is a provisional admission and educational support program. Its goal is to improve access to postsecondary education and promote retention among students who have been historically underrepresented. Students must be from low-income backgrounds (i.e., federal PELL grant-eligible) and qualify as academically disadvantaged to be eligible to participate in the program. EOP students who attend selective four-year institutions typically have lower admission scores than students admitted via standard admissions criteria. Many students who participate in EOP are Latino/a and/or African-American and identify as first-generation college students.

A broad range of support services are provided by the EOP program at the selective public comprehensive college where the data analyzed for this study originated. These services consist of but are not limited to: an extended summer orientation program prior to students’ freshman year; advisors who meet with students throughout their college careers to provide guidance about students’ professional goals, educational experiences, and personal adjustment; a peer mentorship program; participation in a seminar during their first semester covering a range of topics including study skills and college student identity; a system according to which students’ mid-semester academic performance is monitored; induction into an honors society for high-achieving EOP students; and participation in a special graduation ceremony. Students in EOP are required to abide by a contract in which they agree to
participate in study groups and obtain academic help when needed. Students must also maintain a GPA that surpasses the level associated with academic probation to maintain their place in the program. Students apply to EOP via a separate application, and admission to the program is competitive.

**Methodology**

The current study used quasi-experimental methods, comparable to those used in non-equivalent groups pre-test post-test designs, to examine academic and retention outcomes ("post-tests") relative to admission scores ("pre-test"). Non-equivalent groups pre-test post-test designs are appropriate when comparison groups are drawn from different populations or selected into treatment based on different criteria (Shadish, Cook, & Campbell, 2002). While this type of study does not permit us to draw causal conclusions, such a study design has the potential to provide evidence for program effectiveness, particularly if the very students who would not have attended this college without the program performed similarly to students who were admitted to the college unconditionally. Similarly, we may draw conclusions about the effectiveness of the program if EOP students had more positive outcomes than would be predicted by local and national benchmarks. We employed linear and logistic regression analyses to look at the extent to which admission scores and participation in the EOP program predicted the outcomes under investigation. All continuous variable scores were standardized prior to analyses so we could interpret statistically significant findings as effect sizes. Results from regression analyses allowed us to compare prototypical EOP students to: (a) prototypical non-EOP students, and (b) non-EOP students who identified as African-American and/or Latino/a ("near neighbors").

**Sample**

The sample (see Table 1) consisted of 1085 students who entered the college in the fall of 2010 and completed their first semester. The sample included 121 EOP students (11.1% of the total sample) and 964 non-EOP students (88.9% of the total sample). Among EOP students, 100% received PELL United States federal financial aid, an eligibility requirement for participating in the program. Also among EOP students, 90.1% identified as first-generation college students and 81% identified as African-American and/or Caucasian. A 74% majority of EOP students in this study were first-generation college students who identified as African-American and/or Latino/a. The remaining 19% of EOP students identified primarily as Asian and/or Caucasian. A 74% majority of EOP students in this study were first-generation college students who identified as African-American and/or Latino/a. These students will be referred to as the "EOP reference group" or "prototypical EOP students" in the results of certain analyses reported below. About 1/3 (33.9%) of EOP students began their first semester with prior college-level course credits.

Non-EOP students were much less likely than EOP students to be from low-income backgrounds, to be among the first in their family to pursue a bachelor’s degree, and/or to identify as African-American and/or Latino/a. Among non-EOP students, 18.5% received PELL financial assistance, 7% identified as first-generation college students, 12% endorsed African-American and/or Latino/a as a cultural identity, and 6.5% endorsed Asian as a cultural identity. A 71% majority (n = 681) of the 964 non-EOP students were neither first-generation college students nor African-American and/or Latino/a, nor did they qualify for PELL financial assistance. These students will be referred to as the "non-EOP reference group" or "prototypical non-EOP students" in the results of certain analyses reported below. Only ten non-EOP students, 1.04% of the total non-EOP sample, identified as first-generation, low-income, and African-American and/or Hispanic. About 2/3 (67%) of non-EOP students began their first semester with prior college-level course credits.
Table 1: Background characteristics by program participation

<table>
<thead>
<tr>
<th>Program Participation</th>
<th>PELL Status, Count (%)</th>
<th>Non-PELL Status, Count (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PELL</td>
<td>Non-PELL</td>
</tr>
<tr>
<td></td>
<td>Count</td>
<td>Percentage</td>
</tr>
<tr>
<td>EOP</td>
<td>121</td>
<td>100%</td>
</tr>
<tr>
<td>Non-EOP</td>
<td>178</td>
<td>18.5%</td>
</tr>
<tr>
<td>Total</td>
<td>299</td>
<td>27.6%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>First-Generation Status, Count (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-Generation</td>
</tr>
<tr>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Count</td>
</tr>
<tr>
<td>EOP</td>
</tr>
<tr>
<td>Non-EOP</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cultural Background, Count (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>African-American and/or Latino</td>
</tr>
<tr>
<td>Count</td>
</tr>
<tr>
<td>EOP</td>
</tr>
<tr>
<td>Non-EOP</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Variables

Background variables (all variable information was accessed from Institutional Research data at the college where the study took place) included gender, cultural background, socio-economic status, and whether students were first-generation college students. Because we were particularly interested in students from underrepresented backgrounds whose retention and graduation rates tend to be lower and to maximize power, we created a combined group of students who self-identified as African-American and/or Latino/a. Students were categorized as “other” if they endorsed neither African-American nor Latino/a. Students were categorized as “low-income” if they received a federal PELL grant. PELL grants are need-based and provided primarily to undergraduate students to increase access to postsecondary education. Finally, students were categorized as first-generation college students if they completed a Free Application for Federal Student Aid (FAFSA) form and reported there that the highest level of schooling completed by each parent/guardian was high school or below.

Admission scores for each student were re-derived by the investigators from total SAT score and high school GPA via the same formula the admissions department at the university used to convert scores and select applicants for admission. This formula weighed overall SAT score and high school GPA equally. Students whose admission scores surpassed the cut-off score were admitted. A variable that reported if students had earned college credits (yes/no) prior to enrollment was also employed as a predictor of academic outcomes and retention.

Outcome variables in the current study included: first-semester GPA; first-semester number of credits earned; whether students earned all credits attempted in the first semester; continuous enrollment during the first year of college; and first-year retention. Students who were not retained were further categorized into four different groups: returned to college later; transferred to an associate’s degree-granting institution vs. transferred to a bachelor’s degree-granting institution, or did not return to a post-secondary degree-granting institution during the time frame of the study (e.g., “stop-out”).

Missing Data

Three variables had missing values: sex (two non-EOP values, .18% missing), high school GPA (four non-EOP values, .37% missing) and SAT (72 values, 6.64% missing across the entire sample; EOP $n = 1$ or .8% missing within EOP; non-EOP $n = 71$ or 7.37% missing within non-EOP). Most students who did not take the SAT provided ACT scores instead ($n = 71$), an alternate admission test. The students
who provided only ACT scores had, on average, high school GPAs that were 1.26 points higher on a 100-point scale (.02 SD higher, a very small effect), \( t(1079) = 2.245, p = .025 \), and first-semester college GPAs that were .027 points higher on a 4-point scale (.27 SD higher, a small effect) than those who provided SAT scores alone. Missingness of SAT scores was therefore, to some degree, directly related to academic achievement at the secondary and postsecondary level.

Multiple imputation procedures (MI) were employed using SPSS 23 (IBM SPSS Statistics for Mac, version 23, IBM Corp., Armonk, N.Y., USA) to handle the missing data described above. Before the data to be analyzed were imputed, an exploratory analysis was run to examine Markov Chain Monte Carlo (MCMC) fully conditional specification (FCS) algorithm convergence. Two imputations with 1000 iterations each were run, and trace plots of means and SDs for high school GPA, SAT Math, and SAT Verbal were generated. After this exploratory imputation, we used Enders’ diagnostic macro program (http://www.appliedmissingdata.com/macro-programs.html; http://www.appliedmissingdata.com/spss-multiple-imputation.pdf) to assess convergence. All three continuous variables with missing values (high school GPA, SAT Verbal, SAT Math) converged between 0 and 100 iterations with potential scale reduction (PSR) factors < 1.05. Sample autocorrelation function (ACF) plots for these variables also appeared normal.

After convergence was established and based on Graham (2012) and Enders’ (2010) recommended procedures, we ran the MCMC FCS algorithm again to generate 40 data sets with 200 iterations. After imputation, SAT scores were totaled, scores were standardized, and interactions of interest between program participation and continuous variables were created across the new master data set. All subsequent analyses were then carried out via SPSS 23 across each imputed data set. Pooled results across all 40 imputed data sets are presented below.

Results

Representation on Campus

In the freshman cohort under investigation, the EOP program increased the representation of low-income students in the student body from 178 (18.5%) to 299 (27.6%), a 68% increase. The EOP program also increased the representation of students who were raised by parent/guardians without a college degree from 67 (7%) to 176 (16.2%), more than doubling the number of students who were first-generation college students who would have otherwise enrolled, a 167% increase. Finally, the EOP program increased the representation of African-American and/or Latino/a students on campus from 116 (12%) to 214 (19.7%), an increase of 84.5%.

Among the 116 African-American and/or Latino/a non-EOP students, 40 (34.4%) received PELL financial aid, and 23 (19.8%) identified as first-generation college students. While less socioeconomically disadvantaged on average than EOP students, these students were about twice as likely to be from low-income backgrounds than the 848 other non-EOP students, among whom only 44 (5.2%) identified as first-generation college students and 138 (16.3%) received PELL financial aid.

Admission Scores and Prior College Credits

EOP students entered college with high school GPAs that were 1.56 SDs lower, on average, than those of non-EOP students: the difference between the mid-80s (EOP \( M = 83.829, SD = 4.95 \)) and low 90s (non-EOP \( M = 91.002, SD = 3.84 \)). Non-EOP students also had total SAT scores that were 2.12 SDs higher, a difference of approximately 250 points. Non-EOP students who identified as first-generation (\( n = 67 \)) had total SAT scores that were .378 SD lower than non-EOP students who did not identify as first-generation (\( n = 897 \)), \( t(962) = 4.102 \), a difference of about 40 points. Non-EOP students who identified as African-American and/or Latino (\( n = 116 \)) had SAT scores that were .354 SD lower than non-EOP students who did not identify as African-American and/or Latino (\( n = 848 \)), \( t(962) = 4.921 \), also a difference of about 40 points. The combined high school GPA/SAT cut-off score for admission was equivalent to a standardized score of -.76. EOP students, on average, had a standardized admission score
of \(-2.03(\text{SD} = .91)\), while non-EOP students, on average, had a standardized admission score of \(.255 (\text{SD} = .66), 2.25 \text{SDs higher than that of EOP students. All the differences reported above were statistically significant at a } p = .000 \text{ level.}

While 646 (67\%) of non-EOP students had earned credits from college-level courses taken prior to starting college (see Table 2 and Appendix, Figure 1), a much smaller proportion of EOP students had earned such credits, \(n = 41 \) (33.9\%). The odds of an EOP student entering the university with a successful experience in a college-level course were a quarter of that of non-EOP students, \(\text{OR} = .252 (\text{.169} = .376), p = .000\). More specifically, the odds of an EOP student entering the university with college credits were approximately 1:2, whereas the odds of a non-EOP student entering the university with college credits were approximately 2:1. The proportion of non-EOP students who identified as African-American and/or Latino/a and entered the university with college credits was 57.8\%, 10\% lower than other non-EOP students and nearly 25\% higher than EOP students.

First-Semester Academic Outcomes

The magnitude of first-semester GPA (post-test) differences between EOP students and non-EOP students was much smaller than the magnitude of admission score (pre-test) differences. Reference group EOP students (first-generation, African-American and/or Latino/a, low-income) earned a standardized first-semester GPA of \(-.278,\) on average, while reference group non-EOP students (not described by any of the characteristics listed above) earned a standardized first-semester GPA, on average, of \(.100\), about the difference between a letter grade and one “step” up from that letter grade (e.g., the difference between a B+ and an A-). As with admission score, reference group non-EOP students performed better academically than typical EOP students. However, the difference between average post-test scores, -.378, was much smaller (< 20\% of) than the difference between pre-test scores, -1.381. EOP students who identified as African-American and/or Latino/a had an average first-semester GPA that was only .13 SD lower than that of non-EOP students who identified as African-American and/or Latino/a (-.244), a difference of .05 on a 4-point scale. This difference was not statistically significant, \(t(212) = .510, p = .611\). Furthermore, the small magnitude of this difference tells us that EOP students with far lower admissions scores (-2.217 SDs) and greater social disadvantages, on average, than non-EOP students from African-American and/or Latino/a backgrounds, had almost identical average first semester GPAs.

<table>
<thead>
<tr>
<th>Predictors</th>
<th>First Semester GPA</th>
<th>(B(\text{SE}))</th>
<th>(p)-value</th>
<th>(B(\text{SE}))</th>
<th>(p)-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-1.343 (.393)</td>
<td>.001</td>
<td>.106 (.045)</td>
<td>.019</td>
<td></td>
</tr>
<tr>
<td>Admissions score</td>
<td>.230 (.111)</td>
<td>.039</td>
<td>.309 (.037)</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-.288 (.211)</td>
<td>.173</td>
<td>-.328 (.060)</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Low-Income</td>
<td>--</td>
<td>--</td>
<td>-.036 (.076)</td>
<td>.632</td>
<td></td>
</tr>
<tr>
<td>African-American or Latino/a</td>
<td>.661 (.252)</td>
<td>.009</td>
<td>-.082 (.088)</td>
<td>.352</td>
<td></td>
</tr>
<tr>
<td>First-Generation College Student</td>
<td>1.046 (.323)</td>
<td>.001</td>
<td>.255 (.102)</td>
<td>.012</td>
<td></td>
</tr>
</tbody>
</table>

\(R^2 = .161\)

\(R^2 = .115\)

*Note.* Female, non-low-income, non-first-generation college students from Caucasian and Asian backgrounds were the reference group. Because all EOP students received federal PELL grants, low-income was not included as a predictor in regression models for EOP students.

When the average admission score for EOP students who identified as African-American and/or Latino/a was used to calculate the predicted first-semester GPA for non-EOP students who identified as African-American and/or Latino/a, according to the results from a multiple regression analysis (see Table 2), the resulting predicted GPA was between -6.37 (female non-EOP students who identified as African-American and/or Latina) and -9.97 SD (male non-EOP students who identified as African-American and/or Latino) below the average performance of reference group EOP students (-.278). This is equivalent
to the difference between a B and the C to C+ range. These results suggest that prototypical EOP students performed better than we would have expected “nearest-neighbor” non-EOP students to perform, had they been admitted with similar admission scores but not given EOP program services (a counterfactual scenario).

In their first semester of college, non-EOP students were represented in greater numbers (45%) on the Dean’s list than EOP students (21.5%), OR = .334 (.213 - .525), p = .000 (see Table 3). The odds of non-EOP students earning Dean’s list status were greater than 2:3, whereas the odds of EOP students earning such status were approximately 1:4. Among non-EOP students, with each standard deviation increase in admission score, the likelihood of achieving Dean’s list status doubled: OR = 2.114 (1.708 – 2.615), p = .000. Among EOP students, with each standard deviation increase in admission score, the likelihood of achieving Dean's list status increased by approximately 60%: OR = 1.570 (.958 – 2.573), p = .073. EOP students from African-American and/or Latino/a backgrounds had about half of the odds of non-EOP students from African-American and/or Latino/a backgrounds (37.1%, n = 43) of earning a spot on the Dean's list (23.5%, n = 23), OR = .521 (.286 - .949), p = .033. When the average EOP admission score was entered into the non-EOP model, we found that EOP students, on average, had about the same probability of earning Dean’s list status during their first semester as non-EOP students whose admissions scores were essentially at the admissions cut off (+.03 SD).

In their first semester of college, students in EOP were more than twice as likely to be placed on academic probation (8.3%, n = 10) as students who did not participate in the program (3.8%, n = 37), OR = 2.257 (1.092 - 4.664), p = .028. Among non-EOP students, with each standard deviation increase in admission score, the likelihood of being placed on academic probation was reduced by approximately half: OR = .467 (.265 - .823), p = .008. Among EOP students, higher admission scores did not appear to have a discernable effect on first semester academic probation status, OR = 1.209 (.594 – 2.461), p = .601. Despite entering college at far greater academic disadvantage, EOP students, on average, had about the same probability of being placed on academic probation as non-EOP students somewhat above (+.21 SD) the admission score cut-off. Among non-EOP students, 8.6% (n = 10) of those identifying as African-American and/or Latino/a were placed on academic probation during their first semester of college. When we narrowed our analysis to the 214 students identifying as African-American and/or Latino/a, we did not find a statistically significant difference in proportions of students placed on academic probation following the first semester between EOP students and non-EOP students, OR = .691 (.242 - 1.975), p = .491.

Table 3: First semester logistic regression results for Dean’s list and academic warning by EOP participation

<table>
<thead>
<tr>
<th></th>
<th>Count (Percentage)</th>
<th>OR</th>
<th>p-value</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EOP (N = 121)</td>
<td>Non-EOP (N = 964)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deans</td>
<td>434 (45%)</td>
<td>26 (21.5%)</td>
<td>.334</td>
<td>.000</td>
</tr>
<tr>
<td>Academic Warning</td>
<td>10 (8.3%)</td>
<td>37 (3.8%)</td>
<td><strong>2.257</strong></td>
<td>.028</td>
</tr>
</tbody>
</table>

Note. Among non-EOP students from African-American and/or Latino/a backgrounds, 8.6% (n = 10) were placed on academic probation.

First Semester Credits Earned and Credits Earned/Attempted Ratio

Prototypical EOP students earned -.578 standardized credits during their first semester in school, equivalent to a mean of 12.72 (SD = 2.82) credits whereas prototypical non-EOP students, on average, earned .072 standardized credits during the same semester, equivalent to a mean of 14.364 (SD = 2.254) credits. Prototypical EOP students therefore earned -2/3 of a SD fewer credits than non-EOP students, a difference of approximately 1.5 credits. While these EOP students were shy of a full credit semester (15 credits) by more than 2 credits, prototypical non-EOP students were only about 1/2 of a credit shy.

Among non-EOP students who identified as African-American and/or Latino/a, first-semester number of credits earned (-.085, standardized, on average; equivalent to 13.97, SD = 2.89) was much closer to the number of credits earned by other non-EOP students (only about 1/2 of a credit and 1/6 of a
SD lower) than to the number of credits earned by EOP students who identify as African-American and/or Latino/a. On average, EOP students from African-American and/or Latino/a backgrounds earned -.49 SD fewer credits than non-EOP students from African-American and/or Latino/a backgrounds, a difference of 1.25 credits.

According to the results of separate multiple regression analyses for EOP and non-EOP students, admission score was a statistically significant predictor of first-semester credits earned (see Table 4). When the average admission score for EOP students from African-American and/or Latino/a backgrounds was used to calculate the predicted number of credits earned by non-EOP students from African-American and/or Latino/a backgrounds, we found that non-EOP male students from African-American and/or Latino/a backgrounds would be expected to earn between .41 SD credits below EOP students who identified as African-American and/or Latino/a, and non-EOP female students from African-American and/or Latino/a backgrounds would be expected to earn .23 SD credits above EOP students who identified as African-American and/or Latino/a. In both cases, the predicted differences in terms of credits are very small in either direction (-.16 - +.09 of a credit). Therefore, EOP students from African-American and/or Latino/a backgrounds earned a similar number of credits, on average, to the number we would expect non-EOP students from African-American and/or Latino/a backgrounds ("nearest neighbors") to earn if they had been admitted to the college with similar admission scores to EOP students yet not provided with EOP support services (a counterfactual scenario).

Table 4: Regression analysis results for first-semester credits earned, by program participation

<table>
<thead>
<tr>
<th>Predictors</th>
<th>EOP</th>
<th>Non-EOP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta (SE)$</td>
<td>$p$-value</td>
</tr>
<tr>
<td>Intercept</td>
<td>-1.209 (.459)</td>
<td>.008</td>
</tr>
<tr>
<td>Admissions score</td>
<td>.319 (.130)</td>
<td>.014</td>
</tr>
<tr>
<td>Gender</td>
<td>-.319 (.246)</td>
<td>.196</td>
</tr>
<tr>
<td>Low-Income</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>African-American or Latino/a</td>
<td>.702 (.294)</td>
<td>.017</td>
</tr>
<tr>
<td>First-Generation College Student</td>
<td>.765 (.377)</td>
<td>.043</td>
</tr>
<tr>
<td>Interaction: Admissions x Gender</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>$R^2 = .125$</td>
<td></td>
<td>$R^2 = .047$</td>
</tr>
</tbody>
</table>

Note. Female, non-low-income, non-first-generation college students from Caucasian and Asian backgrounds were the reference group. Because all EOP students received federal PELL grants, low-income was not included as a predictor in regression models for EOP students.

A smaller proportion of EOP students, 60.3% ($n = 73$), earned all credits during their first semester than non-EOP students, 77.5% ($n = 747$), OR = .442 (.296 - .655), $p = .000$ (see Table 5 and Appendix, Figure 2). The odds of an EOP student completing all credits attempted was approximately 3:2, whereas the odds of a non-EOP student completing all credits attempted was 7:2. Therefore, EOP students had less than 1/2 the odds of completing all credits attempted as non-EOP students. With each SD increase in admission score, the odds of EOP students earning all credits attempted in the first semester improved by 60%, OR = 1.601 (1.048 - 2.445), $p = .034$. With each SD increase in admission score, the odds of non-EOP students earning all credits attempted increased by 78%: OR = 1.782 (1.381 – 2.300), $p = .000$. When we entered the mean admission score of EOP students into this non-EOP model, we found that EOP students had about the same probability of completing all credits attempted in their first semester as non-EOP students with an admission score .77 SD above their own: .5 SD below the admissions score cut-off.

Among non-EOP students, a smaller proportion of African-American/Latino/a students, 69.8% ($n = 81$), earned all credits attempted (odds of approximately 7:3) than the proportion of non-EOP students who were neither African-American nor Latino/a, 78.5% ($n = 666$; odds of approximately 2:1), OR = .632 (.412 - .971), $p = .036$. The odds non-EOP students from African-American and/or Latino/a
backgrounds earning all credits attempted were therefore about 37% lower than those of other non-EOP students. EOP students from African-American and/or Latino/a backgrounds, on average, had a somewhat lower rate, 62.2% (n = 61) of completing all credits attempted than their non-EOP counterparts from African-American and/or Latino/a backgrounds, 69.8% (n = 81): OR = .712 (.403 - 1.259), p = .243.

Table 5: Logistic regression results for all credits earned/attempted, first semester, by EOP participation

<table>
<thead>
<tr>
<th>Count (Percentage)</th>
<th>EOP (N = 121)</th>
<th>Non-EOP (N = 964)</th>
<th>OR</th>
<th>p-value</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>All credits earned/attempted</td>
<td>73 (60.3%)</td>
<td>747 (75.5%)</td>
<td>.442</td>
<td>.000</td>
<td>.296 - .655</td>
</tr>
</tbody>
</table>

Note. Among non-EOP students from African-American and/or Latino/a backgrounds, 81 (69.8%) earned all credits attempted.

First-Year Continuous Enrollment and Retention Outcomes

Nearly equivalent proportions of EOP (95.9%) and non-EOP (94.7%) students were continuously enrolled for their first and second semesters of their first year in college, OR = 1.296 (.507 - 3.313), p = .588 (see Table 6). EOP students also were found to have the same continuous enrollment rate as that predicted for non-EOP students who were 1.46 SDs above the cut-off for admission, on average — among the non-EOP students with the highest admission scores. Among non-EOP students, admission score was related to the probability of being continuously enrolled, in that for each SD increase in admission score, the likelihood of continuous enrollment increased by 59%: OR = 1.593 (.999 – 2.541), p = .050. Furthermore, no statistically significant differences were found between proportions of students continuously enrolled when non-EOP students from African-American and/or Latino/a backgrounds (94.8%) were compared to: (1) non-EOP students from other backgrounds (94.7%) and (2) EOP students from African-American and/or Latino/a backgrounds (96.9%).

Along the same lines, nearly equivalent proportions of EOP (86%, n = 104) and non-EOP (86.8%, n = 837) students returned to college in the fall of their second year, OR = .928 (.538 - 1.602), p = .789 (see Table 6). Furthermore, EOP students had the same retention rate, on average, as that predicted for non-EOP students with admission scores that were .78 SD above the cut-off for admission (see Appendix, Figure 3). As above, no statistically significant differences were found between groups when non-EOP students from African-American and/or Latino/a backgrounds (82.8%) were compared to: (1) non-EOP students from other backgrounds (87.4%) and (2) EOP students from African-American and/or Latino/a backgrounds (86.7%).

Table 6: Logistic regression results for first-year continuous enrollment and retention by EOP participation

<table>
<thead>
<tr>
<th>Count (Percentage)</th>
<th>EOP (N = 121)</th>
<th>Non-EOP (N = 964)</th>
<th>OR</th>
<th>p-value</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retention</td>
<td>104 (86%)</td>
<td>837 (86.8%)</td>
<td>.928</td>
<td>.789</td>
<td>.538 – 1.602</td>
</tr>
<tr>
<td>Continuous Enrollment</td>
<td>116 (95.9%)</td>
<td>913 (94.7%)</td>
<td>1.296</td>
<td>.588</td>
<td>.507 – 3.313</td>
</tr>
</tbody>
</table>

Stop-out and Transfer Status at Follow-Up

Among the 17 EOP students (14%) and the 127 non-EOP students (13.2%) who were not retained following their first year, similarly small percentages of EOP students (2.5%, n = 3) and non-EOP students (1.9%, n = 18) were categorized as “stop-outs,” defined in this study as students who neither returned after the first semester of the second year nor enrolled in another institution by what would have been their fourth year of school. Logistic regression analyses were carried out to examine differences in transfer status (two-year vs. four-year institution) between program and non-program participants who enrolled in another institution by what would have been their fourth year of school. Transfer status information was gathered via the National Student Clearinghouse Student Tracker program.
Similar proportions of EOP students (9.1%, n = 11) and non-EOP students (8.6%, n = 83) who did not return to the college where this study took place for the first semester of their second year transferred to another institution by what would have been their fourth year of college, OR = 1.069 (.552 - 2.069), p = .843 (see Table 7). EOP students who transferred had an almost 1.5 SDs lower first semester GPA, approximately the difference between a C- and a B-. This group of EOP students also earned about 2 SDs fewer credits during their first semester, on average (55% of a full-credit load/8.5 credits), than non-EOP students (91% of a full-credit load/13.65 credits).

Correspondingly, the proportion of EOP students who transferred to another bachelor-degree granting institution by the fall of what would have been their fourth year of college was far lower (n = 2, 18%) than that of non-EOP students (n = 63, 76%), with EOP students having about 93% lower odds: OR = .071 (.014 - .354), p = .001. Rather, EOP students who transferred out of the institution where this research took place were far more likely (92%, n = 11) to enroll in a community college than non-EOP students (24%, n = 20). While this pattern of results is quite clear, EOP cell sizes for these outcomes were particularly small. Therefore, the OR reported here should be interpreted cautiously.

Table 7: Logistic regression results for transfer college (2-year vs. 4-year) by EOP participation

<table>
<thead>
<tr>
<th></th>
<th>EOP (N = 11)</th>
<th>Non-EOP (N = 83)</th>
<th>OR</th>
<th>p-value</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-year college</td>
<td>9 (82%)</td>
<td>20 (24%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-year college</td>
<td>2 (18%)</td>
<td>63 (76%)</td>
<td>.071</td>
<td>.001</td>
<td>.014 - .354</td>
</tr>
</tbody>
</table>

Note. Out of 21 non-EOP students from African-American backgrounds who were not retained in the first year and who transferred, 9 (43%) enrolled in a 2-year institution and 12 (57%) enrolled in a 4-year institution.

Discussion

The goal of the current study was to examine the extent to which the EOP program at a selective four-year public comprehensive college contributed to achievement, persistence, and retention among students from underrepresented backgrounds who were admitted and provided support via a provisional admission policy. In terms of improving access, the EOP program doubled the number of students from first-generation backgrounds and substantially increased the number of students from low-income and African-American and/or Latino/a backgrounds on campus, thereby contributing to the increased diversity of the student body. Hurtado and Ruiz (2012) have observed direct associations between cultural diversity, more welcoming climates, and improved intergroup relationships on campus. Thus, benefits of improving access to higher education to students from underrepresented backgrounds are likely to extend beyond support services and to the college community at large.

Two distinct patterns emerged in our results. The first pattern indicated domains in which EOP students exhibited outcomes that appeared to "close the gap" and set the stage early in their college career for bachelor's degree attainment. These included first-semester GPA, continuous enrollment during the first year, and first-year retention levels comparable to those of typical non-EOP students. EOP students also had Dean's list status and academic probation status rates that were comparable to non-EOP students at or above the admissions cut-off. In each of these domains, average EOP values exceeded the counterfactual values that would be expected for non-EOP students, had non-EOP students been admitted with comparable admission scores to the EOP students. Such findings are not trivial, particularly when we consider the much lower likelihood that EOP students entered the institution with experiences of college-level coursework, and the fact that EOP students would not have even been enrolled at the college without the EOP program's existence and support. Given that EOP students, on average, enter college with far greater educational and social disadvantages, these results provide solid evidence that the program is working.
The other pattern revealed domains in which disparities persisted that had the potential to pose unique challenges to timely graduation among EOP students. EOP students were about half as likely to enter college with college course credits than non-EOP students. Aside from the academic benefits of prior college-level course experience, "extra" college credits provide students with more flexibility/choice to drop or withdraw from courses or to take a lower course load during selected semesters en route to graduation. This observation is particularly noteworthy given that EOP students were less likely than non-EOP students to earn all credits attempted during the first semester. Students risk losing financial aid when their ratio of credits earned to credits attempted falls too low. For low-income students, loss of financial aid is equivalent to loss of college access.

When we examined outcomes at what would have been the fourth year of college among the small proportion of students who were not retained following their freshman year, a quite significant disparity was observed. EOP students who left the institution under investigation tended to transfer to community colleges, whereas non-EOP students tended to transfer to bachelor's degree granting institutions. (Non-EOP students from African-American and/or Latino/a backgrounds were about right in the middle.) EOP students who continued their studies in a community college setting tended to have struggled academically during their transition to college. The road in front of these students may be a tougher one, as students who attend community colleges have a lower likelihood of earning a bachelor's degree than students who begin their degrees at a four-year institution (Nichols & Clinedinst, 2013).

Strengths of this study include a method of analysis that allowed for precise measurements of the extent to which initial educational disparities were reduced post-college entry and the use of National Student Clearinghouse Student Tracker program to gather persistence data for students who were not retained following their initial year of college. Limitations included insufficient power to closely examine differences in outcomes between: (a) students from African-American backgrounds and students from Latino/a backgrounds; (b) EOP students from African-American backgrounds and/or Latino/a backgrounds and a much smaller group of EOP students who identified as Caucasian and/or Asian (despite better academic preparation indicators, the latter group appeared to have less successful achievement and retention outcomes); and (c) male and female students within EOP. Stronger evidence for program effectiveness would result if functional equivalence across EOP and non-EOP student outcomes could be demonstrated (see Rodgers, Howard, & Vessey, 1993). Further research in this area should use educationally-relevant degrees of functional difference that are defined by policy-makers and/or stakeholders as a basis for such analyses.

Based on the results reported above, we recommend that EOP students and struggling non-EOP students from low-income backgrounds be provided with additional time and resources to fulfill course requirements. Financial aid funding for summer opportunities to increase the number of credits earned has the potential to improve momentum towards graduation (Attewell, Heil, & Reisel, 2012). Among students who leave for community colleges, perhaps the EOP program or the college could offer an invitation to return to the institution under investigation in the future, contingent upon a satisfactory academic record at the transfer institution. We also can envision additional outreach efforts towards students from African-American and/or Latino/a backgrounds who are not eligible for the kinds of support provided by a provisional admission program.

Future research will examine graduation rates among this cohort at six-year follow-up, both from the institution under investigation and from institutions to which students have transferred. Given the college credit accumulation disparity between EOP students and non-EOP students that began even prior to students' entry and grew wider through the first semester of college, and given that PELL does not currently provide financial support for systematic enrollment in summer courses to make up for lost credits or to jump ahead, we expect that graduation rates will be lower for EOP students than for non-EOP students. However, we also predict that the disparity will be smaller than those reported by state and national benchmarks between students from higher and lower socioeconomic backgrounds. Our prediction is based on the successes of EOP students during a pivotal transition to a higher educational setting, a setting to which many other students with the potential to succeed in higher education lack access.
References


Figure 1. Predicted probability of entering the institution with college credits by admission score (centered at cut-off) and program participation
Figure 2. Predicted probability of earning all credits attempted by admission score (centered at cut-off) and program participation
Figure 3. Predicted probability of retention relative to admission score (centered at cut-off) and program participation
Abstract: Student engagement can encompass many different levels of interaction. Whether it be between student and instructor, among students themselves, with the actual subject matter, or with the various resources and departments on campus—getting and keeping students engaged is a challenging proposition. Frequently, students say they fear speaking in public, being called upon in class, going to the whiteboard, and being singled out by an instructor. Collectively, these fears could be conceptualized as a wish or need for anonymity. Faculty have cited student actions such as participation, question asking, volunteering, office hour visits, and favorable body language as preferred behaviors. These preferences could be conceptualized as a wish or need for engagement. “East is East and West is West, and never the twain...” (Kipling, 1929, p. 75). This paper will outline the authors' Elicitation Model and theoretical Student Engagement Constructs to explore psychological factors that prohibit engagement. The paper also presents many practical, proven examples of classroom techniques, gestures, and considerations for using the Elicitation Model that can help produce healthy student engagement in all academic spheres of interaction.

Introduction

Student engagement can encompass many different levels of interaction. Students interact with instructors, with each other, with actual subject matter, and with various resources or departments on campus. A few decades ago, while working in a diverse, urban community university, one of the authors attempted to introduce provocative, compelling, diverse instruction and engage the young adult students in cultural awareness conversations using various texts, such as works by Maya Angelou and Toni Morrison. Initially, instead of achieving the objective of engaging students, the exercise amplified tensions of race and misunderstanding between the African-American and White students in the classroom. Students participated with reluctance; they rarely shared personal experiences mirrored in the books and even reverted to engrained racial biases during forced discussion. It was painfully clear the interaction strained the classroom dynamic, asked too much of the students, and stifled participation. In a word, the students felt exposed.

In countless surveys, students say they fear speaking in public, being called upon in class, going to the whiteboard, and being singled out by an instructor (CCSSE, n.d.; NSSE, n.d.; SENSE, n.d.). Collectively, these fears could be conceptualized as a wish, or need for anonymity. In other surveys, faculty have cited actions such as participation, question asking, volunteering, office hour visits, and favorable body language as preferred behaviors (CCFSSE, n.d.; FSSE, n.d.). These preferences could be conceptualized as a wish or need for engagement. “Oh, East is East and West is West and never the twain shall meet...” (Kipling, 1929, p. 75). Reconciling student reluctance in engagement with appropriate and dynamic participation expectations is a challenging proposition; but research shows a strong link between student engagement, accessible teaching, and retention (Chickering & Reisser, 1993; McClenney, Marti, & Adkins, 2007; Tinto, 1993; Wyatt, 2011).

This paper looks into various considerations for student engagement. We begin by outlining the four Student Engagement Constructs; these four constructs underscore the strategies and limitations in student engagement. Based on engagement constructs we introduce the Elicitation Model. This model provides a foundation for planning and evaluating engagement practices from a practical framework. We then explore several considerations for using the Elicitation Model in conjunction with other engagement
theories. Throughout the paper, we provide practical tools useful in improving student classroom engagement.

Student Engagement Constructs

In the introduction, we illustrated a failed engagement attempt, using race and equity content designed to challenge student perspectives. Instead of rich conversations on culture and reconciliation, the students retreated into discomfort, silence, or worse, retrenched bias. When we attempt to engage students through questioning or prompting, numerous dynamics may inhibit their responses. These dynamics include Cognitive Channels, Abstraction Level, Available Schema, and Perceived Risk. Students fail to engage for many reasons, but accounting for these four Student Engagement Constructs can increase the likelihood of better student participation. Understanding the Student Engagement Constructs and the relative development of students opens the opportunity for enhanced participation leading up to challenging conversations. The four constructs are explored below.

Cognitive Channels

Cognitive Channels can be conceived of as those modalities in which the engagement is expressed (Kegan & Kogan, 1970). More than learning styles, they are active conduits. For instance, students may be comfortable with reading as a learning activity but may not wish to read out loud or to present their interpretations or opinions vocally. Likewise, those same students may have difficulty sharing the information in written form. Students process and share information through many channels and are asked to express themselves in a wide variety of means. Thinking about the ways students process the information and then the form in which the students attempt to engage it publically helps us understand where they might have difficulties. Students may be comfortable observing a situation, but might balk at interpreting it or predicting where the situation might go. If the students have limited vocabulary sets or limited experience with the content, they might be reluctant to engage in questions or activities. Establishing these channels in comfortable and meaningful ways should be the first priority of a classroom instructor who seeks a good deal of engagement in the learning process.

Similar to the Pamela Stirling’s (1987) and Neil Fleming and Colleen Mills’ (1992) visual, kinesthetic, and aural learning styles categories, the Cognitive Channels recognize that students tend to favor preferences for both receiving and communicating learning. However, the Cognitive Channels move beyond the physical level of learning and include the emotional or emotive characteristics behind receiving and giving information. As David Kolb (1981) recognized with his “Diverger” learning style, emotion and emotional connection with learning influences student behavior and forms of participation. The Cognitive Channels identified are visual, aural, kinesthetic, and emotive. It is important to note that within the Cognitive Channels, learning flows in two directions: (1) the reception of information and understanding and (2) the expression of learning and understanding. As noted, students may utilize different Cognitive Channels for receiving learning than they do for communicating learning—thus greatly influencing the participation and engagement practices of each student.

Visual

The visual channel considers a preference for observing and seeing information. This manifestation may be graphical, symbolic, or other forms of visual representations (Fleming & Mills, 1992). While Fleming and Mills (1992) call out reading and writing as a separate learning style, the visual channel includes textual learning within the graphical and symbolic medium. This cognitive engagement requires student attention and concentration.

For expressing learning, visual channels may include a preference for drawing, writing, diagramming, or even performance and video.
**Aural**

The aural channel suggests a preference for heard material. Listening and speaking are the key components for aural engagement. Reporting, lecturing, tutoring, and discussing are examples that employ the aural channel (Fleming & Mills, 1992).

Similarly, in communicating learning, aural students are more comfortable with class discussions, speaking in the group, or processing information verbally—even to the extent of perfecting imperfect concepts through the process of verbalization. The aural channel is a good example of where student receptive and expressive preferences may differ greatly. Students may learn well from verbalized material but shy away from engagement that involves public speaking, talking among the group, or verbalizing inaccurate or poorly formed thoughts.

**Kinesthetic**

This multi-modal channel favors action. Simply stated, the kinesthetic channel allows students to physically manipulate the learning content. David Kolb (1981, 1984) and others (Fleming & Mills, 1992) suggest that the kinesthetic channel is experiential. Students not only employ a variety of senses but also draw upon their past and immediate experience to formulate understanding.

Expressions of learning in the kinesthetic channel can also vary widely; however, students’ expressions of engagement are frequently integrated within the kinesthetic activity, rather than as a separate or disconnected response. Reactions and changed behaviors based on new experience are two examples of learning expression. For example, a hands-on activity with science may produce heat and flames. After the initial experience, students may demonstrate learning by anticipating the heat the next time and even altering where they stand to avoid perceived danger.

**Emotive**

The emotive channel is closely linked with both the perceived risk and content interest. This channel acknowledges that the emotional state of students in the learning environment influences their reception and communication of learning (Kris & Kaplan, 1952). Connecting students to the content on a level that elicits emotion enhances the learning experience. Emotive content, connection to personal value, and workplace connection (for many adult learners) are methods of connecting emotionally to students as well.

In the classroom, the more Cognitive Channels either employed or called upon, the more likely students are to engage. If each of the Cognitive Channels is employed to present learning, it is more likely students will find a level of engagement that meets their needs. Likewise, if the assessment of student learning allows for multiple channels of cognitive engagement, then students will more easily find a modality of engagement that reinforces learning and connects them with the content, instructor, or peers.

The aural channel is frequently associated with higher education learning. Lectures and discussions are frequent tools employed with adult and young adult learners. The aural channel is also the most economical in terms of time, preparation, and delivery. When asking students to speculate, verbal postulation is inexpensive compared to providing the time and resources to physically test a hypothesis or concept.

**Abstraction Level**

Information and questions can be presented in a wide continuum of clarity, ranging from highly concrete to highly abstract (A. Y. Kolb & Kolb, 2006; D. A. Kolb, 1981). This continuum can be demonstrated in the range of reading tasks taught to elementary school children: Almost as soon as they are to have mastered the concepts of main ideas and thesis statements (with their clear-cut and exact outcomes), students are introduced to poetry where all bets are off. Many theorists attribute the shift from more concrete reading tasks to abstract operations at the heart of the “The Fourth Grade Slump” where at-risk students who had received supplemental assistance in reading up to that point, still fell behind their peers (Chall, 1983). Not all students are comfortable in hypothetical and abstract tasks, particularly when they need to take a risk in interpreting them. Too often, an eager instructor engages in highly abstract...
activities, mistakenly believing they automatically spur imaginative responses.

**Available Schema**

Schema can be thought of as a student’s own personal bank of knowledge and experience. Utilizing schema in learning and engaging requires availability, selection, and maintenance (Pearson, 1982). First, a student must have the available schema (in the recent past, those who did not were labeled as culturally deprived) through personal experience or through the learning process. Obviously, this creates two kinds of schemata, the former more concrete and reliable, the latter more convenient but potentially more superficial. Second, if students cannot select the appropriate schema when needed, they cannot utilize it to connect new concepts to old, to engage in lateral thinking, or to form the foundation for successful elaboration and prediction. Finally, it is incumbent on the students to maintain that schemata by reviewing, challenging, extending, and refreshing the bank of knowledge and experience.

**Perceived Risk**

Participation in class inherently involves risk. Students perceive the level of risk in radically diverse ways. Some have been humiliated in the past, some have been consistently incorrect, some have learned to turn the opportunity into a comic redirection, some have used the platform to distinguish themselves from their peers, some have alienated themselves by being too clever or compliant, and some simply dread any sort of attention related to their academic self-concept. Instructors may often underestimate the risk students perceive in engagement and the very dynamics in their classrooms that perpetuate that risk or that create new levels risk for their students.

**Elicitation Model**

The Elicitation Model considers the Student Engagement Constructs above and offers an effective view on when engagement goes poorly in a classroom and a strategic path to increasing the quality of engagement in a classroom (see Figure 1). The model focuses on three paths to engagement: Experiential, Contemplative, and Speculative. Each path starts with a Teacher Action followed by an Initial Student Reaction and then a Subsequent Student Action. These paths begin at different levels of concreteness and abstraction, and engender a different level of perceived risk for the student. As a practical example, imagine an instructor singling out a student (perhaps in a writing class), saying, “Johnny, tell us what it would be like to be a cucumber.” The instructor has started at the top of the model, in the Speculative Path, postulating an abstract proposition. The student must then contemplate the task with little or no schema attachment and then make a speculation (in and of itself a risk). Not every student is comfortable with this level of abstraction and risk-taking. Further, imagine an instructor showing a video of a different culture facing a challenging situation. The instructor then asks, “Betty, what do you think the villagers will do next?” The student has the benefit of some knowledge of the culture, but still must take a risk projecting that knowledge to predict an outcome that only the instructor knows at that point (at least, the student believes this to be the case). The Contemplative Path still relies heavily on students with access to the appropriate schema and willingness to take risk. Finally, imagine an instructor who involves her students in an activity and then simply asks, “Janet, what did you think as you were going through the activity?” The Experiential Path allows the student to pull from multiple available Cognitive Channels, deal with concrete situations, and pull from the readily available schema of experience, thereby lowering the perceived risk of engagement significantly.

We utilize each of these three paths as we teach on a daily basis. Working at the concrete experiential level is time consuming and limiting. Operating at the highly abstract level is potentially alienating and distancing. Conscientious instructors can learn to build these pathways strategically in their classroom with some forethought, some information about their students, and a desire to construct their own classroom culture (Morsches, 1994).
Effective instructors often look for points in their curricula that lend themselves to rich, interactive opportunities. This serendipitous selection can be problematic; however, instead of looking for natural points that can be exploited by their nature, the instructor should instead consider the entirety of the curriculum and choose fundamental concepts throughout to create interactive and concrete activities. Those naturally occurring moments may not be significant, or they may not connect well to the rest of the curriculum. Establishing a key concept with the precious time it takes to create a concrete activity should not be squandered.

When creating a classroom culture, an instructor provides the materials and activities to generate new and common schema for the students. When instructors operate at the concrete level, the students get an opportunity to observe each other and notice the authentic similarities and differences of their backgrounds.

Using the concepts from the Elicitation Model, we returned to the difficult class on race and ethnicity. When working with African-American and White students, we have found a simple conversation about Thanksgiving dinner is a great place to start the examination of culture, diversity, and difference—well before we started reading Maya Angelou or Toni Morrison together. The similarities and differences with a holiday meal are much safer places to explore. Macaroni and cheese became an unexpected and delightful point of contention. Also, when the students had more time to learn about each other and to observe each other in a variety of contexts, they were much more prepared to tackle the more difficult concepts of race and ethnicity that they would soon encounter.

Moving from the concrete to the abstract is not a new concept in education. Kurt Lewin (1942) advocated a learning model that created individual lesson plans which cycled fully through the levels. Here, it is better to think of the entire term and the constellation of students involved. Beginning at the concrete level helps establish strong cognitive cues as well as interpersonal dynamics as the students learn about themselves and each other (D. A. Kolb, 1984). It is not a simple case of slowly working up the levels to eventually reach the abstract threshold; it is more likely a continuing cycle that eventually depends less on the more concrete activities. We find that students will engage more openly the more we create a unique classroom culture through various forms of mediated interaction, shifting strategically and
seamlessly from the Experiential to Contemplative to Speculative Paths and back again.

Considerations Using the Elicitation Model

Planning lessons and student interaction based on the Elicitation Model may seem complex, but with some practice and planning, it comes naturally and can greatly increase student participation. When working to scaffold through abstraction levels or building on student learning schema, here are a few concepts, considerations, and tools.

Flow, Student Engagement, and the Elicitation Model

Often, we try to evaluate students’ expression or psychological states when they fail to engage a question or activity. Csikszentmihalyi’s (1990, 1997, 2014). Flow model offers insightful attributions for these contingencies (see Figure 2). When students are confronted by a challenge, they often react according to their perceived ability to deal with the task. If the task is perceived to be well beyond ability, the result can be anxiety. If the task is perceived to be too far below ability, the result can be boredom. Each of these psychological states can inhibit engagement. In an ideal lesson, all students are presented with a task slightly beyond their perceived abilities creating a healthy sense of arousal. While working through the task, students achieve the “aha” moment and experience a very brief and tenuous flood of insight that is Flow. By continuing to work and solidify the new gain, students reach control or mastery of the task.

Too much time spent in control activities can lead to boredom. By limiting the observed dynamics to the juxtaposition of student ability and challenge, an instructor can begin to remediate the failure in engagement by manipulating or transforming the challenge variable.

Students can appear disengaged, even bored, at both ends of the Flow cycle: One student may feel the challenge is too easy, while the other may step back because it appears too difficult and attempt to disguise any embarrassment in disdain or disinterest. Obviously then, any lesson presented to a group of students will have reactions all over the cycle. In the previous example, pairing the two students can be an effective strategy as the challenge for the more capable peer becomes helping the other student, while the second student gets more time and assistance to tackle the task.

Figure 2: Flow Theory. Adapted from “Flow: The psychology of optimal experience” by M. Csikszentmihalyi, 1990.

The intersection of challenge and ability is a good starting point when trying to diagnose a student’s engagement reluctance. Once instructors understand this dynamic, they can repeat or rephrase a question, allow the student more time to prepare a response, allow the student to use other resources in the challenge, allow the student to participate in a group response, withdraw the challenge temporarily, reduce the level of the challenge, etc.
Being aware of the Flow cycle deepens an instructor’s ability to work within the Elicitation Model and improve engagement. When learning content is beyond students’ perceived abilities, anxiety may occur not only from the challenge of the content, but also from the engagement practices in the classroom, contributing to the alienation and distance from learning flow. When the challenge of abstraction, cognitive levels, risk, and schema exceed the students’ current skills, anxiety and disconnect may follow. Likewise, if too much time is spent in concrete, low risk engagement, students will experience boredom and equally disengage from participation.

**Wait-Time I and II**

Wait-Time, in our opinion, might be the most important and useful tool for an instructor interested in increasing engagement in the classroom. The term, coined by Mary Budd Rowe (1972, 1973), compels us to rethink students’ processing when responding to our questions (see Figure 3). Too often, we use questions to pace the class, often relying on a few reliable students to give us what we want to keep the lesson moving. Wait-Time dictates that we slow down, giving the students time to formulate their responses (Wait-Time I), and then allowing them time to respond and to elaborate (Wait-Time II). The latter stage is often the most awkward yet most rewarding. Frequently, students will offer a short, undeveloped response to a question. By waiting patiently and encouraging them to continue, an instructor can provoke an amended response that is much richer and more constructive (Rowe, 1972, 1973). This dynamic shift takes time to develop in the classroom, but is critical to deeper engagement.

Rowe found that by using Wait-Time, students’ confidence grew, they developed richer language around the content, formulated the appropriate content logic, and took greater ownership over learning and intrinsic rewards (Rowe, 1973). The consistent implementation of Wait-Time significantly increased the frequency and levels of engagement from students.

When considering student engagement from a developmental perspective, students need support and opportunities to develop healthy engagement practices and experiences. On a practical level, the conscious implementation of the Elicitation Model facilitates engagement development by building on accessible, positive participation leading to more complex, riskier forms of engagement. From this perspective, the Elicitation Model acts as an extension of Wait-Time, or Wait-Time extended over the course of a class, not merely a single question or point of interaction. Students need “Wait-Times” to process their engagement levels and participate. The concrete Experiential Path, like Wait-Time I, allows students space to process information. Since experiential activities naturally include a range of flexible engagement expectations, students can find success and rewards intrinsically and consistently. The Experiential Path acts as a prompt in which students are given time to formulate experience, thinking, and learning. As the class cycles through the Elicitation paths, the students’ experience with engagement is allowed additional opportunities to develop with rewards such as effective reflection, positive peer interactions, and eventually successful speculation. As with Wait-Time II, the movement between the Elicitation paths allows students to pause and build on engagement, just as they are found to build on answers given the space and time to contemplate.

**Exposure Does not Equal Promotion**

We have all heard the controversies related to underclassmen forced to engage opinions and concepts that they find offensive. This past year, the University of Chicago Dean of Students, John

![Wait-Time Diagram](image-url)
Ellison (as cited in Vivanco & Rhodes, 2016), issued a letter to incoming freshmen stating that the university would not indulge trigger warnings or safe spaces designed to create opportunities for students “…to retreat from ideas and perspectives at odds with their own.” Although this gesture was applauded by many in academia, it may be that we own part of the responsibility for this new phenomenon. University students have long complained that many faculty have agendas or perspectives beyond the appropriate parameters of the course content that they, the students, are expected to adopt or comply with. The surest way to retard healthy engagement in a classroom is to limit the scope of controversial or unconventional topics and ideas and to establish a clear pattern of bias by addition or omission. An instructor who makes it clear early on that multiple perspectives and ideas will be presented in the classroom, to be fairly evaluated and judged, will set a positive tone that can lead to increased engagement. Furthermore, instructors who can do so without patently revealing their true opinions or biases will be that much more likely to promote authentic engagement.

In our earlier example, after the unsuccessful attempt to introduce controversial and ethnically charged content, it would have been much easier to select alternate, more trivial readings. However, when the instructor altered the student engagement process through Elicitation, the class retained significant content without alienating students. We recognize that it is vital students remain exposed to controversial material that challenges their opinions and perspectives; however, the process for engagement, as we found, can either facilitate those discussions or retrench students deeper into stereotyped beliefs.

**Acceptance Does not Equal Agreement**

It is important for students to understand that they can accept someone else’s opinion or conjecture without agreeing with it. Here, we are directly aiming at acceptance in contrast to tolerance, which can have a negative or condescending connotation. By doing so, the students take the first step in moving the conversation or debate from an emotional experience to a logical engagement. Instructors can model this compact initially, discussing several issues they have been forced to deal with that they themselves were initially uncomfortable processing.

As noted previously, one of the Cognitive Channels deals with emotion. Opinions are laden with emotion. While students may not have agreed that macaroni and cheese was an acceptable Thanksgiving meal, they had to accept that it was not only acceptable, but a reality for their peers. This level of experienced acceptance paved the road for concepts and speculations around acceptance and agreement during later, more emotionally charged content.

**Dealing with Risk and Trust**

Certainly, context alone does not explain all the factors of risk in the classroom. Students may believe that they have been victimized by peers and instructors in the past. Because instructors are at the center of the dynamic, at least initially, they should model and project a safe and welcoming environment for the class. There are several practical activities and gestures that can help students begin to be willing to engage openly and enthusiastically.

**Attendance Cards**

On the first day of class, all students receive a notecard and write their name, address, email, phone number, intended major, and hobbies and interests on one side of the card (see Figure 4). Each day, the instructor calls role by going through the cards. As the instructor calls the names, the cards are placed in two piles – one for those present, and one for those absent or tardy. The date of the absence or tardy appearance is recorded on the back of the card. This technique helps the instructor learn students’ names quickly and also reminds the instructor about valuable personal information that can be exploited during the lesson (i.e. particularly, the hobbies and interests information). The simple act of calling a student by name goes a long way in establishing trust.
The Syllabus

Too often, the syllabus becomes a cumbersome contract that is invoked painfully by the instructor. It is a contract, but it can be introduced more creatively and collegially. The classroom rules section is a prime location to create some good will and buy-in. Before proceeding in this portion of the syllabus, we recommend the following activity: Have the students turn the syllabus over (if there is a blank page) and do two things. First, have them list their goals for the class. You will need to push them a bit beyond listing the grade they want. Discuss their goals with them and try to tie their goals into the portions of your class and syllabus that support them. Second, have them jot down some indicators that will prove to them that you respect them as students. This particular activity will take some prodding, but they will eventually generate a good list. Discuss this constructed list as well and make the appropriate guarantees (e.g. not laughing at their questions, returning their work promptly, listening to them, etc.). Once you go through this list with the group, you can ask them if they know the next question you will ask—"What will show me that you respect me as your instructor?" The list they eventually produce is usually more prescriptive than the list an instructor might bring into the class. These combined activities can become the basis of a mutually considerate contract with your students.

Letters

The students are assigned a letter to the instructor as the first assignment. The charge is simple: "Write me a short letter introducing yourself and include anything I should know about you." Students react favorably to these letters and do a good job sharing appropriate information. It is critical that the instructor then write short notes back to the students. This activity can continue throughout the term, following any themes that emerge in the process.

Before You Delve, Divulge!

In many cases, instructors ask students to take a wide variety of risks in the classroom, well before they are convinced it is safe to do so. When an instructor models intriguing risk-taking first, the likelihood that students will follow increases significantly. One such gesture is a short, twenty-minute activity that can occur early in the term. The instructor creates identical cards or slips of paper for each student and distributes them with one simple direction: "Write down any question you have for me, personal or professional." They will be shocked at first, but with a little reassurance regarding anonymity, they will comply willingly. The instructor can add that they need not worry about the personal nature of the question, for if the instructor finds it too personal and/or inappropriate, the instructor will not read it aloud. Such demonstrations are very powerful ways to prove that risk-taking is a valued and safe activity in a healthy learning environment.

Other Personal Choices

There are many ways to establish trust in and out of the classroom. These gestures can be as
simple as an instructor providing a home phone on the syllabus, hosting a final exam study session at the instructor’s home, acquiescing class time for individual conferencing, interacting with students on social media, or numerous other personal choices. Each instructor has different levels of comfort regarding personal involvement, but it has been our experience that those who do stretch themselves to be more open generate more openness in their classrooms.

**Conclusion**

It has been our experience, that if instructors do not find a way to convey to their students that they care about them, those instructors will have a more difficult time engendering engagement or applying prescriptive and disciplined regimens in the classroom. Failure to establish a meaningful connection can often result in silence, and worse, opposition. When we ask students to engage, we are making far more than a brief, superficial, cognitive connection—we are asking them to expose themselves and to trust that the dynamic we produce will be fair and equitable. We pose a question with the hopes of checking comprehension, extending or connecting concepts, or breaking up the monotony of our lectures (among other reasons). Students do not consider these motivations in the transaction; instead, they focus on the exposure into which they have been thrust. By rethinking the underlying elements of student engagement, and subsequently the specific environment or culture that we construct in our classrooms, we can create more positive and constructive attributions for our reluctant students. Finally, instead of focusing on one reluctant student at time, we can begin to think of engagement as a larger, integrated component of our curriculum that may indeed reframe much of our actions in the classroom.
References


First to Second Year of College Persistence: A Review and Recommendations

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Abstract: Research has shown that students who leave institutions of higher education do so between their first and second year of college, impacting retention rates. Decisions about persistence are relevant to understanding the why and how components of transitioning from the first to second year. As a result, researchers and university staff can learn more about how to promote students’ academic success and increase degree completion rates by implementing best practices. Therefore, the purpose of this investigation is trifold: (1) review literature published between 2000-2016 on persistence from the first to second year of college, (2) identify themes in previous research, and (3) provide recommendations for best practices. Databases used to search for articles included PsycINFO and EBSCO. Article keywords included college students’ persistence, first- to second-year of college, and first year college success. The first author’s research team coded articles based on the following inclusion criteria: demographic information, study description and findings, and reliability and validity of assessments used. Findings suggested four themes of research to promote first to second year persistence: (1) institutional records, (2) student and institutional characteristics, (3) university initiated interventions, and (4) racial/ethnic minority populations. Based on these findings, recommendations for best practices are discussed.

Introduction

There has been an increase of undergraduate enrollment in post-secondary degree granting institutions with enrollment rising from 17.3 million in 2004 to 20.2 million in 2014 (National Center for Education Statistics, 2016). Of the 21 million undergraduate students, 10.6 million attended four-year institutions with 77% of those attending full time (National Center for Education Statistics, 2013). The ACT Institutional data file (2016) indicated the national first- to second-year retention rates for Bachelors of Arts/Bachelors of Science public universities were 64.9% while the rate for BA/BS private universities was only slightly higher at 70.8%. These data suggest two primary issues: (1) the importance of obtaining an undergraduate degree and (2) concerns among universities with students not persisting from the first to second year of college. These two issues are inextricably linked as individuals without college degrees may have decreased opportunities to pursue various career options.
Persistence, defined as a student measure of academic achievement and success, has been identified as a concern specifically between the first and second years of college (Hagedorn, 2005). Whether students persist in their education impacts a university’s overall retention, defined as an institutional measure of student achievement and success (Hagedorn, 2005). Not only do persistence and retention impact one another, they are causes for concern at both the institutional and individual level. Therefore, the purpose of this investigation is trifold: (1) review literature published between 2000-2016 on persistence from the first to second year of college, (2) identify themes and summarize articles from the literature review, and (3) provide recommendations for university staff, faculty, and researchers to promote best practices for increasing persistence and retention rates.

**Review of Literature**

Previous research on college persistence has focused on two areas: (1) theory application and (2) the impact of persistence. Research on theory application has focused on the conceptualization and application of theoretical models developed by Tinto (1993). Research based on these models has identified factors that impact persistence such as social and academic integration, institutional commitment, and student characteristics prior to enrolling in college (e.g., high school GPA, SAT scores, and ACT scores) (Pascarella & Terenzini, 1983).

Research on the impact of persistence has focused on issues related to the first to second year of college, emphasizing institutional and individual level impacts. The report titled “Finishing the First Lap: The Cost of First-Year Student Attrition in America’s Four-Year Colleges and Universities” (Schneider, 2010) highlighted the significance of persistence, or a lack of persistence, at the institutional level. Findings from this reported identified a 30% attrition rate for first-year students at four-year colleges between 2003 and 2008 (Schneider, 2010). As noted in the report, a primary reason for colleges’ and universities’ concern for students not persisting is financial. There is a direct correlation between persistence, retention, and revenue generated from tuition and other fees from students (Schneider, 2010).

Similarly, Raisman (2013) examined 1,669 colleges and universities which collectively lost over $16 billion in revenue due to attrition. Publicly-assisted colleges and universities averaged $13 million in losses from attrition, while private colleges and universities lost an average of $8 million (Raisman, 2013). These figures do not include the loss of revenue from potential alumni donations if the students were retained and graduated from the school (Raisman, 2013). Retention rates can also affect a university’s reputation. Accreditation standards require that retention rates be publicly available on the university’s website and are often summarized in the popular press, such as in U.S. News and World Report (Raisman, 2013).

Additionally, research has focused on the costs and benefits of persisting at the individual student level. Perez, Cromley, and Kaplan (2014) found that students’ perception of return on investment in their education may play a crucial factor in their academic decisions and achievements. In their study, Rickinson and Rutherford (1995) found that students who withdrew from their first term of school indicated they left because they did not feel academically prepared, did not feel emotionally prepared for university life or the coursework, and personal problems such as family and financial responsibilities.

While previous research has focused on theory application and the impact of persistence, there has been limited research on how to promote students’ academic success and increase degree completion rates by implementing best practices for university staff and researchers. Identifying and implementing best practices to promote persistence from the first to second year can be instrumental in increasing persistence rates at the individual level which can then influence an institution’s overall retention rate.
Present Study

We reviewed the recent literature published between 2000 and 2016 on persistence from the first to second year of college, identified categories of research areas based on specific coding criteria, and provided recommendations for best practices to promote persistence from the first to second year of college. We focused on research published since 2000 to mirror research conducted by ACT, Inc. on retention and graduation trends.

This study is a significant contribution to existing literature because it is the first to rigorously review recent research on persistence from the first to second year of college. In addition to the review and identification and summarization of important themes from existing research, this is the first study to provide recommendations for professions in higher education that will influence university administration, policy, and researchers to promote college students’ persistence.

Method

A review was conducted of all English-language peer reviewed journal articles on retention published between January 2000 and January 2016. Databases used to search for articles included PsycINFO, ERIC, EBSCO, and Academic Search Premier. Key words used to find articles were: college students’ persistence, first year college success, and retention. The first author read all the articles and eliminated non-empirical articles. Following this, ten research team members, comprised of seven doctoral students and three master’s students, paired up to code the remaining articles (between 35-40 in a set) and met to reconcile any differences in coding. Articles that were eligible for review and coding met the following criteria: (1) focused on retention in college from first to second year, (2) reported data collected, (3) were conducted at a four-year university, and (4) identified as an empirical study. All of the non-empirical articles were excluded, as were any articles that did not focus on persistence or retention from the first to second year in a four-year college. While there were initially 374 articles, 22 fit our criteria. In total, 20 studies applied quantitative methods, one used a qualitative methodology, and one employed a mixed method. Sample sizes ranged from 12-45,000. The majority of studies focused on college students who were 17 to 20 years old.

Results

We found four themes in research addressing first- to second-year of persistence which were: (1) institutional records, (2) student and institutional characteristics, (3) university initiated interventions, and (4) racial/ethnic minority populations. Please refer to Table 1 for a summary of themes and their respective references. In addition to identifying themes, we provide summaries of each of the articles we reviewed.
Table 1: Summary of themes and references (N = 22)

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<thead>
<tr>
<th>Theme</th>
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<tr>
<td>Institutional Records</td>
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<td>Jaeger and Hinz (2008)</td>
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<td>Student and Institutional Characteristics</td>
<td>Taylor, Scepansky, Lounsbury, and Gibson (2009)</td>
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<td>Joo, Durband, and Grable (2008)</td>
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<td>Ishitani and Reid (2015)</td>
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<td>University Initiated Interventions</td>
<td>Bai and Pan (2009)</td>
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Institutional Records

Two studies examined the use of institutional records to predict persistence from the first to second year of college. Institutional records were defined as student records, students’ high school grade point average (GPA), ACT/SAT scores, credits earned, and current GPA. DeBard and Sacks (2011) examined 17 different institutions, accessing over 45,000 student records, that ranged from Master’s L (master’s college and universities: large programs) to RU/VH (research university: very high). They focused on retention from first to second year for students who did and did not engage in Greek membership. The study only focused on the 4,242 students who joined a Greek organization the fall of their first year and the 1,873 students who joined in the spring of their first year (DeBard & Sacks, 2011). The researchers found that after controlling for high school GPA and ACT scores, those who joined Greek life organizations in their first year earned higher GPAs than students who did not (DeBard & Sacks, 2011). Additionally, those who joined Greek life in both fall and spring semesters were retained at higher rates during their second/sophomore years (DeBard & Sacks, 2011). Students who joined Greek life in the spring semester earned more credits in their first year than those who joined in the fall semester and those who did not join at all (DeBard & Sacks, 2011). One significant limitation of this study is the failure to report any demographic variables aside from gender, year in school, Greek membership, and high school characteristics (e.g. ACT score and GPA).

Jaeger and Hinz (2008) conducted a study of institutional records with first-semester entering freshmen cohorts from 1999-2003 (N=15,399) to investigate the effects of exposure to part-time faculty on retention. Through a logistic regression model, their findings indicated that high school GPA, total credit hours attempted during the first year, gender, SAT verbal score, SAT math score, and part-time faculty exposure significantly predicted second-year retention (Jaeger & Hinz, 2008). However, the researchers did not specifically address how these factors predicted second-year retention or the quality of part-time instruction which could have both impacted findings.

Student and Institutional Characteristics

Previous research in this area has examined aspects of student and institutional characteristics that predict college students’ persistence. These include personality, financial stress, the university learning environment, and institutional characteristics. Two studies investigated the role of personality in college students’ persistence with mixed findings. Taylor, Scepansky, Lounsbury, and Gibson (2009) found that
emotional stability, work drive, and sense of identity accounted for about 18% of the variance in the intent to withdraw among 103 female students from a women’s college. However, Lufi, Parish-Plass, and Cohen (2003) found that personality only accounted for a small proportion of the variance between persistence and non-persistence among 181 Israeli students.

One study investigated financial-related concerns impacting persistence. Using a small size of 503 undergraduate students, Joo, Durband, and Grable (2008) compared students who experienced dropping out/reducing credit hours due to financial reasons and those who did not. They found that financially stressed students were more likely to drop out of school. Joo et al. (2008) suggested that policy makers and university administrators should make a more proactive effort to break the cycle of needing money, working, and academic performance. However, this study did not have a direct measure of socio-economic status, nor did the authors operationalize students with financial problems.

Copeland and Levesque-Bristol’s (2011) study was the only one that examined demographic variables, external pressures, expectations, and teachers’ influence on learning outcomes with 390 freshmen. Their findings suggested that learning outcomes were most prevalent when students’ perceptions of the learning climate was positive, students’ basic psychological needs were met by the learning institution, and when students used more self-determined forms of motivation. It is critical for faculty and staff to create a positive, autonomy supported learning environment. Students who feel encouraged, have a sense of belonging, and feel competent are more likely to take responsibility for their own learning.

One study highlighted the importance of institutional characteristics, specifically the academic environment, to promoting persistence. Ishitani and Reid (2015) focused on academic and social self-efficacy of 2,358 students from 2003-2004 who took the Your First Year of College and The Freshmen Survey. This survey was developed by the Higher Education Research Institute (HERI) and the Policy Center on the First Year of College at the University of California – Los Angeles. The purpose of the survey is to measure student development in the first year of college (HERI, 2016). They found that students who were more satisfied with their academic environment were more likely to persist (Ishitani & Reid, 2015). Additionally, those with higher levels of academic efficacy were less likely to persist (Ishitani & Reid, 2015).

University Initiated Interventions

Four studies focused on first-year experience programs, two discussed interventions related to the Internet, and four addressed interventions for at-risk students. Previous research has demonstrated that First Year Experience (FYE) programs are effective for students persisting from the first- to second-year of college (e.g., Bai & Pan, 2009). However, detailed information on these FYEs was not included in the articles (Bai & Pan, 2009; Burgette & Magun-Jackson, 2008; Noble, Flynn, Lee, & Hilton, 2008), which is a major critique of these studies.

First-Year Experience

Bai and Pan’s (2009) study examined programs that focused on advising, academic help, FYEs, and social integration and how these programs were effective in retaining students among 1,305 participants. They found that while different intervention programs had different effects on retention, advising programs were more effective in first-year retention (Bai & Pan, 2009). Similarly, Burgette and Magun-Jackson (2008) investigated social integration, personal development, and social/campus integration with 806 students. Their findings suggested that an orientation course positively impacts college students’ persistence rate to the second year and first-year GPA (Burgette & Magun-Jackson, 2008). Similarly, Noble et al. (2008) discussed the importance of developing programs that promote a sense of connection to the campus community. In their first-year experience program, Entering Students at South Engaging in New College Experiences (ESSENCE), the primary focus was to build community through residence halls, orientation programming, structured group activities, peer-to-peer advising, and tutoring among 2,915 first year students (Noble et al., 2008). Students who participated in ESSENCE
were 50%-60% more likely to obtain their degrees when compared to those who did not participate in the program (Noble et al., 2008).

Unlike most intervention studies where a one-year trend with a university-level (one institution) approach is used, Pan, Guo, Aliknois, and Bai (2008) investigated the effects of four different interventions on college student retention using a three-year trend analysis and a multilevel approach. Their findings suggested that integration programs, which included freshman orientation seminars where students engaged in a series of interventions focusing on social support, improved the first-year retention rates for female students (Pan et al., 2008). They also concluded that advising programs were significantly more effective in increasing first-year retention rates than a general orientation program (Pan et al., 2008).

While Bai and Pan (2009), Burgette and Magun-Jackson (2008), and Noble et al. (2008) found evidence to support the hypothesis that FYE programs were effective in retaining students to the second year, more recent data suggests this is not the case. For instance, Zerr and Bjerke (2016) investigated first year seminars with 185 first-semester, first-year students in Introduction to University course (control group) and Academic Themed First-Year experience course (experimental group). They found no statistically significant differences between the groups on GPA and first- to second-year persistence (Zerr & Bjerke, 2016).

Internet

Other university initiated interventions used the internet. Hudson (2005) examined the effectiveness of a web-based system for instructors as an intervention to promote retention, finding that the 216 students who were contacted regarding excessive absenteeism were appreciative of the warning and additional contact. Hudson’s (2005) results demonstrated that nearly 50% of participants passed the course after engaging in the intervention. While the author was unable to demonstrate this program directly led to higher retention rates of chronically absent students, findings suggest that instructors’ level of caring and compassion are important constructs to consider. Another study focused on generating best practices for teaching and learning online (Morris & Finnegan, 2009). One of the issues in this area of education is the newness of an online environment to faculty, especially those who lack adequate knowledge of online learning materials (Morris & Finnegan, 2009). Research has concluded that online learning environments can be confusing in the layout and instructions, which directly affects students’ persistence in the online course. Morris and Finnegan (2009) suggested that universities provide an initial course for faculty members who are new to the online programs to learn the different roles they need to play, including technological, managerial, social, and pedagogical. They pointed out the importance of having clear course layout, assignments, and expectations for an online course and identifying students who might need individual assistance early on.

At-Risk Students

Four studies addressed the retention rates of specific “at risk” populations. The definition of “at-risk” has been conceptualized with a dynamic set of factors, ranging from academic deficiency (GPA below 2.0) in their first semesters at a four-year university, below average entrance exam scores (e.g. ACT/SAT), being underprepared in at least one basic skills area (reading, mathematics, writing), demographic make-up of students (race/ethnicity, gender), and prior poor academic performance (Laskey & Hetzel, 2011; Williams, 2011).

The common criteria used to identify “at risk” students in the studies examined in this section included students having a disability, having a GPA of lower than 2.0, an ACT composite score below 20, lack of preparedness in basic skills areas, poor motivation to pursue a college degree, and first-generation first-year students. In addition to examining the demographic characteristics of “at-risk” students, previous research has focused on how to create interventions that will increase this group’s retention from the first- to second-year of their academic careers. Factors that correlate strongly with failing to persist include low socioeconomic status, lack of academic and social integration, employment, and lack of family support (Williams, 2011; Laskey & Hetzel, 2011).
In terms of students with disabilities, Hartley (2010) stressed the importance of increased support for students with psychiatric disabilities by developing Supported Education (SED) programs which emphasized resilience through providing academic support, counseling services, and peer mentoring. We also found that interventions targeted for “at risk” students have been grouped into three types: skills training, career development, and combined skills (Williams, 2011). These interventions ranged from relationship influences between students and university faculty and staff, classroom career workshops, personality factors, and programs for students accepted either conditionally or suspended due to at-risk factors such as GPAs below 2.0 or lower ACT scores (Williams, 2011; Laskey & Hetzel, 2011).

Finally, Allen and Bir (2011) examined the efficacy of Summer Bridge Learning Communities (SBLCs) on student retention on a group of students, 85% of whom were African American. Their study indicated that SBLCs had a significant effect on student persistence from the first to second year, with students in the program demonstrating higher academic confidence, higher desire to finish college, and less intent to transfer when compared to students who did not participate in this program.

Racial/Ethnic Minority Populations

While there have been persistence studies that have focused on racial/ethnic minorities (e.g. Belgarde & Loré, 2003; Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008; Wei, Ku, & Liao, 2011), not all groups have received the same attention in recent scholarship. The retention and persistence literature has focused primarily on African American and Latino/a college students’ experiences in higher education and contributing factors to their persistence in college. For example, Kuh et al. (2008) found that higher engagement on campus in the form of living learning communities, service learning courses, and first-year interest groups (FIGs) was related to higher GPAs during the first year and persistence to the second year for African Americans. The data collected in this study incorporated 18 baccalaureate-granting institutions (N=6,000) and utilized the National Survey of Student Engagement (NSSE), GPA, financial aid, and ACT/SAT scores, and included racial/ethnic minority groups (e.g. Hispanic, African American) (Kuh et al., 2008). Wei et al. (2011) explored minority status stress in 160 Asian American, African American, and Latino students in a predominantly White institution. A path analysis suggested that university climate was a significant mediator between attitudes towards persistence and minority status stress (Wei et al., 2011).

Extensive examination of retention and persistence as it relates to Native American/American Indian or Asian American populations is lacking. However, one study by Belgarde and Loré (2003) with Native American students in New Mexico used a mixed methods design to explore retention. Belgarde and Loré (2003) used an intervention model, which included ethnic identification, in which they compared the effectiveness of ethnically representative program versus the mainstream model. Their findings suggested that American Indian students who participated in both interventions attempted and accumulated more credit than those who did not participate (Belgarde & Loré, 2003). There were no statistically significant differences between the participants in the two interventions (Belgarde & Loré, 2003). They also found that Native American students who were least likely to persist felt more underprepared for college work based on high school training (Belgarde & Loré, 2003).

One article explored the impact of first-year seminar for international students (Andrade, 2008). This study was conducted in a private, religiously-affiliated, residential, small size, four-year undergraduate university (N=49, 37% male). The majority of participants identified as Asian and Pacific Islander (Andrade, 2008). Findings from this study indicated that a first-year seminar could have a positive impact on international students’ general adjustment in the university. The first-year seminar helped international students develop the ability to successfully interact with peers from different countries (Andrade, 2008). However, this study is not generalizable as it is limited due to its sample size, nonrepresentation of all international students, and year in school (e.g., undergraduate vs. graduate).

While these studies provide some insight into the challenges that racial/ethnic minority students encounter in higher education, there is still a gap in the literature on how academic engagement contributes to persistence across minority groups. Notably, only one study focused on cultural capital.
(Wells, 2009), while the others used a deficits approach to define minority students as underprepared, “at-risk,” first-generation, and low-income.

**Discussion**

The results of our literature review found four themes from previous research on persistence and retention from the first to second year of college. Based on our review, it is apparent that the development and implementation of interventions has received much attention within the college student persistence and retention literature. However, the literature on what interventions work to promote retention has been inconsistent. Furthermore, our review in this area indicates that interventions that are in peer-review journals tend to be idiosyncratic in nature in that they focus on different populations, approaches, and outcome variables. It is apparent that there were differences in how the studies were conducted, specifically differences among universities, implementation of interventions, and oversight of interventions. There were also differences between a research project (e.g. well-funded, multi-institutional, conducted and/or overseen by experienced researchers) and an assessment of a program/intervention (e.g. could potentially be underfunded and understaffed), which all impacted the quality of research implemented and published.

While our literature review provides insight into the numerous factors that promote persistence in the first to second year (e.g. first-year seminars), our findings suggest several concerns about the research on persistence in general. For instance, only 22 studies met our inclusionary criteria. Although there is a place for general descriptions of persistence and retention programming, our review of the research suggests the need for much more detailed attention to empirically examining those programs and interventions.

Previous research by Tinto (2006) suggests that retention programs should have some degrees of assessment to determine whether the program is successful in its goal. However, our findings demonstrated that this is not always the case. Universities need to focus on rigorously assessing their persistence and retention efforts, using those data to improve programming, and then disseminating the results to others. We were unable to use many articles because basic information was lacking, such as number of students assessed, types of instruments used, or the method of intervention described.

**Limitations**

In addition to the small sample size of the articles reviewed, there were several other limitations of our study. One primary limitation was being unable to use the initial sample of 374 articles because basic information was lacking, as noted above. This limited our ability to provide a comprehensive analysis of what works and does not work in retention efforts.

Another limitation is the general deficit-focused approach of many of the articles. This was apparent in the Institutional Records category. For example, DeBard and Sacks (2011) did not take into consideration any contextual factors, such as race, ethnicity, and being a legacy in Greek membership, which could have impacted students’ GPAs and credits earned. Additionally, Jaeger and Hinz (2008) did not consider the differences in college student status (e.g. first generation vs. non-first generation) and cultural factors into their conceptualization and discussion. These are important to consider as students’ expectations of themselves and academic performance, teachers’ influence, and learning outcomes can be impacted by their sociocultural contexts (Copeland & Levesque-Bristol, 2011).

Similarly, the majority of the articles in the Racial/Ethnic Minority Populations theme did not approach their studies from a strengths-based approach. Rather, they focused on labeling minority students as being underprepared, at-risk, first-generation, and low-income. By labeling minority students, it can pathologize their experiences and lead them to not seek academic assistance. This, in turn, can potentially rupture any relationships these students have with faculty, peers, and staff, and lead to earlier departure from the university.
Implications for Research

Due to these limitations, findings from our literature review have important implications for research. The primary implication is the call for more rigorous development, implementation, and dissemination of studies examining persistence and retention from the first to second year. The majority of articles we reviewed were in the University Initiated Interventions theme, which suggests a strong focus on developing and implementing interventions to promote persistence. While it is important to note which interventions work and do not work, there needs to be more information about who these interventions work for, considering variables such as students’ contexts and demographics.

Another implication for our findings is about methodology. Most of the studies reviewed were conducted at one institution, which limits generalizability. It may be beneficial for researchers to assess interventions and strategies across multiple institutions to increase sample size, increase generalizability, and gain a broader perspective of retention from the first to second year.

Implications for Practice

Based on the studies reviewed, there are several implications for practice among professionals in higher education. First, creating tailored intervention programs for different student populations is critical to improving the efficacy of programs (Bai & Pan, 2009). For instance, creating a program for commuter students could be helpful for them as it allows them to connect with other peers socially—something they may be wanting and missing (Noble et al., 2008). Second, persistence efforts must address both academic and non-academic factors given that students’ social and intellectual involvement could lead to a sense of engagement to the university and prevent them from dropping out or transferring. University administrators and staff can create programs or activities to increase students’ interactions with each other, faculty, and staff (Bai & Pan, 2009; Pan et al., 2008). Additional outreach programming or support groups by the university’s counseling center could be helpful in sorting through academic and non-academic factors that may impact students’ decisions to depart from the university (Sharkin, 2004).

Recommendations for Best Practices

Based on our review, we suggest the following four recommendations for best practices to promote persistence from the first to second year of college, specifically for university staff, administrators, faculty, and researchers.

Theory Integration

Many of the articles in this literature alluded to Tinto’s social integration model (1993, 1998) as a persistence strategy, but did not fully integrate the theory into the study’s conceptualization or integration. As such, university staff, administrators, faculty, and researchers investigating, developing, and implementing persistence programs should consult previous research on different theoretical models to frame their work. Universities and colleges should strive to provide a positive learning climate for students (Copeland & Levesque-Bristol, 2011) by creating mechanisms to increase students’ interaction with each other, faculty, and staff (Bai & Pan, 2009; Pan et al., 2008; Sparkman, Maulding, & Roberts, 2012). A proactive action plan to assess the university climate is echoed by scholars to address areas of change and improvement (Alexander & Gardner, 2009). Thorough assessment of the learning environment rooted in theory allows university personnel to gain an understanding of the students’ academic environment.

Methodology

As noted in the Discussion section, our review of published research has focused on different populations, approaches, and outcome variables. While these differences are needed, it is important to operationalize persistence in a consistent manner. For instance, while many of the articles reviewed
related to persistence, researchers used the terms persistence and retention interchangeably. Consistent definitions of terms are needed in order to adequately understand persistence as a construct.

**Intervention Development and Implementation**

University staff, administrators, and faculty are encouraged to develop and implement non-academic courses designed to integrate students into campus life. These courses should be designed for students to learn the pathways to academic success, focusing on skill building in the following areas: financial literacy, connecting to resources on campus, major exploration, and creating an academic plan. Different groups of students may have unique challenges that impact their ability to persist from the first to second year which can influence whether or not they graduate from college. It is important for universities to be aware of these needs and assist along the way. Tinto (1993) highlighted that most students who exit the university in the first year do so because of nonacademic factors, such as stress. Therefore, persistence interventions should address non-academic factors related to the transition into college. Ways to address such factors include utilizing the university’s counseling or health services centers to provide outreach programming about services offered, having drop-in support groups, and encouraging the pursuit of individual counseling to discuss stress and non-academic related concerns.

**Multicultural Competence**

It is critical for universities and colleges to continually work on multicultural issues and to explicitly create a safe environment for minority students (Sparkman et al., 2012). Professionals in higher education could also encourage and educate all students to be inclusive and culturally sensitive. One way to address the issue of inclusivity is to provide workshops, orientations, and support groups to assist specific groups’ (e.g. transfer students, international students) adjustment in the new setting. Research suggested that hosting a general orientation in the beginning of the semester is beneficial for domestic and international students (Andrade, 2008; Pan et al., 2008).

**Disclaimer**

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References


Abstract: In Spring 2014, educational outcomes of African American students in the Pulaski County Special School District lagged behind those of white pupils despite efforts since 1982 in the Federal Courts to correct the effects of segregation. A partnership, including the University of Arkansas at Little Rock, Philander Smith College and plaintiffs, submitted a plan to the Federal Court’s Eastern District of Arkansas for an intervention to improve educational achievement of all students, with special attention paid to African American and other at-risk students. The Charles W. Donaldson Scholars Academy includes a Saturday Academy in which students in grades 9-12 participate in eight all-day sessions during the academic year focused on relationship building, academic rigor, fun, and college graduation, plus a four-day residential Summer program. Graduated Seniors experience a ten-day residential Summer Bridge program with the goal of testing out of developmental courses. A $10,000 scholarship awaits students who complete the full program and agree to attend one of the two partner colleges. The paper provides a case study of the growth of innovation and development of the program.

Introduction

Educational performance of African American students in the Pulaski County (Arkansas) Special School District (PCSSD) continued to lag well behind those of European American students through the first half of 2014. Recognizing these discrepancies in educational outcomes for minority students, PCSSD Superintendent Dr. Jerry Guess and a group of interested parties composed of Little Rock Attorneys Alan Roberts and John Walker, a group of plaintiffs called the Joshua Case Intervenors, and representatives of the University of Arkansas at Little Rock (UALR) and Philander Smith College (PSC) quickly proposed an educational intervention with the goal of improving the educational achievement for all PCSSD students with special emphasis on the performance of its African American matriculates (Smith, Patterson, & Donaldson, 2014, p. 1).

On June 11, 2014, U.S. District Judge D. Price Marshall Jr. of the Eastern District of Arkansas, approved the Charles W. Donaldson Scholars Academy (CWDSA) as part of the Pulaski County Special School District’s Desegregation Plan 2000. The collaborative effort between UALR and Philander Smith, with the cooperation of the PCSSD, seeks to break this cycle by employing fresh approaches that appeal to youth who exhibit multiple learning styles and come from varying backgrounds. Its goals for these students include improvement in educational achievement and in test scores used in college admission; an increase in high school graduation rates; entry into post-secondary programs without the need for remedial classes; and completion of the undergraduate curriculum following participation in the Donaldson Scholars program for four years (Smith et al., 2014, p. 1).

The plan jointly proposed by the Pulaski County Special School District and the Joshua Intervenors—plaintiffs who represent Black students in the 31-year-old school desegregation lawsuit—called for the school district to pay $10 million over three years to the University of Arkansas at Little Rock for the operation of the Charles W. Donaldson Scholars Academy. The plan, approved by the parties, offers new African American graduates of the Pulaski County Special School District a summer college-preparation program and scholarship incentives of up to $10,000 ($2,500 per academic year). To qualify for the scholarship, students are required to successfully complete the Donaldson Scholars Summer Bridge experience and be admitted to one of the two participating schools—UALR or Philander
Smith College (PSC)—and be enrolled for the fall term (Smith et al., 2014, p. 1). Students fulfill the first requirement by attending the Saturday Academy and its four-day Summer Program, which would culminate after their high school graduation with the Donaldson Scholars Summer Bridge program the summer before entering one of the two institutions, or just by attending the CWDSA Summer Bridge for graduated seniors. The focus of this paper is the students who are going through the whole Saturday Academies programs process.

After the June 2014 ruling, the CWDSA staff had just over one month to launch the Scholars Academy Summer Bridge program. Held July 13-August 2, 2014, 63 students, all May 2014 graduates of PCSSD, attended the program. The participants explored their options for attending college, learned what skills deficits they needed to overcome in order to succeed in college courses, and strove to circumvent required developmental courses. Many of these students had never taken the ACT and several had no plans to attend college.

By the end of the Scholars Academy Summer Bridge, 100% of the students had committed to attend higher education somewhere. Results of the first cohort in the Scholars Academy were:

- 52% bypassed developmental math
- 56% bypassed developmental reading
- 62% bypassed developmental composition
- Six students who needed developmental reading, writing, and math bypassed all three courses (Smith et al., 2014, p. 4)

To clarify the difference between the Summer Bridge program and the Scholars Academy Bridge, prior to starting the CWDSA Scholars Programs for Pulaski County Special School District, students at UALR had an ongoing Summer Bridge program for all high school graduated at-risk seniors. To distinguish the CWDSA students from the regular Summer Bridge participants we designated our PCSSD students as being participants in the Scholars Academy.

**Background**

A major objective of the CWDSA program is to improve the educational outcomes of students, as well as to provide scholarships for graduates of the PCSSD high schools. The plan also includes three additional programs—a program for ninth graders, a program for twelfth graders, and an after-school program for Jacksonville High School to prepare students for the ACT examination. One of the programs—originally called the Ninth Grade Program—has now been expanded to include all high school classes and has been renamed CWDSA Saturday Academies (Smith et al., 2014, p. 10).

The program for twelfth grade students eventually evolved into a program providing concurrent courses that gives dual college and high school credit to expedite the PCSSD seniors’ matriculation from high school to college graduation. Also, during this period, the City of Jacksonville was in the process of establishing its own public school district separate from the Pulaski County Special School District. However, because Jacksonville remained at that time part of the PCSSD, the Donaldson Scholars staff developed a special program specifically to assist the high school in preparing its students for the ACT examination (Smith et al., 2014).

To get the new programs off to a good start, special recruitment sessions were held at each of the seven targeted PCSSD high schools. All ninth and twelfth grade students were required to attend the sessions. Recruitment letters were sent to all ninth-grade parents and nearly 2,600 students were offered the opportunity to observe a presentation and learn about the Academy. Printed materials were distributed and Q & A sessions were an integral part of the presentations (Smith, Patterson, & Donaldson, December 2014, p. 10).

Orientation sessions for the Academy were held in the Donaldson Student Services Center Auditorium on the UALR campus for participating students and their parents. Information about the CWDSA programs was posted to the web pages of the Pulaski County Special School District, Philander
Relationship

Intentional relationship building is a key component of the program. Mentor/tutors are trained to develop true relationships that ultimately help students reach their goals (Gullat & Jan, 2003).

Academic Rigor

The goal is to increase the desire of the students to learn. We believe that all students are capable of learning and reaching their academic goals. Through strategic planning and targeting the areas where students are weakest, academic success is made possible (Gullat & Jan, 2003).

Fun

Learning does not have to be separate from fun. Fun is infused into the curriculum by creating a learning space that appeals to various leaning styles and multiple intelligences. Students are engaged through special activities, unique assessments, prizes, and competition (Frenzel, Pekrun, & Goetz, 2007).

Tassel

The goal is for students to graduate from college. Through the program, students learn study skills, time management, gain confidence, and ultimately achieve seemingly impossible goals quickly (Lotkowski, Robbins, & Noeth, 2004; Smith et al., 2014, p. A-6).

Saturday Academy

The Saturday Academy was designed to occur once per month from September to May, but in order to get it going quickly the first cohort entered the program in November 2014 and participated until May 2015 (Smith et al., 2015). Two groups of 9th graders met five times during the school year. One group of 17 students met on Saturdays at Philander Smith College while the other group of 32 students met on Saturdays at UALR.

The monthly format is a six-hour day during which students engage with each other in academically rigorous programming as preparation for the ACT examination. Additionally, students participate in culturally enriching programs, and through planned interactions with the CWDSA staff and their peers they learn civility. A review of students’ test scores, their course grades, and evaluations of their progress by their teachers are incorporated into each monthly Saturday Academy program. This furnishes a more comprehensive assessment of the specific interventions necessary for each student’s success (Smith et al., 2014, p. A-6).

The CWDSA staff developed the curriculum for an entire year. It includes eight Saturday academies during the traditional academic year and a four-day exploratory summer experience for high school students. In addition, graduated seniors experience an intensive three-week summer bridge session. During January, students are required to take cognitive and non-cognitive assessments (i.e. ACT’s Compass, Compass Diagnostics and Engage) to help identify academic problem areas and motivational factors that, once improved, may lead to success in college. Twice annually students attend a Mentor-Driven Motivational Rally (Smith et al., 2014, p. A-5, A-8).

Rallies are high-energy, motivational days that provide the opportunity for students to participate in fun competitive activities that challenge them to display the learning they have achieved. Students receive awards and are honored for outstanding achievement. Exercises allow students to apply the knowledge they have gained to practical, real-world situations. Students participate in Math Olympics, Spelling Bees, and VoCreate (a game that challenges students to use ACT vocabulary words creatively through songs, skits, videos, human crossword puzzles, etc.). Students compete on teams composed of students from their high school which provides the opportunity for positive interaction once they return to their school (Bafile, 2012; Ith, n.d.; Smith et al., 2014, p. A-5-7).
The ninth-grade program was launched at UALR with 32 students and at Philander Smith with 17 students on November 8, 2014. Due to the late start of the first Saturday Academies, students were required to complete five Saturday sessions before June 2015. On their first Saturday, students completed the Compass (reading, writing, and math). The score they achieved served as the baseline assessment for each student’s progression through the program. In order to facilitate the development of relationships between the students and their staff mentors, the two groups go through a series of intentional relationship building exercises together.

Methodology

To assess the success of the program, both quantitative and qualitative data were collected. The quantitative assessment occurs from entry in the program in grade 9 through high school graduation at the end of grade 12. Assessments for the quantitative component of the evaluation include monitoring of grade point average, scores on Compass (diagnostic exam identifying particular deficiencies), ACT scores, and progress toward high school completion and college graduation. These data measure the cognitive or academic factors that compose success in the program. There is a separate set of factors that influence success in the program—they are non-cognitive or non-academic factors. Assessment methods used to secure qualitative data include interviews, surveys, and focus groups with students, parents/guardians, mentors, and CWDSA staff members.

Appendix A provides a data table outlining the overall assessment plan for students in grades 9-12 who attend the Saturday Scholars program during the fall and spring terms (Smith, Patterson, & Donaldson, June 2016, p. 43-44). The qualitative data are intended to provide both formative evaluations—improve the programs while they are in progress—and summative evaluations of the end results of the program (Krueger & Casey, 2014; Morgan, 1997; Smith et al., 2016, p. 43).

The conceptual framework for the Charles W. Donaldson Scholars Academy qualitative evaluation is based in part on an ACT Policy Report by Lotkowski et al. (2004), in part on a meta-analysis on psychosocial and study skill factors that predict college outcomes (Robbins et al., 2004), and in part on the domains and scales guiding the ACT Engage assessments from middle school to college that are designed to help educators evaluate students’ self-reported psychosocial attributes, determine their levels of academic risk, and identify interventions to help them succeed. The Engage examination measures motivation, social engagement and self-regulation. Appendix B delineates the qualitative factors, their relative practical strength of prediction of academic retention, and the operationalized or measureable definitions for these factors. Appendix C delineates the quantitative factors, their relative practical strength of prediction of academic success, and the operationalized or measureable definitions for these factors (Lotkowski et al., 2004; Robbins et al., 2004). Because the factors included in the conceptual framework are said to predict academic retention, we use them as indicators of growth among our ninth-grade program participants.

Focus Groups

A focus group with ninth-grade Pulaski County Special School District (PCSSD) student participants in the Saturday Academy at Philander Smith College was conducted on Saturday, November 7, 2015. Two focus groups were planned for that day, but a university-wide electrical outage prevented the second focus group at UALR from occurring. The make-up focus group with PCSSD Saturday Academy students participating at UALR was conducted on Saturday, December 5, 2015.

All participants in each of the focus groups were interviewed using the same beginning of year interview protocol derived from the conceptual dimensions and variables explained in Appendix B to help set a baseline assessment for these grades and programs. High school GPA was collected from application materials. During the fall and spring semesters, Saturday Academy participants are also examined using the ACT Compass test, an untimed, computerized test that helps colleges evaluate the academic skills of students and places them into appropriate courses, often allowing them to avoid remediation. Compass
offers tests in reading, writing, math, writing essay, and English as a Second Language (ESL). Students receive their Compass test results immediately upon completion of testing, and their score report includes placement messages informing them what courses they should take.

Data from the interviews and the field notes were initially coded to the conceptual framework using HyperResearch qualitative software. Because of the page limitations of the conference paper, data reduction (Guest, MacQueen, & Namey, 2012; Namey, Guest, Thairu, & Johnson, 2008) or data condensation (Miles, Huberman, & Saldana, 2014) was necessary. Miles and Huberman explain data reduction as “a form of analysis that sharpens, sorts, focuses, discards, and organizes data in such a way that ‘final’ conclusions can be drawn and verified” (1994, p. 11). Our approach to data reduction was to eliminate any variables from the findings that were not reported as being strong or moderate predictors of retention by Lotkowski et al. (2004). This approach yielded an analysis of approximately three-quarters of the original variables.

Trustworthiness—or what some qualitative researchers call standards of verification—were achieved by using a relatively large sample (13-15 participants between the two focus groups), triangulating methods (member checks), theoretical saturation, accounting for unanticipated findings or “surprises” in the data, and by attempting to achieve transferability so our findings may be transferrable to other similar settings (Williams & Hill, 2012). The final variables analyzed in the study can be seen in Appendix D.

Results

CWDSA 9th Grade Saturday Academy Quantitative Results

Two groups of ninth graders met five times throughout the school year, from November 2014 to May 2015. The other two meetings were the Rallies. One group met on Saturdays at Philander Smith College while the other group met on Saturdays at UALR. The Philander Smith College group consisted of 17 students while the UALR group consisted of 32 students. Compass exams were administered on the first Saturday meeting, and on the last Saturday meeting to act as a pre- and post-test. The following quantitative results were achieved after combining data for both groups of ninth graders:

- A 3.875 point average increase on the Compass Algebra exam.
- A 7.265 average point increase on the Compass Reading exam.
- COMPASS Writing scores remained steady with no significant increase or decrease.
- 14 students gained Reading scores high enough to bypass college remediation.
- 5 students tested into College Algebra.
- 12 students tested into College Composition.

Please see Appendix E for Participants’ Sex, Entry Grade, Average Highest Compass Scores, and Range of Compass Scores for Pulaski County Special School District students entering Saturday Academy in the 2014-2015 and 2015-2016 cohorts.

9th Grade Saturday Academy Focus Group Results for Psychosocial and Study Skill Factors

The eight variables that were analyzed in the study are presented in Appendix D. The appendix includes abbreviated data from the focus groups at each of the two participating institutions–UALR and Philander Smith College. What follows is a more complete narrative presenting the qualitative variables by their expected strength of prediction which composes the data upon which we base our conclusions.

*Academic Related Skills (Strong Predictor)*

Academic related skills include cognitive, behavioral, and affective tools and abilities necessary to successfully complete tasks, achieve goals, and manage academic demands (Robbins et al., 2004, p. 267). Lotkowski et al. (2004, p. 7) assert that academic related skills are the strongest predictor of
retention. The first focus groups with Saturday Academy students were conducted with the 2015-2016 cohort during November and December 2015.

The moderator asked the Saturday Academy students at UALR “How much time do you allow per week studying for each course?” The students responded, “I don’t do that. The day of the class I just look over it and stuff.” This was followed by a barrage: “I don’t study every day.” “I don’t have time to study everyday.” “I try to study but I just fall asleep in my bed.” “I study every day.” “I just study two days or a day.” “Most of the time if you study the stuff won’t be on the test.” Saturday Academy students at Philander Smith answered similarly: A young woman said, “Sometimes I … spend a lot of time with math homework because I be so focused I’ll be like okay I get this done so then when history come I’m like, mmmm …” A male student shared, “Y’all need to pray for me because I’m a procrastinator.” A female student said, “The thing with us being teenagers … a lot of us, we have work and then we have sports then we have—most of us have [siblings] that we have to take care of, too. Then having second classes and this [Academy], that’s a lot of stuff on our plate.” Another female student shared, “Well I do a lot of things after school so homework, it really doesn’t work out. We have activity period [for] 25 minutes so I do most of my studying and homework in that 25 minutes. But I still keep a 3.8 [GPA].”

“How do you manage deadlines for each of the courses so you can get the assignments submitted on time or do you have deadlines?” was the next question asked by the moderator of the UALR students. “I write mine down,” said one student. Other students said: “Yeah, we have deadlines, it’s on Google classroom.” “A project? I do it in the classroom because sometimes if you don’t turn it in when it’s due you don’t get a grade.” Time management was an important topic for students at Philander Smith, too. When the moderator asked, “How do you manage deadlines for classes and get assignments done?”, a young man said somewhat flippantly, “I pray. … Hallelujah!” Another young man said, “This is what I’ve learned since I got into high school. I went to church one day and the pastor said that God answers prayers but on his time. So when I do work I do it on my time and with God’s help I’m going to meet that deadline.” A young woman added, “Also this thing you have called friends, too. I'm not going to call it cheating. It ain’t cheating. It’s like it’s group work. Group work. Secret group work. You worked together to figure out the right answer.” A young man provided a different take on the help of friends: “My [English] teacher what she do, she give us a week to do the homework. I’m not about to go home and do it the next day. I forgot about it by Friday and my friend is going to tell me, you read that book? You know its due Monday. I'm like, ahhhh! Fran came through. She reminded me and I get it done—on Sunday night.”

Concerned over the apparent lack of study time and commitment to completing assignments, the moderator asked, “Where and how did you learn these skills to manage your time?” The students replied: “Different people.” “My parents. Or TV shows—maybe.” “I’ll just be watching different TV shows like Ned’s Classifieds. He’s a teenage boy in high school.” “My sister goes here and she studies everyday,” said one student. “She’s 19 but she studies everyday. Even when we come to get her on the weekends, she still studies everyday.”

These responses explain why the Donaldson Scholars Academy provides opportunities for students to gain such representative measures as: time-management skills, study skills and habits, leadership skills, problem-solving and coping strategies, and communication skills.

**Academic Self-Efficacy (Strong Predictor)**

Robbins et al. (2004, p. 267) define academic self-efficacy as a self-evaluation of one’s ability and/or chances for success in the academic environment. Lotkowski et al. (2004, p. 7) characterize academic self-efficacy as a strong predictor of student retention.

“How confident do you feel about your ability or chances for being successful in your studies at UALR or Philander Smith?” the co-moderator asked of the UALR focus group members. “I feel good. My mentors are helping me very well, so, yeah I’m actually achieving something.” A Philander Smith focus group participant echoed the sentiment but felt better about succeeding at UALR than at Philander Smith: “I feel confident being successful at UALR because that's where we first started out at. We spent a lot of time walking around the campus, being in classroom[s]—that’s where we feel the most comfortable. Philander being a historical[ly] Black college and way different scenery than what most of us are
accustomed to. So UALR would be the best place, in my opinion, to be successful.” Some of the students participating in the 2015-2016 Saturday Academy did not start the Donaldson Scholars programs with the Saturday Academy. They began with the Summer Scholars Academy four-Day program offered at UALR. Thus, they had what amounted to an emersion experience at UALR before being assigned to the Saturday Academy group at Philander Smith. Additionally, some students who did start with the first Saturday Academy cohort may have been assigned to the UALR group their first year but reassigned to the Philander Smith group their second year to give them exposure to both schools.

Another Philander Smith focus group participant confidently, “Well most of our mentors go to UALR so … it’s easier to go to UALR and ask to speak to one of them or even [to] one of the teachers because they’re helping me because someone helped them. Then our mentors they are like really supportive so it’s easier to talk to someone over there since that is where we started off.”

Academic Goals (Strong Predictor)

Academic related goals defined as “One’s persistence with and commitment to action, including general and specific goal-directed behavior, in particular, commitment to attaining the college degree; one’s appreciation of the value of college education” are said to be strong predictors of college retention and performance (Robbins, et al., 2004, p. 267).

When the focus group moderator asked the UALR Scholars, “How has being a part of the Donaldson Scholars Academy helped you to make and stick to the goals in your classes?” the students responded enthusiastically by saying: “My grades have been going up ever since I have joined this program.” “Mine has too, because we started in the summer, and like last year I didn’t get good grades but this year I’ve been keeping my grades A’s and B’s.” “Me too. Last year I had mostly D’s. I had D’s in English this year I have a 3.0.” In response to why they think this is so, the students responded, “I think it’s like the way they teach it. You just want to keep learning. It’s actually fun.”

When asked “How does being a part of the Donaldson Scholars Academy help you make and stick to your goals in your classes?” a ninth grade young woman at Philander Smith responded, “Well I know we’ve been doing a lot on these vocabulary sheets. I want to be a pediatrician when I grow up and I know my verbal communication is going to have to be way better than it is now. It makes me feel better to know that we’re actually learning stuff here that’s helping me in school and actually is going to help me when I get older too because I’ll know my vocabulary and I’ll be able to speak more fluently than most people.” Another student responded, “You will get a job without a college education, but it will be better to get one because they will hire you first [before] people without college education.”

When the moderator asked the Donaldson Scholars at UALR, “Do you feel like you are really committed to graduating from college?” the students responded, “I plan to graduate from college.” “Yeah, I plan to, because I want to be somebody in life and have a job, a good one.” A young woman at Philander Smith framed her response in more than money. She said, “It comes back to your race sometimes—for me it does because I mean you look at it, our black community—not trying to be mean or anything—but we’re not [doing] as good as, to be honest, the white community. They always look down on us—not all the time but most of the time. They think ‘Oh, they’re not going to do anything. They just want to be rappers and strippers and all of that’ and that’s not for everybody. We actually want to make it in life like everybody else and us graduating from college that’s going to show them. … Not just them but ourselves that we can make it in life. We can be good. Just as they can be good.”

Institutional Commitment (Moderate Predictor)

Robbins et al. (2004) define institutional commitment as “students’ confidence of and satisfaction with their institutional choice; the extent that students feel committed to the college they are currently enrolled in; their overall attachment to college” (2004, p. 267). Lotkowski et al. (2004) explain that institutional commitment has only a moderate capacity to predict retention or performance in college (p. 7). Perhaps other factors may increase these students’ commitment to the institution they choose.

A part of the students’ commitment to going to either UALR or Philander Smith College is the $10,000 scholarship that is attached to completion of the Donaldson Scholars Academy programs and
admission to one of those two schools. Even though this funding bridges both institutional commitment
and the contextual influence of financial aid, which will be discussed later in the paper, the scholarship
was reflected in the responses of more than one UALR focus group participant. Simply having the
scholarship available makes these students feel more committed to these two colleges.

The importance of developing relationships with faculty members and student mentors is
reflected in the students’ responses to the focus group moderator’s question about their involvement in
and connection with the Donaldson Scholars Academy. The UALR student focus group participants
responded by saying, “They don’t leave no one out. When they do activities, they include you.” “Even if
you don’t want to do it, they will call you up and ask. Then once you do it, then you will really like it.”
“Yes, they make you feel like you are really a part of the program and they don’t leave nobody out.”

A ninth grade young man in the Philander Smith focus group explained about the ease of
adaptation to the program: “It feels good being here because the mentors here are a couple years older
than us. So they don’t look down on us but they treat us like little brothers and little sisters and they look
out for us and make sure we understand the material. Being close [in the] metro [there] are a lot of
schools the kids that come from here. We have friends that are here that we can also relate to.”

Another characteristic of these institutions was emphasized as being critical to the institutional
commitment of one student in the Philander Smith focus group in her response to the question about the
certainty of her decision. “I'm 100% sure. I'm very certain that I'm choosing UALR.” She elaborated,
“Well I have a teacher her name is [teacher name]. She's my engineering teacher so she was telling me
about how UALR has a great engineering program and I'm in that class now. She was telling me how
most people who go into Engineering are either white [or] Chinese, those kind of people [and] most of
them men. So me being a black female that will help me. It's a minority scholarship.” Two other students
mentioned the availability of programs in which they have an interest in majoring—nursing and criminal
justice—as being an integral part of their commitment.

Social Support (Moderate Predictor)

“Students’ perception of the availability of the social networks that support them in college” is
the definition of perceived social support provided by Robbins et al. (2004, p. 267). Lotkowski et al.
(2004, p. 7) found social support to be a moderate predictor of retention.

A male focus group participant at Philander Smith College spoke of parental support by saying:
“They[’re] talking about you doing this to get money for college. Even though they say you can make it at
college they say ... nowadays you need a good education and this is going to help you get that education
and help you pay for it too.” A ninth grade young woman said of her mother, “She'll tell me, ‘I didn't
finish school. I want you to make it. I want you to experience all of that, college, high school stuff.’”

The students were asked to talk about the friendships and how much support they have from their
friends in the Donaldson Scholars Academy. A ninth grade young woman said, “I think we have good
support because I actually made her come today [motioning toward her friend]. She wasn't going [to
come] and I was like pushing her to come.” A young man said, “Getting some good support. I mean have
you heard how [the senior CWDSA staff member] be talking? She’s getting deep!” A young man sitting
next to him agreed: “She be preaching … like she says she wants us to do better in our life like she be...
[staff member], yup.”

With respect to friendships, one young woman said, “The mentors, they treat us just like we're
their little brothers and little sisters. We're close to them. I mean we're close to the other students here,
too. We're not all buddy-buddy best friends and all that but we know enough about each other where we
can sit down and have a conversation and actually learn together and support each other.” Another ninth
grade male spoke of the closeness in age of the students to their mentors: “I think it’s more an advantage
for us that we have the actual college students as our mentors because we're able to relate to them because
we already have to deal with teachers in school.”

Social stress was the next topic raised by the moderator. A ninth grade young man said, “Help[s]
you feel less stressed about the ACT because … I need to go ahead and get that score up and what we’re
doing here is helping me.” A young woman exclaimed, “It’s fun here! I never expected … something so
educational to be so fun!” A young woman explained: “Understanding that learning is not going to be all about the fun but when you're able to bring fun into college and stuff like that for high school students—that's so amazing!” Three students said they didn’t feel as connected at Philander Smith as they did at UALR. A ninth grade male explained, “I don't feel connected here as I do at UALR because UALR, you know, that's where we started out at. Everybody was … ground level stuff. Everybody was developing at the same time that's where everybody started then you just had a switch-a-roo on us and now we’re here at Philander at an unfamiliar place doing the same thing. It makes you feel out of place. … It feels awkward.”

*Contextual Influence/Institutional Selectivity (Moderate Predictor)*

Robbins et al. (2004) defined the contextual influence of institutional selectivity as “The extent that an institution sets high standards for selecting new students” (p. 267). Lotkowski et al. (2004, p. 7) found institutional selectivity to be a moderate influence on college student retention.

Only one young woman seemed to have some grasp the concept of selectivity when she shared, “It just depends on what institution you're trying to go to and if you're trying to get into the medical field, the science field, it just depends on what you’re trying to get into as far as going to be selective.”

*Social Involvement (Moderate Predictor)*

Social involvement was defined by Robbins et al. (2004) as: “The extent that students feel connected to the college environment; the quality of students’ relationships with peers, faculty, and others in college; the extent that students are involved in campus activities” (p. 267). Lotkowski et al. found social involvement to be a moderate predictor of college student retention (2004, p. 7).

Probing to inquire about relationships within the Saturday Academy, the moderator asked, “How would you describe the quality of your relationships with your group of friends in the Donaldson Scholars Program?” The students said, “They are really good.” “They are nice, crazy. Fun.”

Trying to gauge how the students may have developed relationships with faculty who teach the Math and English courses, the moderator asked, “How would you describe the quality of your relationships with the faculty at UALR, the folks who are actually teaching the classes when you come?” The students said, “It’s not actual teachers that teach you, it’s the mentors.” “One teacher looked like he was, but he had to leave.” “Well as I understood it, there were math and English teachers as well as the mentors”, the moderator shared. “Yes, well I only had the mentors.” “Okay. Just today, all mentors.” “There was one here that was a math teacher. I had him.”

“How involved are you in campus activities through the Donaldson Scholars Academy?” asked the moderator. The students responded, “Very.” “Well I’m the (extra?) person sometimes.”

*Contextual Influence/Financial Aid (Moderate Predictor)*

Robbins et al. (2004) defined the contextual influence of financial aid as: “The extent to which students are supported financially by an institution” (p. 267) and was operationalized by participation in a financial aid program and the adequacy of the financial aid that was available to students. Financial aid was classified as a moderate influence on college student retention (Lotkowski et al., 2004, p. 7).

The moderator asked about financial support with this question: “How do you feel about the financial support you've receive from this academy?” A male student said, “It’s free. A lot of [programs] like those [that] offer tutoring, ACT prep they require you to pay X amount of dollars for every hour you spend with them. Here people have donated money, however the people have raised the money they have provided for us to give us an opportunity to have the experience we need and have the education that we don't normally get.” A young woman said, “A lot of people, honestly, in this academy, they might be struggling to get the money they need for college. I know I want to be a pediatrician so that's a lot of money. I know I'm going to [need] at least four years of college so that's a lot of money for all my classes. This is a scholarship that can actually help me at least get a little bit down the road so all of it won't have to come out of my pocket.”
The moderator asked about the resources available through the two colleges: “What do you know about financial aid and who has helped out with that?” A young woman said, “My counselor, she comes and talks to us sometimes about how we can get—I know we can get loans from schools can't we? But I don't want a loan from no school because you're going to have to pay back student loans. So I'm not sure I want to deal with that.” A young man began to express frustration in saying, “Sometimes with school what's lacking is they teach all this academic stuff but they... When a woman finished the thought, “They don't teach you about making a life.” A young woman echoed the same theme sharing, “Yeah we got book smarts and all that, some of us have that down pat but when it comes to street smarts and common sense like I don't have any of that—I honestly don’t.”

All of the students who complete the Donaldson Scholars Academy and enroll in either UALR or Philander Smith will receive a $2,500 scholarship renewable for four years subject to maintaining an established GPA and enrolling for a minimum number of hours each semester. The maximum amount of the scholarship is a total of $10,000.

Conclusion/Discussion

Academic Related Skills

Schnell, Seashore Louis, and Doet Katt (2003) found that first-year students who participated in a first-year experience seminar graduated at a higher rate than the matched group of students who did not. They also found that among those participants who were admitted to postsecondary institutions with low ACT Assessment scores and high school GPAs, graduation rates were also better than those of matched nonparticipants. These results suggest that a student’s entering characteristics play an important role in persistence to graduation, but potential for success can be increased with the addition of a program, like the Saturday Academy.

Academic Self-Efficacy

Though these students are ninth graders, they still exhibit the concerns expressed by first-year college students in the findings of Chemers, Hu, and Garcia (2001) regarding academic self-efficacy, adjustment to college and academic performance in college. The results of the study by Gloria, Kurpius, Hamilton, and Wilson (1999) regarding the importance of self-beliefs, social support, and university comfort for the persistence of African American students in a predominantly White university also conform to the qualitative findings in this study.

Comments by the focus group participants align with the findings of Simons and Van Rheenen (2000) on academic self-worth and of Ethington and Smart (1986) on the development of academic self-confidence. Responses by these students also indicate that course self-efficacy, exemplified by feeling confident enough to go to their teachers and ask questions if they have concerns, is in evidence among these students (Solberg et al., 1998).

Academic Goals

The responses of the focus group participants speak to the findings of Brown and Robinson Kurpius (1997) regarding the valuing of education. These replies lend credence to the research of Pascarella and Chapman (1983) and Pavel and Padilla (1993) on commitment to the goal of graduation; and to that of Allen (1999) on the desire to finish college.

Institutional Commitment

Based on the results of their studies, Berger and Milem (1999) and Pike, Schroeder, and Berry (1997) emphasize the importance of student involvement and of acquiring a sense of belonging as essential components of students’ commitment to an institution. Because these students are ninth graders, the Saturday Academy plays much the same role as do living-learning communities or as having close interactions with faculty members or student peers for college students.
As indicated by the scales in Krotseng’s (1992) Student Adaptation Questionnaire, the Donaldson Scholars program will also help ease the adaptation to college in several ways.

**Social Support**

Allen (1999) and Solberg et al. (1998) link the desire to finish college to family emotional support. Based on the focus group responses, this is true for the majority of CWDSA Scholars but most of the students said it was their mothers who encouraged them the most. These comments are in line with the findings of Ryland, Riordan, and Brack (1994) who found social support to be a key factor in persistence. The Scholars praised their mentors which aligns with the findings of Gloria et al. (1999) that punctuated the importance of providing social support to facilitate retention.

Essentially the combination of educational programs with fun activities substantially decreased the social stress felt by some of these students. However, moving the location of the Saturday Academy from UALR to Philander Smith created more stress for some of these students. These differing results regarding academic stress conform to the findings of Solberg et al. (1998) using the Adaptive Success Identity Plan (ASIP).

**Contextual Influence/Institutional Selectivity**

Though the studies conducted by Stoecker, Pascarella, and Wolfe (1988) on institutional selectivity and prestige found these factors to be moderate predictors of college student retention, the vast majority of the ninth graders in our study hadn’t give much thought to institutional selectivity.

**Social Involvement**

If there is a major programmatic deficit for these young people it would be the lack of interaction they have with college students while they are on campus at either Philander Smith College or UALR beyond their mentors in the Donaldson Scholars Academy. Social involvement must be a major issue for many colleges and universities given the plethora of social involvement scales ranging from the Social Alienation From Classmates Scale (Daugherty & Lane, 1999); to the social integration scale (Ethington & Smart, 1986); to the University Alienation Scale (Suen, 1983); to the Personal Contact Scale and Campus Involvement Scale (Mohr, Eiche, & Sedlacek, 1998); to the Class Involvement Scale (Grosset, 1991); and even the Student–Faculty Interaction Scale (Pascarella & Terenzini, 1977).

**Contextual Influence/Financial Aid**

McGrath and Braunstein (1997) assert the importance of financial aid to student success, especially to the success of at-risk students, so each student who meets program criteria will be receiving student aid from the Donaldson Scholars Academy through the program’s scholarship. The big question is the adequacy of the financial aid package (Oliver, Rodriguez, & Mickelson, 1985). The $10,000 scholarship will go a great deal farther at UALR toward public university tuition and fees than it will at Philander Smith College with its private, religiously affiliated tuition and fees. To help address the issue of financial aid literacy, one of the two full-time advisors on the CWDSA staff is a financial aid advisor.

Overall, the conceptual framework composed of non-cognitive factors that guided the qualitative study indicates that the CWDSA Saturday Academy is succeeding while the curricular innovation it represents continues to grow rapidly.
References


Ith, G. (n.d.). How a former elementary teacher translated his skills to a career in the cloud: Learn more about what brought Adam Coccari (creator of “Math Evolve”) to Microsoft [Web long post]. Downloaded from https://blogs.microsoft.com/jobs/how-a-former-elementary-teacher-translated-his-skills-to-a-career-in-the-cloud/#KQ4uAAu6SP0QzOT.99


### Appendix A

C. W. Donaldson Scholars Saturday Academy Assessment Plan–Grades 9-12

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Evaluation Instruments</th>
<th>Data Collection Method(s)</th>
<th>Data Analysis</th>
<th>Participant Group</th>
<th>Annual Collection Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socio-Economic Status, Family Education, School District</td>
<td>Demographics</td>
<td>Questions Included on Program Application</td>
<td>Counts of Demographic Responses</td>
<td>Student Participants</td>
<td>Application</td>
</tr>
<tr>
<td>Cognitive Skills Deficiency Diagnosis</td>
<td>COMPASS DIAGNOSTIC (PRE)</td>
<td>Computer Generated Examination</td>
<td>Computer Generated Reports</td>
<td>Student Participants</td>
<td>Fall Scholars Academy</td>
</tr>
<tr>
<td>College Placement Examination</td>
<td>ACT</td>
<td>Computer Generated Examination</td>
<td>Computer Generated Reports</td>
<td>Student Participants</td>
<td>September</td>
</tr>
<tr>
<td>Non-Cognitive Skills Student Self-Assessment</td>
<td>Qualitative Interview (Baseline)</td>
<td>Qualitative Interview Triangulated with ACT Engage Results</td>
<td>NVivo Qualitative Data Analysis Software</td>
<td>Student Participants</td>
<td>Fall Scholars Academy</td>
</tr>
<tr>
<td>Non-Cognitive Skills Family Assessment</td>
<td>Qualitative Interview (Baseline)</td>
<td>Qualitative Interview Triangulated with ACT Product Results</td>
<td>NVivo Qualitative Data Analysis Software</td>
<td>Parents, Guardians</td>
<td>Fall Scholars Academy</td>
</tr>
<tr>
<td>Non-Cognitive Skills Student Self-Assessment</td>
<td>ENGAGE</td>
<td>Computer Generated Examination</td>
<td>Computer Generated Reports</td>
<td>Student Participants</td>
<td>January, 9th Grade (Only)</td>
</tr>
<tr>
<td>Cognitive Skills Deficiency Improvement</td>
<td>COMPASS (POST)</td>
<td>Computer Generated Examination</td>
<td>Computer Generated Reports</td>
<td>Student Participants</td>
<td>May</td>
</tr>
<tr>
<td>Non-Cognitive Skills Student Self-Assessment</td>
<td>Qualitative Interview (Year End)</td>
<td>Qualitative Interview Triangulated with ACT Product Results</td>
<td>NVivo Qualitative Data Analysis Software</td>
<td>Student Participants</td>
<td>Spring Scholars Academy</td>
</tr>
<tr>
<td>Non-Cognitive Skills Deficiency Improvement</td>
<td>Qualitative Interview (Year-End)</td>
<td>Qualitative Interview Triangulated with ACT Product Results</td>
<td>NVivo Qualitative Data Analysis Software</td>
<td>Parents, Guardians</td>
<td>Spring Scholars Academy</td>
</tr>
<tr>
<td>Qualitative Interviews for Program Improvement</td>
<td>Staff Qualitative Interview</td>
<td>Qualitative Interview</td>
<td>NVivo Qualitative Data Analysis Software</td>
<td>Staff</td>
<td>Spring Scholars Academy</td>
</tr>
</tbody>
</table>
Appendix B

Non-Academic Factors (Qualitative) and Contextual Factors, Practical Strength for Predicting Retention (Highest to Lowest), and Operationalized Definitions

<table>
<thead>
<tr>
<th>Non-Academic Factors/Contextual Influence/Institutional size</th>
<th>Operationalized Definition (Measurable)/Practical Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic-related skills (Strong)</td>
<td>Time management skills, study skills, and study habits (taking notes, meeting deadlines, using information resources).</td>
</tr>
<tr>
<td>Academic self-efficacy (Strong)</td>
<td>Level of academic self-confidence (self-efficacy regarding one’s ability to be successful in the academic environment).</td>
</tr>
<tr>
<td>Academic goals (Strong)</td>
<td>Level of commitment to obtain a college degree.</td>
</tr>
<tr>
<td>Institutional commitment (Moderate)</td>
<td>Level of confidence in and satisfaction with institutional choice.</td>
</tr>
<tr>
<td>Social support (Moderate)</td>
<td>Level of social support a student feels that the institution provides.</td>
</tr>
<tr>
<td>Contextual Influence/Institutional selectivity (Moderate)</td>
<td>The extent that an institution sets high standards for selecting new students.</td>
</tr>
<tr>
<td>Social involvement (Moderate)</td>
<td>Extent to which a student feels connected to the college environment, peers, faculty, and others in college, and is involved in campus activities.</td>
</tr>
<tr>
<td>Contextual Influence/Financial aid (Moderate)</td>
<td>The extent to which students are supported financially by an institution.</td>
</tr>
<tr>
<td>Achievement motivation (Weak)</td>
<td>Level of motivation to achieve success.</td>
</tr>
<tr>
<td>General self-concept (Weak)</td>
<td>Level of self-confidence and self-esteem.</td>
</tr>
<tr>
<td>Contextual Influence/Institutional size (Weak)</td>
<td>Number of students enrolled at an institution.</td>
</tr>
</tbody>
</table>

Adapted from Lotkowski, Robbins, & Noeth (2004)
# Appendix C

## Academic Factors (Quantitative), Practical Strength for Predicting Retention, and Operationalized Definitions

<table>
<thead>
<tr>
<th>Academic Factors/ Practical Strength</th>
<th>Operationalized Definition (Measurable)/ Practical Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT Assessment score (Strong)</td>
<td>College preparedness measure in English, mathematics, reading, and science.</td>
</tr>
<tr>
<td>High school grade point (Strong)</td>
<td>Cumulative grade point average student average (HSGPA) earned from all high school courses.</td>
</tr>
</tbody>
</table>

Adapted from Lotkowski, Robbins, & Noeth (2004)
Appendix D

Non-Academic Factors (Qualitative) and Contextual Factors, Practical Strength for Predicting Retention (Highest to Lowest), and Operationalized Definitions: Saturday Academy Focus Group Participant Responses

<table>
<thead>
<tr>
<th>Variable</th>
<th>UALR Participants</th>
<th>Philander Smith Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Academic related skills</strong> <em>(Strong)</em></td>
<td>Time management: Most yes, others working on it. Study time: Look over day of class; Don’t study daily; Bored; Fall asleep; Questions not on test. Deadlines: Write down; Google classroom; Do in class. Learn study skills: People; TV; Sister in college role model. Have study skills: No. Nobody teaches. Mom makes me study. Coping skills: Write list; Music; Pathfinders. Leadership: Must follow to be leader. Communication: Talk; Text, Teams.</td>
<td>Time management: Three no’s; Some focused; One doesn’t study at home; Two discussed extra-curricular commitments. Deadlines: With God’s help deadlines will be met; Rely on friends; Secret group work on assignments (not team assignments); Procrastination.</td>
</tr>
<tr>
<td><strong>Academic self-efficacy</strong> <em>(Strong)</em></td>
<td>Confident in Succeeding: Very; Mentors helping; Achieving something. Academic support: Mentors on campus. Attain degree: Yes, I participate; They call on you; Improved vocabulary. Feel smarter: Yes; Rather go here than to school.</td>
<td>Confident in Succeeding: Confident at UALR not Philander. Unaccustomed to HBCU environment. Academic support: Mentors very supportive but go to UALR. Confidence of academic success: comfortable with Scholars/</td>
</tr>
<tr>
<td><strong>Academic goals</strong> <em>(Strong)</em></td>
<td>CWDSA: Grades improving; Fun, not boring. Graduation Commitment: Yes; From Mom. Value of College: Get job.</td>
<td>CWDSA: Vocabulary with goal of Pediatrician; Picked-up studying. Graduation Commitment: Yes to get money; Overcome race stereotypes. Value of College: It’s available; For parents.</td>
</tr>
<tr>
<td><strong>Institutional commitment</strong> <em>(Moderate)</em></td>
<td>Commitment: $10,000 scholarship; Major availability; Family in Little Rock. Part of CWDSA: No one left out; They call you.</td>
<td>Commitment: Yes! UALR Engineering; Great nursing program; Criminal Justice; No, lack desired major. Part of CWDSA: Mentors; friends.</td>
</tr>
<tr>
<td><strong>Social support</strong> <em>(Moderate)</em></td>
<td>Family and Scholars: Bring us; Want to be successful; Have fun. Scholars: Circle of friends; Make you want to learn; Meet new people; Continues in high school. Mentors: Talk to you; Better than real teachers.</td>
<td>Family and scholars: Getting here; Push to attend; Money for college; Feeling for college; Sister in Program. Scholars: Push to come; Amber’s encouragement. Mentors: Friends, not like teachers; Uncomfortable with move to Philander.</td>
</tr>
<tr>
<td><strong>Contextual Influence/ Institutional selectivity</strong> <em>(Moderate)</em></td>
<td>Students haven’t begun thinking about selectivity since they are 9th graders.</td>
<td>These students were a mix of 9th-11th grade high school students but institutional selectivity was only discussed by one student with respect to graduate school.</td>
</tr>
<tr>
<td><strong>Social involvement</strong> <em>(Moderate)</em></td>
<td>Mentors: Put in groups; Grows circle of friends; Team work. Connected to UALR: Besides mentors, no. CWDSA relationship quality: Really good; Nice, crazy, fun. Faculty relationships: Just with mentors. Campus activities: Not much chance.</td>
<td>Not much social involvement in Saturday Academy. Forgotten ice breakers. Could do more team building. Suggest meeting twice a month.</td>
</tr>
<tr>
<td><strong>Contextual Influence/ Financial aid</strong> <em>(Moderate)</em></td>
<td>Feel good; $10,000 scholarship; My way through school; Take ACT for free. Access to resources: UALR College Fair– academic support but not financial aid.</td>
<td>It’s free!; Programs for tutoring, ACT prep require payment; College is expensive. Access to resources: HS Counselor advises about loans; Nobody taught us; We have book smarts but no “street smarts.”</td>
</tr>
</tbody>
</table>

The Practical Strength of the relationship refers to the usefulness of these factors in predicting college retention or performance. Relative strengths are derived from Lotkowski, Robbins, & Noeth, 2004.
## Appendix E

Participants’-sex, entry grade, average highest Compass scores, and range of Compass scores for Pulaski County Special School District students entering Saturday Academy in 2014-2015

<table>
<thead>
<tr>
<th>Sex (Numbers)</th>
<th>Entry Grade</th>
<th>Highest Math Score (Average)</th>
<th>Range Math Highest/Lowest</th>
<th>Highest Reading Score (Average)</th>
<th>Range Reading Highest/Lowest</th>
<th>Highest Writing Score (Average)</th>
<th>Range Writing Highest/Lowest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female = 31</td>
<td>9th Grade</td>
<td>28</td>
<td>H = 56</td>
<td>67</td>
<td>H = 99</td>
<td>55</td>
<td>L = 1</td>
</tr>
<tr>
<td>(All)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male = 19</td>
<td>Not Available</td>
<td>22</td>
<td>H = 34</td>
<td>69</td>
<td>H = 88</td>
<td>32</td>
<td>L = 15</td>
</tr>
<tr>
<td>Total = 50</td>
<td></td>
<td>937 / 33</td>
<td>2211 / 33</td>
<td>1858 / 34</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Compass Scores were reported for only thirty-four of the fifty student participants.
Source: CWDSA Master Student Spreadsheet and personal calculations.

Participants’-sex, entry grade, average highest Compass scores, and range of Compass scores for Pulaski County Special School District students entering Saturday Academy in 2015-2016

<table>
<thead>
<tr>
<th>Sex (Numbers)</th>
<th>Entry Grade</th>
<th>Highest Math Score (Average)</th>
<th>Range Math Highest/Lowest</th>
<th>Highest Reading Score (Average)</th>
<th>Range Reading Highest/Lowest</th>
<th>Highest Writing Score (Average)</th>
<th>Range Writing Highest/Lowest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female = 12</td>
<td>Not Available</td>
<td>22</td>
<td>H = 34</td>
<td>69</td>
<td>H = 88</td>
<td>32</td>
<td>L = 3</td>
</tr>
<tr>
<td>Male = 13</td>
<td></td>
<td>132 / 6</td>
<td>413 / 6</td>
<td>191 / 6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total = 25</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Note: Compass Scores were recorded for only six of the twenty-five student participants.
Source: CWDSA Master Student Spreadsheet and personal calculations
Impacting Student Success for Latino Students

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Abstract: As the growth of Latino students enrolled in U.S. higher education institutions outpaces all ethnic groups (Bransberger & Michelau, 2016), postsecondary institutions struggle to address the unique challenges facing the population. Nationally, it is found that Latino students are academically underprepared for college, lack financial support, and take on more familial responsibilities than their peers from other ethnicities. Therefore, it is not surprising that Latino college students lag behind their White and Asian counterparts in retention and completion rates. Recognizing these challenges and exploring methods to positively impact student success for Latino students, New Jersey City University (NJCU) developed and implemented an office of Student Outreach and Retention (SOAR) in the fall of 2015. Using best-practices suggested by the literature, SOAR focuses on providing students with a peer-mentor, college transition workshops, outreach campaigns targeting at-risk student groups, and emergency financial assistance. As a result of these efforts, the first-year retention rate of Latino freshmen at NJCU improved from 70% to 80% within one year. This paper will examine the distinct programmatic components of SOAR using qualitative and quantitative methods to determine which elements were the most impactful, and describe next steps on expanding Latino student success beyond the first year.

Introduction and Background

Higher education is going through a dramatic shift as many regions in the U.S. are undergoing ethnic demographic changes. From 1980 to 2010, the college going rate of Latinos in the U.S. increased by 487.0% (Snyder & Dillow, 2015), and for the first time, the number of Latino high school graduates surpassed White high school graduates in college enrollment (Fry & Taylor, 2013). In addition, there has been a 78.0% increase, since 2006, in the number of higher education institutions classified as Hispanic Serving Institutions (HSI), a trend that is projected to increase (HACU, 2017). While Latino college enrollment is on the rise, indicating that college access has improved for this population, Latino college students still lag in terms of degree attainment. The 2011 U.S. Census illustrated that only 13.9% of Latinos achieved a college degree or better (Snyder & Dillow, 2015), compared to 52.4% of Asian and Pacific Islanders, 30.3% of Whites, and 19.8% of Blacks who earned a college degree (Fry & Lopez, 2012), illustrating the college success of Latino students continues to be a challenge.

There are several factors that contribute to the low college attainment rate among Latino students. These students are more likely to come from lower socio-economic backgrounds (Núñez & Bowers, 2011), to be first-generation college students (Saenz, 2007), and to be less academically prepared, as exhibited through lower high school percentile and SAT scores (Crisp, Nora, & Taggart, 2009). These factors limit Latino students in terms of college choice and processes, thereby affecting where and in what types of institutions they choose to enroll. Latino students are often more likely to enroll in community colleges, despite having the academic qualifications to attend four-year institutions (Gloria & Castellanos, 2012).
In this study, we examine ways in which higher education institutions can enhance the student success outcomes of Latino college students, particularly regarding first-year retention. Our goal is to determine whether the programs and interventions implemented at New Jersey City University (NJCU) are effective in improving first-year retention of Latino students.

SOAR and Theory of Retention

The office of Student Outreach and Retention (SOAR) was designed to address the multiple needs of students transitioning from high school to college. The main goal of SOAR is to build students’ familiarity with the campus and connect students to mentors, peers, and advisors so that students understand whom to contact with questions and issues. Taking a holistic approach to undergraduate retention, which includes all members of the campus, recent retention research stresses cross-departmental institutional responsibility for retention through a wide-range of programming (Wilson, Fuller, & Mykhaylichenko, 2011). Programs and initiatives designed to support undergraduate retention should address both formal and informal student experiences inside and outside of the classroom. In addition, increasing students’ interactions with faculty, staff, advisors, peers, and administrators has been found to directly influence undergraduate retention (Habley & McClanahan, 2004). The interactions students have with individuals on campus can impact a students’ sense of connectedness to the institution, as well as their ability to navigate the campus culture, and succeed academically. Therefore, offering accessible academic, personal, and social support services on campus is a key approach to improving undergraduate retention.

Prior Research on Retention of Latino Students

Many studies have been conducted on factors and variables that influence the undergraduate retention of Latino students. This section of the paper will summarize this body of literature into several categories: Demographic characteristics, academic performance, social engagement, financing college, and campus climate.

Demographic Characteristics

Many Latino students are also first-generation students. The obstacles for first-generation students, or students who are first in their family to attend college, are many. First-generation students and students from low-income families are among the least likely to graduate (Thayer, 2000). First-generation students attending four-year institutions are less likely to be retained for their second year (Choy, 2001). Parents of first generation students are often unfamiliar with important administrative processes, such as completing financial aid and other forms, which is key to navigating the higher education experience (Retention Study Group, 2004). In addition, Latino students are often from families with low socio-economic backgrounds (Núñez & Bowers, 2011), which implies they are more likely to work more hours than a typical student, making it more difficult for them to engage in the social and academic aspects of an institution and thus hinders persistence.

Academic Performance

Latino students lag their White counterparts by a large margin in college readiness, which is predictive of first-year college academic performance and on-time graduation (ACT, 2016). In addition, high school academic indicators such as grade point averages, the rigors of course work, and class rank are positively related to undergraduate retention (Adelman, 1999). Therefore, it should not be surprising that the quality of education prior to college attendance for Latino students is directly related to preparedness for college-level work, which can then predict undergraduate retention (DesJardins, Ahlburg, & McCall, 2002). The ability to perform well during the first year in college, in terms of cumulative grade point average, is the most influential variable for whether Latino students decide to continue after their first year in college (Hu & John, 2001). Nora and Crisp (2009) found that the lack of academic self-efficacy and self-doubt lead Latino students to question whether they belong in college and whether they can succeed academically. In other words, for Latino students, earning less than “good”
grades would make these students question their ability to attain a college degree and could ultimately lead to dropping out.

**Social Engagement**

For underrepresented students, it is important to remove cultural barriers so that students can connect to the larger campus community (Tinto, 2004). Social support networks, particularly Latino student organizations, play an important role in helping Latino students feel that they belong within an institution (Montelongo et al., 2015). Latino students who participate in community service activities, religious clubs, student government, sports teams, tutoring programs, and interact with peers and faculty outside of the classroom, were found to have higher sense of belonging (Núñez, 2009). On the other hand, a study also found that factors other than the social integration of Latino students in college may be more important in deciding whether they to return to college for a second year, suggesting that social engagement plays a lesser role when it comes to the retention of Latino students (Nora, Cabrera, Hagedorn, & Pascarella, 1996).

**Financing College**

It has been well established that working while attending college, paying for tuition through loans or grants, and having financial need are factors that impact undergraduate retention (Chen & DesJardins, 2010). If there is a gap remaining after institutional and family contributions, students tend to register part-time, work longer hours, or live off-campus, which has a negative impact on retention (Tinto, 2004). Hu and John (2001) studied the effects of receiving financial aid on the first-year retention of Latino, Black, and White students. It was found that Latino and Black students who received financial aid were more likely to be retained than their counterparts who did not receive financial aid. Financial circumstances is a factor identified for Latino students who drop out of college, particularly because they work more in order to send money home to help with family finances (Longerbeam, Sedlacek, & Alatorre, 2004).

**Campus Climate**

The lack of diversity in the student body, faculty, and institutional leadership negatively impacts the undergraduate retention of minority students (Cabrera, Lee, Swail, & Williams, 2005), while a large concentration of Latino students on campus and positive interactions between students and faculty were identified as two major reasons contributing to the retention of Latino students (Nora & Crisp, 2009). Also, when Latino students perceived their campuses as being ethnically diverse, they were much more likely to be retained. Conversely, Latino students who reported more discrimination or acts of racial bigotry on campus had lower academic performance, were less satisfied with their academic and intellectual development, and less committed to the institution (Nora & Cabrera, 1996), indirectly impacting the student’s decision to persist. However, in a campus environment that actively encourages tolerance and acceptance and appropriately engages students in academic and social discourse, Latino students develop a sense of belonging and are accepted (Hurtado & Carter, 1997).

**Components of SOAR**

The SOAR program model attempts to provide a holistic approach to retention by working across departments to connect students to critical services, resources, and social networks on campus. The programmatic components of SOAR include peer mentoring, workshops, proactive outreach, and emergency financial assistance. Peer mentoring is found to be an effective method to increase student retention, graduation rates, and cross-cultural understanding of undergraduate students (Budge, 2006; Terrion & Leonard, 2007).

The goal of our peer mentoring efforts is to foster academic success and enhance the psychosocial functioning of new students as they transition from high school to a college environment. In the fall 2015, NJCU offered peer mentoring to all Latino first-time freshmen during the first week of the academic year, and participation was voluntary. The first cohort of peer mentors where selected from a pool of candidates.
who are Latino students in their sophomore year or beyond, had a cumulative grade point average of 3.0 or better, and who were involved in at least one student organization or club. Candidates were interviewed by the coordinator of SOAR and selected based on their commitment to the institution and their knowledge of how to navigate the campus, both socially and administratively.

Peer mentors were assigned a caseload of twenty mentees and were paid a stipend for the semester. They were required to meet with their mentees three to four times a semester and to check-in with their mentees via a phone call or email throughout the academic year. The list of topics that peer mentors used in meetings with a mentee included: reviewing available academic support services, introducing mentees to student activities and organizations, and ensuring mentees were not experiencing academic or social issues adjusting to college.

In the first year of implementation, SOAR offered financial aid, financial literacy, and academic skills workshops monthly during the academic year. Professional staff members from enrollment management and student affairs conducted the workshops. Availability of these workshops were announced via direct emails to students and social media. Attendance was voluntary and workshops were made available to all first-time freshmen students.

Outreach campaigns were designed to contact first-time freshmen who had any administrative holds on their records, ranging from immunizations, financial aid, and outstanding balances. In addition, students who were having attendance or academic issues, as indicated through faculty submitted rosters within the student information system, were contacted. Staff members or peer mentors, depending on the issue, reached out via email, text, or phone to connect with the affected student and assisted in resolving the issue or in providing the assistance needed.

In reviewing financial records and reaching out to first-time freshmen who had an outstanding tuition balance, we found that many had unmet financial need, even after receiving federal and state aid and loans. For these students who were unable to cover the cost of tuition and books out of pocket, the University allocated individual emergency grants of up to $2,000 to cover an outstanding tuition balance. These grants were awarded by a financial aid committee, based on a review of a student’s financial aid profile and any proof of extenuating circumstances that a student or their family could provide. In the first year of implementation, twenty-one grants were awarded, with the average award being approximately $500.

Data and Method

The primary source of data for this paper is from the fall 2015 institutional census file maintained by the Office of Institutional Effectiveness, which contains student level administrative and academic records. Latino students who entered in fall 2015 as first-time freshmen were included in the analyses, a total of 340. The data were screened and cleaned to meet the assumptions of our analysis, and missing values were treated using list-wise deletion during the analysis. Consequently, the final analytical sample of the study consisted of 331 freshmen Latino students. The impact of SOAR was assessed using quantitative and qualitative methods. A binary logistic regression model was created to examine the impact SOAR had on first-year retention and focus groups were used to evaluate the components of SOAR that students thought were most effective.

Variables for Logistic Regression

The dependent variable used to examine retention is a binary enrollment indicator, dummy coded to indicate whether a Latino student who enrolled as a first-time freshman in fall 2015 registered for classes again at NJCU in fall 2016 or did not register for classes. Based on previous studies of Latino student success and institutional data that were available, the independent variables used for this study were organized into several blocks: 1) student demographic characteristics, 2) college preparation, 3) financial aid factors, and 4) institutional programs. The variable of interest for this study, involvement with SOAR, is contained in the final block, along with other programmatic variables, involvement in the
Educational Opportunity Fund (EOF) program and participation in intercollegiate athletics. EOF and participation in intercollegiate athletics were included in this analysis because of institutional interest on how these two programs impact retention. The students in this study did not overlap among three programs. It should be noted that the emergency grant variable was left out of the model, as only six first-time Latino freshmen in this cohort received it—a treatment sample size that is too small for inclusion—and all of them were retained.

Qualitative Assessment

An email invite to participate in a focus group study was sent to the 228 Latino first-time freshmen who participated in SOAR. A total of 24 students signed up to participate in the focus group study, of which 20 students (approximately 9 percent) appeared at one of two focus group sessions. A list of fifteen structured questions (See Appendix) was used to prompt open-ended responses during the focus group sessions. Each focus group session lasted approximately 60 minutes and students’ verbal responses were recorded by a digital device and transcribed. Transcripts of the focus group sessions were analyzed and coded for the frequency that key themes were mentioned.

Findings

Descriptive Statistics

Demographic and background characteristics of Latino first-time freshmen are displayed in Table 1. Over half of the sample was female (55 percent). Perhaps reflections of the socioeconomic disadvantage that Latino students face, a large percentage of our sample were first-generation college attenders (67 percent) and PELL recipients (82 percent), with a mean annual parental income of $34,725.

| Table 1: Demographics, background characteristics, and program participation of Latino students (N = 340) |
|-------------------------------------------------|---------------|-------------|
| Gender                                         | N  | %   |
| Male                                           | 152| 44.7|
| Female                                         | 188| 55.3|
| First-generation College                       |    |     |
| Yes                                            | 228| 67.1|
| No                                             | 112| 32.9|
| PELL Recipient                                 |    |     |
| Yes                                            | 280| 82.4|
| No                                             | 60 | 17.6|
| Received a Federal Student Loan                 |    |     |
| Yes                                            | 113| 33.2|
| No                                             | 227| 66.8|
| Received Federal Work Study                    |    |     |
| Yes                                            | 18 |  5.3|
| No                                             | 322| 94.7|
| Participated in Intercollegiate Athletics       |    |     |
| Yes                                            | 20 |  5.9|
| No                                             | 320| 94.1|
| Educational Opportunity Fund Program (EOF)      |    |     |
| Yes                                            | 47 | 13.8|
| No                                             | 293| 86.2|
| Student Outreach and Retention (SOAR)           |    |     |
| Yes                                            | 237| 69.7|
| No                                             | 103| 30.3|

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
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</thead>
<tbody>
<tr>
<td>High School Grade Point Average (GPA)</td>
<td>336</td>
<td>2.98</td>
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<tr>
<td>SAT Critical Reading Score</td>
<td>332</td>
<td>422.3</td>
<td>82.4</td>
</tr>
<tr>
<td>SAT Math Score</td>
<td>332</td>
<td>442.8</td>
<td>80.1</td>
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<tr>
<td>Parental Income</td>
<td>331</td>
<td>34,724.5</td>
<td>36,246.5</td>
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<tr>
<td>Institutional Scholarship</td>
<td>340</td>
<td>940.7</td>
<td>2,367.3</td>
</tr>
</tbody>
</table>
Logistic Regression Results

Table 2 demonstrates the binary logistic regression model estimating first-year retention rates for first-time Latino freshmen. Student demographic variables in terms of gender, first-generation status, and parental income were not significant in predicting first-year retention. High school GPA was significantly related to first-year retention, with each point increase in GPA being associated with an almost twofold increase in the odds of being retained. Neither SAT scores were predictive of first-year retention. Of the financial aid factors, only institutional scholarship was significantly related to first-year retention, whereas when institutional scholarship increased by $1,000, the corresponding likelihood of being retained increased by 1.65 times. Finally, for institutional program variables, both EOF and SOAR were strongly related to first-year retention, and participation in intercollegiate athletics is near significant ($p = .08$) in predicting first-year retention. For first-time Latino freshmen, being a participant in the EOF program increased the odds of being retained fivefold, while being a participant in SOAR increased the odds of being retained sixfold.

Table 2: Logistic regression on one-year retention for Fall 2015 Latino first-time freshmen

<table>
<thead>
<tr>
<th></th>
<th>1-Year Retention Vs. Not Retained</th>
<th>EXP(B)</th>
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<tr>
<td><strong>Student Demographics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>0.09</td>
<td>1.10</td>
</tr>
<tr>
<td>First-generation College</td>
<td>0.12</td>
<td>1.13</td>
</tr>
<tr>
<td>Parental Income</td>
<td>0.00</td>
<td>1.00</td>
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<tr>
<td><strong>College Preparation</strong></td>
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<td></td>
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<tr>
<td>High School GPA</td>
<td>0.67</td>
<td>1.93</td>
</tr>
<tr>
<td>SAT Critical Reading</td>
<td>-0.03</td>
<td>1.00</td>
</tr>
<tr>
<td>SAT Math Score</td>
<td>-0.04</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Financial aid factors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PELL Recipient</td>
<td>-0.01</td>
<td>0.99</td>
</tr>
<tr>
<td>Received a Federal Student Loan</td>
<td>0.05</td>
<td>1.05</td>
</tr>
<tr>
<td>Received Federal Work Study</td>
<td>0.80</td>
<td>2.22</td>
</tr>
<tr>
<td>Institutional Scholarship (per $1,000)</td>
<td>0.50</td>
<td>1.65</td>
</tr>
<tr>
<td><strong>Institutional Programs</strong></td>
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<tr>
<td>Educational Opportunity Fund (EOF) program</td>
<td>1.64</td>
<td>5.16</td>
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<tr>
<td>Student Outreach and Retention (SOAR)</td>
<td>1.80</td>
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<tr>
<td>Intercollegiate Athletics</td>
<td>1.38</td>
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<tr>
<td>Constant</td>
<td>0.39</td>
<td>1.84</td>
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<tr>
<td>Pseudo R-square</td>
<td>0.21</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>321</td>
<td></td>
</tr>
</tbody>
</table>

*p < .10, *p < 0.05, **p < 0.01, ***p < 0.001.

Qualitative Results

Based on the qualitative analysis of the two focus groups conducted with twenty first-time Latino freshmen who participated in SOAR, the three components of the program that students found to be most impactful, in ranked order, were: 1) peer mentoring, 2) administrative outreach, and 3) financial aid workshop.

When asked to name one thing that was most helpful about the SOAR program, a vast majority (n=19) of the participants indicated that the peer mentoring component was most helpful, the remaining participant thought that the workshops were most helpful. The following quotation represents the typical response, when participants were asked to name some positive things about having a peer mentor: “My peer mentor, she answered every question I had about everything. I was able to text her or email her anytime and she got back to me quickly.” Generally, the participants indicated that having a peer mentor helped them navigate their first-year college experience, they met with peer mentor at least twice over the academic year, and their peer mentor was responsive and available when needed.

When prompted with the question about whether they received a phone call, email, or text message about college deadlines or reminders, all the participants (n=20) replied in the affirmative. When participants were asked how helpful the outreach messages were, a typical response was expressed by the
following quotation: “The constant reminder of important deadlines, give me a sense that someone is looking out.” Overall, participants wanted more outreach messages and preferred to receive these messages via text to their cell phones.

Of the participants (n=10) who recalled attending a workshop offered through SOAR, a majority (n=7) of them attended the financial aid workshop at least once. When asked whether they found the workshop they attended helpful, a typical response can be expressed by the following quotation: “I attended the financial aid workshop and the best thing was hands-on help I got with filling it [the FAFSA] out.” Of those participants who attended the financial aid workshop, many were intimidated by the online application for federal financial aid and some participants expressed that the workshop assisted in getting them more financial aid or scholarships.

Discussion and Conclusion

The findings from the logistic regression model provided evidence that suggests SOAR has a large impact on the first-year retention of first-time Latino freshmen. The results from the focus group strongly suggested that peer mentoring was the most impactful aspect of SOAR. However, the additive effect of the administrative outreach and workshops on improving first-year retention cannot be discounted. This study also examined a number of demographic characteristics and college preparation variables. The sample used in this study had a large number of first-generation college attenders, yet this factor was not a significant predictor of first-year retention. This is somewhat surprising, given the studies (Thayer, 2000; Choy, 2001) that have found first-generation status a risk factor for retention and degree completion. These studies, however, did not examine how programmatic or institutional aid can offset the disadvantages of being a first-generation student.

High school GPA was a significant predictor of first-year retention in our study, which is consistent with the research literature. NJCU will consider how entering first-year students with lower than average high school GPAs can be monitored or given additional assistance in order to perform well in college. Another institutional policy to reconsider is how NJCU allocates institutional aid, specifically its merit-based scholarships, which are awarded based on high school GPA and SAT scores criteria. Given that SAT scores are not predictive of retention, should it be used or weighted as strongly when awarding institutional aid. Reallocating institutional aid towards need-based grants might improve retention or degree completion. Finally, the EOF program was also found to strongly impact first-year retention of first-time Latino freshmen. This is not surprising, since the EOF program is state funded to provide a high-touch model for low-income students by providing a five-week intensive summer bridge curriculum before a students’ first semester and academic advisors with a small caseload, who work solely with students in the EOF program. However, admissions to the EOF program is limited to 100 to 150 freshmen each year and based strictly on state-defined income requirements. Expanding the EOF program or creating a similar program using institutional resources is not economically feasible. Whereas, SOAR is scalable to a larger student population and is comparatively more cost-effective.

Since 2015, SOAR has been providing additional services to the entire incoming freshmen class, the number and topics for workshops have been expanded and the institution has increase resources for emergency grants. In fall 2017, SOAR will begin to provide ongoing peer mentoring and administrative outreach to Latino students in their second year, and a peer mentoring program geared towards Black students will be also launched to impact retention and degree completion for that population.

In conclusion, our findings showed that SOAR had an impact on Latino student success, particularly first-year retention, and other institutions should consider implementing a similar program. NJCU is in the process of assessing whether SOAR has an affect on first-year GPA, student satisfaction, and campus engagement, all of which are critical initial indicators for degree completion. It is important to note that the faculty, staff, and peer mentors involved with SOAR had great enthusiasm for the work they did and truly believed that they were contributing to the success of students, the impact of this was not directly measured by the methods of this study, but it would be hard to imagine that it is not a
contributing factor that led to increased retention. The large impact of SOAR on the first-year retention of first-time Latino freshmen and the collaborative nature of this program has allowed it to receive campus-wide buy in for more resources and led the institution to focus on additional student success initiatives.
Reference List


Appendix

Focus Group Questions
1. Why you chose to participate in the SOAR program.
2. Please tell us your interactions with the SOAR program.
3. How many times did you meet with your peer mentor?
4. What were some positive things about having a peer mentor?
5. What are some of the things you would change about the peer mentoring process?
6. Did you receive a phone call, email, or text message about college deadlines or reminders?
7. How helpful were these messages? What would you change about them?
8. Did you attend the workshops that were offered through SOAR? Which ones?
9. Did you find the workshops helpful?
10. What would you change about the workshops?
11. Are there workshops that we should add that would be helpful?
12. Did you receive an emergency grant through the SOAR program?
13. Did the emergency grant help you stay on track in college?
14. Please tell us one thing that was most helpful to you about the SOAR program.
15. Please tell us one thing that you would change or improve for the SOAR program.
Increasing Retention for Undeclared Students at a Private Mid-Sized Research University

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Abstract: Since 2012, The University of Dayton has implemented a revised support and academic advising structure for students without a declared major. The College of Arts and Sciences has successfully increased first- to second-year retention and first- to third-year persistence among a population of students with the lowest retention rates at the institution. The Discover Arts program revisions include the creation of an introduction to the university seminar; intentional recruitment and selection of faculty academic advisors, instructors and undergraduate student teaching assistants; ongoing training, support and resources for advisors and teaching assistants; and incentives for faculty participants. Utilizing institutional data, a longstanding faculty advising model and leveraging institutional mission, the first- to second-year retention rates of Discover Arts students increased from 79.0% (2007-2011) to 86.7% (2012-2015), and first- to third-year retention rates rose from 72.7% (2007-2011) to 81.0% (2012 - 2014).

Introduction to Institutional Context and Mission

The University of Dayton (UD) defines its mission as “a top-tier Catholic research university with academic offerings from the undergraduate to the doctoral levels. We are a diverse community committed, in the Marianist tradition, to educating the whole person and linking learning and scholarship with leadership and service.” (University of Dayton, 2017). This mission is the foundation for how students are supported and is linked deliberately to the Catholic and Marianist heritage. The Catholic heritage is understood as:

- a common search for truth based on the belief that truth is ultimately one and can be more fully known through both faith and reason;
- a commitment to the dignity of the human person as a creative and social being created in the image and likeness of God; and
- an appreciation for the ways creation, people, communities, and the ordinary things in life manifest, in a sacramental manner, the mystery of God (University of Dayton, 2017).

In addition, the Marianist heritage is understood as “educating the whole person through a learning community of challenge and support; connecting learning to leadership and service; and collaborating for adaptation and change” (University of Dayton, 2017). In summary, UD is a university that values a liberal arts education and recognizes that education happens in the classroom, in co-curricular activities, and within the community. Moreover, education is meant to foster excellence for the individual and for the many communities in which students find themselves now and in the future. While the mission emphasizes the religious foundations of the school, UD prides itself on its openness to all.
religious traditions and a diverse student body. The student to faculty ratio is 16:1, and most students enroll directly from high school. The institution has a strong reputation for its community-engaged learning and is one of 361 institutions awarded a Carnegie Classification for Community Engagement.

**Theoretical and Institutional Background**

As an institution, the University of Dayton has committed to shifting to a model that encompasses student success as a whole, where teaching, advising and co-curricular activities are acknowledged and recognized as integral to providing students with a UD experience. *Increasing Persistence: Research-Based Strategies for College Student Success* by Wesley R. Habley, Jennifer L. Bloom, and Steve Robbins (2012) is an essential theoretical source for understanding the work that UD has undertaken to improve retention for students who enter with no specific major and are categorized as Undeclared Bachelor of Arts students. This resource has been particularly helpful in our work as it brings together hundreds of research studies on effective strategies for student success and why those strategies work in some contexts but not in others.

For UD’s context, advising first-year Discover Arts students (UNA) became a key strategy for improving retention. Academic advising, in various forms, is a powerful tool for assisting students in exploring their vocations and intellectual curiosities, as well as making sure they are making timely progress toward a degree (Habley et al., 2012, p. 283). For students with undeclared majors, academic advisors are often the critical link in helping students decipher a major and/or career path, and play a crucial role in the students’ support network, along with providing advising on degree progress. Cuseo (as cited in Habley et al., 2012) illuminates that satisfaction with the college experience, enhanced educational and career decision making, campus resource utilization, student-faculty interaction outside of the classroom, and student mentoring all are impacted positively by academic advising (p. 291).

The other theoretical background for helping UNA students to succeed is the need for students to feel part of the institution (Habley et al., 2012, 104-107). While students in majors have a natural cohort with fellow majors, the UNA students needed their own cohort of other students exploring their options. One goal of the new structure of our introduction to the university course, titled ASI 160, was to provide enough class time, advising time, and mentoring for UNA students to feel that they made up their own community in which spending time discerning the right major and the right career path was encouraged instead of rushing them into a major. The students and advisors are able to view this discovery process in a positive way, in part by coming to understand some of the research around success for undeclared students. One example comes from the Education Advisory Board (EAB) which found that students who enter the institution without a declared major graduate sooner and with higher GPA if they declare between 45-60 hours (EAB Interviews and Analysis 2016 EAB Academic Policy Audit Webconference).

**Methodology**

Because of our strong commitment to the success of all students, in 2011 the College of Arts and Sciences (CAS) began to consider how we could implement changes that would help students who enter UD undeclared. This group was identified because they had the lowest first- to second-year retention rate at UD. While the average first- to second-year retention rate for all UD students between 2007 and 2011 was 87%, UNA students had a retention rate of 79%, while students entering in all other majors had a retention rate of 88%. In order to better serve UNA students, CAS implemented a series of changes: structural changes to the advising seminar for incoming students, better recruitment of faculty advisors, better training and incentives for faculty advisors, and undergraduate student teaching assistants. These changes, which will be described below, have helped to dramatically increase the success of UNA students at UD.
Structural Changes

As a result of an institutional commitment to increasing retention, defined as the calculation of full-time, first-time in college, first-year student’s matriculation from the first fall semester to the second-year fall semester, and persistence, defined as continuous enrollment in a program leading toward a bachelor's degree, the University of Dayton assembled a student success and persistence team, whose charge included recommending and promoting strategies that would increase student success and persistence for undergraduate students, including specifically increasing first- to second-year retention rates. As a result of the recommendations from the university committee, two themes emerged that were directly related to the College of Arts and Sciences: retention of students entering the university undecided on their major, and inconsistent advising of these students without a major.

In order to address the recommendations of the committee, major structural changes were made to increase the possibility of success, which included a name change, creation of a new seminar-based introductory course, selection and compensation of instructors who would serve as advisors, support structure and training for advisors, and placing a greater emphasis on the impact of student teaching assistants.

Before 2012, students who entered UD without a major were called undeclared. Now, students who come in without a major are identified as “Discover” students. These students enter CAS as Discover Arts if they are BA path students or Discover Science if they are BS path students. The name change is one way for the university to signal that, for many students, it is better to enter the university without a major than to enter with a major that may be a poor fit (Koproske, 2016, p. 16). “Discover” indicates that these are students engaged in the positive work of exploring their options and discerning which major best fits their interests and talents.

First-Year Seminar Revision

The process for changing the support structures for Discover students began with a revision to the Discover Arts curriculum. Discover Arts was identified as the priority (over Discover Science) because historically their first- to second-year retention rate was nine percentage points lower than students entering in all other majors. One of the structures that was already in place for all first-year students was a one-credit seminar, Introduction to the University — ASI 150. In this seminar, students who enter with a major work with a faculty member or chair from their home department and learn about the requirements of the major and how to register for classes. The one-day a week format that works relatively well for students with a major did not provide enough time to introduce Discover students to available resources for choosing a major. For incoming students in the fall semester of 2015, the seminar was changed from a one day per week seminar (ASI 150) to a two day per week seminar (ASI 160). The additional time has many advantages: increased contact between advisors and students, dedicated time for one-on-one advising, presentations from campus partners (including Career Services, academic units in CAS and the professional schools, the Center for International Programs, and city partners), time for intentional career focused inquiry, and time to build students’ metacognitive skills.

Recruitment and Training for Advisors

Prior to the new model, the job of advising UNA students fell primarily to tenure-line faculty in the humanities. Those faculty led an ASI 150 section and advised the students in that section. The model kept advising loads low for faculty teaching these sections, but they were not given sufficient training on best practices and did not have sufficient time to introduce students to the skills they needed to successfully navigate the transition from high school to college and for choosing a major.

The new model recognizes that some faculty are better suited than others to work with first-year students and that those faculty should be compensated for their work and have better advising support. The selection process begins with a call from the dean’s office for nominations. Academic departments nominate faculty who they feel have a talent for working with first-year students and who will also represent their home departments well. Those nominees are then reviewed and interviewed by the Academic Advising Coordinator, the Assistant Dean for Student Success, or the Associate Dean for
Curriculum and Academic Outcomes. The interviews are a chance to provide faculty with clear expectations about their role in advising, the role of the Dean’s Office in supporting them, and the role of their teaching assistants. From these nominees, a cohort of faculty advisors are chosen to teach the advising seminar and to advise the Discover students until they choose a major. All faculty selected have an expressed interest in working with first-year students who are still discovering their major, and these faculty are compensated by receiving a course release after teaching a seminar and advising the students for two consecutive years. The new compensation structure came as a result of feedback from departments and faculty. This compensation was extremely popular with faculty, but ultimately could not be sustained because the faculty were needed to teach departmental courses. Beginning in Fall 2017, the compensation will be a monetary compensation, the equivalent of half a course.

Advising Training

As Kuh (2008) and Pascarella and Terenzini (2005) both affirmed, academic advising can play a critical role in students’ decisions to remain at an institution. Training for faculty advisors has also been remodeled to reflect the University’s and CAS’s commitment to student success. The concept of fixed and growth mindset, rooted in psychology, posits that an individual’s beliefs about their intellectual capacity has great impact on their ability to succeed. A fixed mindset denotes that an individual is not able to expand knowledge on something, gives up on difficult tasks, and that effort will not yield any positive results. Individuals with a growth mindset believe that knowledge and understanding of new information is possible, skills can be learned and view challenges as opportunities, rather than failures. (Doyle & Zakrajske, 2013) Faculty are trained to help students gain a growth mindset so that when they face challenges, obstacles, and even failure, they view these experiences as an opportunity to learn and grow rather than evidence that they cannot succeed. Another skill that is critical to student success is helping them develop metacognitive skills. In The New Science of Learning, Doyle and Zakrajske (2013) state “Better learning does not always require more effort or more time; rather one need only effectively align how the brain naturally learns with the demands of the college classroom” (p. 1). This set of skills helps students to breakdown complex tasks into processes and teaches them to develop strategies for approaching learning and studying. Once students learn the skills, they are better equipped to apply previous knowledge in new ways rather than storing information in their short-term memory for a particular assignment or test. Faculty are also introduced to the many resources available for students across campus. The resources address spiritual, emotional, physical, and health needs. Neither faculty nor students are expected to remember all of the resources, but by introducing these resources both in seminars and in large group sessions, faculty and students know that they always have access to experts in the Dean’s Office who can connect them with the right resources.

In addition to the skills and resources that faculty are trained to provide students, we also provide training on the Common Academic Program (CAP). At the University of Dayton, students all take a common curriculum that provides a liberal arts education. Our approach to this education is unique in that students build their skills and knowledge across their four years. In the first year, they are introduced to seven student learning goals (scholarship, faith traditions, diversity, community, practical wisdom, critical evaluation of our times, and vocation), and in the second year students’ understanding of these goals are deepened in a 200 level English class and a 200 level social science course. In their third and fourth year, students take a variety of classes within their majors and between majors that give them an advanced understanding of the learning goals and how their major prepares them for a career, as well as to contribute to the common good. As is probably clear, the academic advising for this curriculum is complex and students need well-trained faculty to help them navigate their course selection in such a way that they take courses which help them discover their talents and passions, but also keep them on track for graduation.

Teaching Assistants

Before the advising seminar for UNA students became the Discover Arts Program, undergraduate students who helped faculty with their seminars held the title of “student mentor”. At that point, students
were asked to help UNA students register for their next semester classes and to generally be available for advice about campus life. While some faculty took time to help the student mentors develop advising and teaching skills, more often students had a minor role in helping with the seminar and advising. To reflect the increased emphasis and role of the undergraduate student, as well as attracting a more diverse student pool, the role was changed to “student teaching assistant” beginning in the fall 2015 term. The student teaching assistants (TAs) are identified both through suggestions by faculty who teach ASI 160 and by an internal student position posted in the university’s portal for student employment. To be eligible for a student teaching assistant position, students must be in good academic standing, with preference going to students who entered the university as an undeclared student. While both faculty and T.A.s are trained prior to the beginning of the semester, trainings and evaluation sessions are held throughout the semester to gauge the progress of each section, assess where some potential challenges may arise, and provide support during critical junctures in the semester.

Results

As a result of the structural changes to the first-year seminar, changes in faculty advisor selection and training, T.A. training, as well as an increase in support for advisors through the Dean’s Office, the university has seen an increase in first- to second and first- to third-year retention rates for students whose entering major was Discover Arts. Figures 1-4 illustrate comparisons of before and after the implementation of major changes. Figures 5 through 8 illustrate results from student assessment of their academic advisors during the Fall 2013, 2014, 2015 and 2016 semesters. Surveys are distributed to each section of ASI 160 each fall, and include metrics related to student satisfaction with their advisor, including assessing the advisor’s accessibility and knowledge of the curriculum and campus resources. Each year, questions on the survey have been slightly adjusted to better understand the student experience.
Figure 1: First- to second-year retention rates before and after program changes
Figure 2: First- to third-year retention rates before and after program changes
Figure 3: First- to second-year retention rates of Discover Arts vs. all other majors
Figure 4: First- to third-year retention rates of Discover Arts vs. all other majors
Figure 5: Results of student survey, Fall 2016-ASI 160

Figure 6: Results of student survey, Fall 2015-ASI 160
Figure 7: Results of student survey, Fall 2014-ASI 160

Figure 8: Results of student survey, Fall 2013-ASI 160
Conclusion & Next Steps

The introduction in Fall 2015 to the university course for discovering students, ASI 160, is the result of a data-driven decision to increase retention and persistence rates of students at most risk of attrition from the university. Through increased interaction between faculty and students, interaction with upper-class Student Teaching Assistants, assignments, readings and presentations, students in ASI 160 receive the support necessary in building academic and lifestyle habits for success in college. We believe that this program has been extremely effective because the average first- to second-year retention rate for UNA students has increased from 78.8% to 86.7%. Even with the institution’s upward trend in its increase in first- to second-year retention (90.5 in 2013, 90.7 in 2014, and 89.3% in 2015), the retention gap for UNA students dropped by 8.1 points.

Building on the success of this program for UNA students, ASI 160 was first offered to Undeclared Science students in 2016-2017. While it is still too early to draw conclusions about the success of this expansion, surveys of the students indicate that they had built a strong mentoring relationship with their advisors and their TAs.
References


IRS: Issues in Retention Strategies-Doctoral Students

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Abstract: As universities develop initiatives to retain doctoral students, consideration must be given to the factors that influence the ability for students to persist. Doctoral student retention is dependent on recruitment efforts, institutional retention policies, existing support systems, and student motivation. Traditional efforts to retain doctoral students are typically isolated among departments with fragmented collaboration and limited knowledge of contributing factors. The purpose of this qualitative multiple case study was to explore perceptions of employees on factors that contribute to the retention of doctoral students in the first online course in Education Leadership and Instructional Design and Technology programs at a Level 6 university in south Florida. The triangulation of interviews will be analyzed for themes and subthemes. The results of this study can guide the collaboration among departments and the development of retention strategies for doctoral students who are at risk of academic failure and who might ultimately drop from online doctoral programs.

Introduction

The expansion of online programs and student enrollment continues through post-secondary education at all levels, including the doctoral level. Bollinger and Halupa (2012, p. 1) noted, “In fall of 2009, the number of online students increased by almost 1 million--5.6 million (a 21% increase).” Although doctoral online programs are gaining popularity, student persistence remains comparable to undergraduate retention rates. It remains unclear as to which factors contribute to student persistence at the doctoral level; however, faculties are deemed integral contributors for the support of doctoral students. Yet, despite mentoring, increased academic support systems, and implementation of retention strategies, student retention at the doctoral level remains nearly 50%, similar to undergraduate levels of higher education (Stallone, 2009). Understanding how university departments collaborate to retain doctoral students in the first course of doctoral programs was the focus of this study.

Background

Bollinger and Halupa (2012) noted that students have been opting for online education because the courses tend to fit the busy lifestyles. Though online programs may be convenient, many students are challenged in the online environment. Tinto (2006/2007) explained students decide to leave educational programs for a plethora of reasons. While focus has been placed on increasing student recruitment and enrollment in higher education, the real issue lies with student persistence after recruitment and enrollment. How do we ensure that once students are enrolled they will in fact persevere? Do departments collaborate in efforts to retain students? Bollinger and Halupa (2012) noted a correlation
between higher levels of satisfaction and reduced anxiety. Enhanced student orientation, in combination with utilizing student-centered approaches and planned interventions were recommended to lessen student apprehension.

Stallone (2009) assessed four characteristics associated with doctoral student retention: (a) persistence, (b) cultural diversity, (c) relational characteristics, and (d) college engagement. It was noted in Stallone’s (2009) research that psychological/relational factors are the most identified cause for student attrition. The human quality factors are what assisted students in achieving doctoral success. Kumar, Dawson, Black, Cavanaugh, and Sessums, (2011) reported 94% of the doctoral students agreed that their expectations were met during the initial year of their doctoral training, with most students identifying faculty members’ support as the key ingredient of strength.

When considered separately, the individual needs and role of students, faculty, admissions, and financial aid departments could be further explored. In a grounded theory pilot study, types of supports needed for academic success were explored, particularly those provided by instructors (Baltes, Hoffmann-Kipp, Lynn, & Weltzer-Ward, 2010). The pilot study, though limited in application, did reveal the role of stress and self-doubt as significant factors that impacted the student’s self-efficacy of successfully achieving the goals of the doctoral course.

It appears plausible that faculty, admissions personnel, and financial officers could provide added support, direction to resources, and encouragement during the enrollment process and application for financial aid. However, it appeared that this would require a more relational quality to the professor–doctoral student relationship. Kumar et al. (2011) explained how presence, feedback, and support were strengths of a doctoral program. For example, interactive faculty presence was a significant factor in whether a student would persist. Kumar et al. (2011) found that faculty needed to possess organizational skills, have training in online pedagogy, institutional support, and access to resources that assisted with research skill training.

Understanding the necessary skills and relevant experiences admissions personnel, financial aid officers, and faculty need for successful online doctoral studies is significant. Green, Alejandro, and Brown (2009) administered a survey to determine the characteristics experienced department personnel and faculty displayed that either encouraged or discouraged students’ enrollment and retention. The purpose of the survey was to generate a list of retention strategies designed for online distance education faculty and staff. The study was to help college administrators lower online faculty and staff turnover, a common and costly problem in online education, and a problem that affects student retention.

Green et al. (2009) reported previous studies had identified motivating factors that enhanced faculty and staff retention to be flexible hours, innovative pedagogy, acquiring new technological skills, and expanding career opportunities. However, there was no mention of collaboration between faculty and staff to affect doctoral student retention. The greater problem was in the perceived lack of vision by administration for interdepartmental corporation in the online environment. In essence, Ali and Kohun (2006) stressed the importance of the university offering various opportunities to collaborate, converse, and share for the sense of support of doctoral students.

The consideration of the instructional design led a few researchers to examine collaborative methods to address common problems. Lee et al. (2010) explored how a nursing program could be delivered in the online environment and reviewed various instructional designs they could implement. The development team over a three month period utilized five collaborative workshops to investigate and develop an online program, asynchronous trainings, and a virtual classroom for added interaction between faculty, admissions personnel, and financial aid officers. The visualization of the collaborative process is expressed in Figure 1. Each leg represents operational aspects of the university, whereas the connecting bars are the added collaborative support needed to retain doctoral students.
The research methodology selected for this study was qualitative research, chosen for its ability to determine faculty and staff perceptions of support systems required to be successful in the online PhD program and to glean information as to why students leave. Qualitative methodology provides the avenue to ask graduate students questions; answers can help determine the educational criteria for retention strategies and continuous academic achievement. After reviewing the six types of qualitative methodology approaches commonly used, multiple case study research was chosen for its ability to focus on employee perceptions of students’ nontraditional experience and the support systems necessary for their success (Merriam & Tisdell, 2015). Case studies are appropriate for research that focuses on the explanation of real-life events and/or the context in which the events occurred (Yin, 1994). Limitations of the case study are debated among researchers, with the ability to generalize results being assumed. Criticisms include the ability to generalize based on small research samples. In this study, transferability might not be possible, as the sample might not be representative of PhD Educational Leadership online programs at many online higher education institutions. In addition, the learning management system (LMS) used at this Level 6 research institution is a common delivery system. Areas of difference among universities that would hinder the ability to generalize are the support systems offered, the role of faculty in retention processes (e.g., mentoring and meetings), and individual mindsets of interdepartmental staff regarding the responsibility for the retention of students.

The purpose of this qualitative multiple case study was to explore the perceptions of interdepartmental employees at a Level 6 University to gain understanding of the collaborative efforts and factors that support doctoral student retention in the first course of study in the Educational Leadership (EDL) and Instructional Design and Technology (IDT) programs. The results could provide institutions with knowledge specific to the retention of doctoral candidates through the final stage of completion. Understanding students’ academic achievement and persistence to complete their doctoral studies is critical to the success of the programs and can provide strategies for students who are at risk of academic failure or who may even drop out from the online doctoral program.

Population

The population (N = 9) for this multiple case study consisted of three participants from the admissions department, three participants from the financial aid department, and three participants who
are faculty. All are over the age of 18 and full-time employees who are work on campus. Participants were both males and females.

Research Questions
1. What factors contribute to the retention of doctoral students in the EDL and IDT first course?
2. What collaborative interdepartmental strategies are used to retain doctoral students in the EDL and IDT first course?
3. What recruitment strategies are most effective?
4. What support systems are in place to retain doctoral students in the first doctoral course?
5. What motivates students to persist in the first doctoral course?

Procedures
After internal IRB approval, participants were invited to participate in the study. An informed consent form was provided to all potential participants to read and sign. Once participants agreed, their names were given a code and they were interviewed individually. The interviews were recorded, transcribed, and member checked for accuracy. The transcripts were then coded for themes and subthemes and displayed in tables with supporting comments from the participants. Themes were compared within each group—admissions (AD), financial aid (FA), and faculty (FAC)—and then compared across groups. Triangulation was achieved through the analysis across groups.

Results
Participants were interviewed individually in a private office and were asked the same questions. One participant, FA3, declined to answer the questions and AD 2 and 3 answered in the same way for question 5.

Table 1: Admissions question 1

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<thead>
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<th>Theme(s)</th>
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<td>Communication/Professor</td>
</tr>
<tr>
<td>Understanding</td>
<td>Process/Program</td>
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</table>

Question 1: What factors contribute to the retention of doctoral students in the EDL and IDT first course?

AD1 stated, “I think this is a big part of the process. Um, and on the personal level, I guess having goals, the right goals.” AD2 added, “Meaning that the student’s ready and knowledgeable about who (sic) and how the next person in the process is going to help them, uh, be successful, meaning that they are informed of their professor, their first class, and the proper communication channel.” AD3 thought:
I think initially having a firm understanding of the program, and what is going to help them achieve, in terms of their ultimate goals. So if the admissions process is understanding the program, the outcomes, the opportunities, and those types of things and also an understanding of the platform that we use, and then throughout the process before starting class there is constant communication between the departments making sure that the student is all set and ready to go.

Table 2: Admissions question 2

<table>
<thead>
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<td>Academics/Students</td>
<td>Knowledge/Syllabus</td>
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</table>

|                  | Collaborate/Comfortable |

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**Question 2:** What collaborative interdepartmental strategies are used to retain doctoral students in the EDL and IDT first course?

AD1 said, “They know who their academic advisor is, knowing who their go to person is, always being aware of that–um, having the knowledge, having the information they need so if they come to me, I can pass that on.” AD2 thought, “I make sure the students are informed as to what the program does, of what they can do, uh, give them the proper expectations of the deans, professors and every level and most important I think hand them off.” Finally, AD 3 added, “We collaborate obviously with financial aid, to make sure students are progressing through the process ah, before starting classes.”

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<tr>
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<td>Teachers/School</td>
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</table>

**Table 3: Admissions question 3**

**Question 3:** What recruitment strategies are most effective?

AD1 thought, “Um, recruitment strategies . . . I am not aware of all the recruitment strategies that’s out there . . . um, as I am fairly new.” AD 2 added, “I think that’s the most important part of how to make sure . . . the most important recruitment is that and after that you um, make sure that is the right person. AD3 noted, “I would assume more target marketing towards specific organizations, I think that we could probably do a better job of making partnering with different school systems.”

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<td>Process/Orientation</td>
</tr>
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**Table 4: Admissions question 4**

**Question 4:** What support systems are in place to retain doctoral students in the first doctoral course?

AD1 thought, “I think there’s something currently working in process that I’m aware of. Making sure they have the proper orientation, and it’s done across board, I think that’s something being worked on. AD2 added, “Well, I think that right now, the way I know the system works, first and foremost, they have the professor, the lifeline for that class, to answer questions, to make sure he understands, especially the first week of class which is so pivotal and to feel comfortable.” Last, AD3 stated:

I believe that they all receive surveys now making sure that they know what is expected of them and that they know who their advisor is asking if they have spoken to their advisor, those type of things. They also have the orientation now which I think would be very significant in helping them understand the course and the platform and then they should be receiving phone calls from their instructors.

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<td>Goals/Prepared</td>
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</table>

**Table 5: Admissions question 5**

**Question 5:** What motivates students to persist in the first doctoral course?
AD1 noted:
If they feel supported and get encouragement from the team on this end and have a proper goal, it’s part of our responsibility on the admissions side to talk to them about their goals, find out what their goals are, help them to voice it, if they’re aware of that goal they’re excited because the first course is like a honeymoon period, their excited, let’s go, let’s do this.
AD2 added, “They’re motivated. They’re highly motivated individuals, and they, no matter what it is; they want to achieve their goals.” AD3 stated, “They’re motivated. They’re highly motivated individuals, and they, no matter what it is, they want to achieve their goals” (The comments were the same, as if trained from a script).

Table 6: Financial aid question 1

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Question 1: What factors contribute to the retention of doctoral students in the EDL and IDT first course?

FA1 stated, “I have no opinion on factors that contribute to the retention of students in EDU712.” FA2 stated, “... that communication between faculty and students in the first course was very important to the success of retaining students ... phone conversations play an important part of this communication” (One participant declined to answer this question).

Table 7: Financial aid question 2

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Question 2: What collaborative interdepartmental strategies are used to retain doctoral students in the EDL and IDT first course?

FA1 stated, “I have no opinion on factors that contribute to the retention of students in EDU712” (FA1 declined to provide answers to the research questions). FA2 stated, “... that information shared at meetings such as articles, emails that provided supportive information on how to retain students was useful and contributed to the strategies used to collaborate with other departments” (One participant declined to answer this question).

Table 8: Financial aid question 3

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Question 3: What recruitment strategies are most effective?

FA1 stated, “I have no opinion on factors that contribute to the retention of students in EDU712.” FA2 stated, “... Events that are face-to-face would be very useful as effective recruitment strategies, for example, I think that students who were invited to a dinner that could be advertised stating that they could come, eat, and hear about programs, would be very useful as a recruitment tool”.

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Table 9: Financial aid question 4

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**Question 4**: What support systems are in place to retain doctoral students in the first doctoral course?

FA1 stated, “I have no opinion on factors that contribute to the retention of students in EDU712.” FA2 stated, “ . . . I think that Academic Advisors, and calls from both professors and financial aid officers are ways that we already support doctoral students.”

Table 10: Financial aid question 5

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<td>See Benefits, Raise standard of living</td>
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</table>

**Question 5**: What motivates students to persist in the first doctoral course?

FA1 stated, “I have no opinion on factors that contribute to the retention of students in EDU712.” FA2 stated, “ . . . If students see and understand the benefits of the program that they are in . . . if they feel that they are learning and will improve their standard of living through education, they persist”.

Table 11: Faculty question 1

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</table>

**Question 1**: What factors contribute to the retention of doctoral students in the EDL and IDT first course?

FAC1 stated, “The first professor is the link to the future and to the student understanding of how to navigate the school, online platforms, the work itself, and management of time”; FAC2 added, “The first instructor needs to communicate frequently and use the live time talking to students not as a lecture, but as support; answer student questions, listen to their requests, set them up with the library and writing studio, give them a contact, provide them with resources but also walk them through how to use them”. FAC 3 thought “If faculty and advisors can pick up on issues early and provide guidance, students will be more at ease and comfortable.”

Table 12: Faculty question 2

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<td>Collaborate</td>
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<td>Department Chair</td>
<td>Administration</td>
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</table>

**Question 2**: What collaborative interdepartmental strategies are used to retain doctoral students in the EDL and IDT first course?

FAC1 said, “If they are in their first graduate course, they have not had contact with other academic departments, but it is often necessary to help students resolve problems in advance of the students even knowing about them—by contacting department heads and other administrators.” FAC2 thought, “I do not really collaborate with other departments, no, but I work a lot with the librarian and writing studio, students really struggle with that. I also collaborate a lot with the department chair in APA that is where
they struggle.” Finally, FA3 added, “We have trained faculty, but they need to be the ones to handle the problems first, and then the advisors should be the ones to help with paperwork if students actually need something administration wise.”

Table 13: Faculty question 3

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<thead>
<tr>
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<td>Time</td>
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<td>Department Chair</td>
<td>Partnerships</td>
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<tr>
<td>University</td>
<td></td>
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</table>

**Question 3:** What recruitment strategies are most effective?

FAC1 thought, “The most helpful strategies would be significant advertising of the university and its programs and making ourselves more visible to teachers and administrators at the district levels who may want to move up.” FAC2 added, “A lot of students see advertisements and come to us from word of mouth, I do think online advertising is most important, then they talk to admissions and learn about accreditation. Having instructors and chairs recruit personally one on one I don’t think will work, the colleges name instead of a strange person is better.” FAC3 noted, “Word of mouth is very important. I also think student referrals are highly ranked. I think program chairs getting time to make partnerships with professionals in the field is a good opportunity.”

Table 14: Faculty question 4

<table>
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</table>

**Question 4:** What support systems are in place to retain doctoral students in the first doctoral course?

FAC1 thought, “The individual whom I believe will make the most difference is often the first professor, but it could also be another contact person with the university who is sincere and caring toward the student”. FAC2 added, “The librarian, the writing studio, the APA center”. Last, FAC3 stated; I think students need to be exposed to as many resources with the hopes to connect to that one resource to make them comfortable. This resource could be financial aid, admissions, etc. but students need to feel connected to someone or something.”

Table 15: Faculty question 5

<table>
<thead>
<tr>
<th>Theme(s)</th>
<th>Subtheme(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional</td>
<td>Passion</td>
</tr>
<tr>
<td>Life</td>
<td>School</td>
</tr>
<tr>
<td>Resilience</td>
<td>Contact</td>
</tr>
<tr>
<td>Want</td>
<td>Succeed</td>
</tr>
</tbody>
</table>

**Question 5:** What motivates students to persist in the first doctoral course?

FAC1 noted, “I believe it is related to their contact experience with the individuals at the school, as well as their own personal resilience and desire to persist.” FA2 added:

They try and they want it. They are there for a purpose and have a goal. Students that ask questions, fight for and question grades, and want to know what to do to be better persist. Online
you have to be self-motivated; instructors cannot pull them through alone. We lose the ones that oppose and don’t communicate, answer phones, return calls.

FAC3 believed:
The ones that persist can cope with life, all students have the resources, but if you look at drops it is because of life incidents or financial reasons, which are out of the control of the university. If the school can assist in reminding students about their passion for education and goals, and that the passion should come first, can help.

Discussion

What factors contribute to the retention of doctoral students in the EDL and IDT first course? Analysis within and across cases revealed few common themes. Within cases, responses to question 1 did not reveal common themes. Some participants did not have opinions to contribute and other seemed to be responding as scripted by previous training. Across cases for question 1 indicated that faculty communication was important in the retention of first course students. The consensus seemed to be that once the students were “handed off” to the faculty, the collaboration among departments diminished.

What collaborative interdepartmental strategies are used to retain doctoral students in the EDL and IDT first course? Question 2 responses revealed a common subtheme—collaborate. Faculty and admissions indicated that collaboration was vital in the retention of first course students; however, financial aid participants seemed to be concerned with the process of retention, such as making student phone calls.

What recruitment strategies are most effective? Within cases, each participant had responses that were individualized with no common themes. However, across cases, specifically admissions and faculty participants, teachers/department chair emerged as a common theme. The thoughts were that recruitment was more of the faculty’s responsibility than a departmental responsibility.

What support systems are in place to retain doctoral students in the first doctoral course? Analysis of participant transcripts did not reveal any common themes among nor across cases. Financial Aid participants mentioned the “proper orientation”. Faculty mentioned “writing”. Financial aid participants did not have an opinion regarding support systems.

What motivates students to persist in the first doctoral course? Within cases, admission participants noted that students needed to be excited and motivated. Faculty noted that passion and resilience were needed to be successful. Financial aid did not comment. Across cases, the intrinsic factors, such as motivation and excitement about being in a first doctoral course predominated.

Conclusion

Review of the data indicates few common strategies regarding collaboration that supports retention in the first doctoral course. Understanding the limited time during the day to collaborate among departments and the limited positive effect of faculty trainings of admission officers due to turnover of admissions personnel, department heads need to plan for common time to share strategies. The faculty initiated semester-based training of FA personnel is not effective due to the high turnover rate of FA personnel and some academic departments do not take part in the training. Isolation in the online student environment is a common reason for student failure to thrive; however, isolation among ground-based departments is also evident. Rethinking how student support is provided needs to be addressed for the benefit of students.

The purpose of this qualitative multiple case study was to explore perceptions of employees on factors that contribute to the retention of doctoral students in the first online course in Education Leadership and Instructional Technology and Design programs at a Level 6 university in south Florida.
The results revealed that much work is needed to increase the knowledge among departments regarding doctoral student retention. Each department had general ideas as to what might contribute to doctoral student retention but collaboration within and across departments was, and still is minimal. Efforts to increase collaboration are ongoing. Other institutions with doctoral programs might benefit from this study by seeking ways to collaborate among departments to develop and share retention strategies to retain doctoral students.
References


Green, T., Alejandro, J., & Brown, A. H. (2009). The retention of experienced faculty in online distance education programs: Understanding factors that impact their involvement. *International Review in Open and Distance Learning, 10*(3), 1-16.


Leavers, Stayers and Contemplators: Understanding the Drivers of Success for Low-Income Students

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Abstract: At the University of Tennessee at Knoxville (UT), nearly 30% of undergraduate students qualify for Pell grants. In 2010, UT adopted a strategic plan that committed to improving graduation outcomes. While UT raised six-year rates by nearly 10 points over five years, Pell-eligible students trailed university averages. These students were often invisible because they spanned race, ethnicity, and gender categories. Students were also reluctant to voice challenges. To better understand this population, UT conducted a “stayers study” to supplement a previous “leavers study” which surveyed students who were not retained to understand drivers for attrition. The stayers study focused on what keeps students at UT—particularly those who considered leaving but decided to stay—to identify success drivers and student perceptions of programs. Research engaged 700+ seniors in a survey that allowed comparison of Pell and non-Pell students. The research helped UT to understand the story of students with financial need, including challenges and success attributes. This paper reviews stayer study results related to Pell students. It also addresses how the stayers study, paired with existing data, allowed UT to target coordinated action among advising, enrollment management, and student life.

Introduction

The University of Tennessee at Knoxville (UT) is the flagship research institution as well as the land grant university in the state of Tennessee. With an overall undergraduate enrollment of about 22,000, 13% of undergraduate students come from underrepresented minority groups (American Indian/Alaska Native, Black, Hispanic, and two or more races), while about 30% of undergraduate students are eligible for Pell grants. The undergraduate population is largely from Tennessee (87%). The overall first-year retention rate is about 87% and six-year graduation rates are at 70% (Office of Institutional Research and Assessment, 2017).

As shown in Figure 1, UT has made significant improvements in graduation rates. These improvements can be directly tied to a strategic planning process that began in 2010 and that was recently refreshed to set a new target of 80% for six-year graduation rates for 2020. But taking a closer look at retention data makes it clear that strategies of focusing on “visible diversity” characteristics such as race, ethnicity, and gender will not be enough to enable UT to achieve those goals. As shown in Figure 2, first-to-second-year retention rates from underrepresented ethnic groups and students from Pell-eligible households trail UT averages. But six-year graduation rates show a more disturbing trend. Only 58% of Pell-eligible students graduate in six years as contrasted with 70% of majority students and 62% of underrepresented minority students. With 30% of students in the Pell-eligible category, solving the problems of retention, persistence, and graduation rates for this population is critical to achieving the university’s overall strategic goals related to student success.
Figure 1. Graduation rates by cohort year.

Figure 2. Retention and graduation rates by populations.

Background of the Problem

For several years, UT has been systematically studying students who leave by using in-depth interviews with students who did not return after their first year (Daugherty, 2013). Those studies found that students left for three primary reasons: 1) academics (e.g., problems adjusting academically), 2) finances (e.g., could not pay bills), 3) personal fit (e.g., problems adjusting socially). This information had proved useful in helping to build programs that provided support in these three areas (e.g., academic coaching, revised scholarship models, transition programs). But what the study of “leavers” did not address was how successful students navigated their way through college. The university had significant anecdotal evidence (through advisors, residence hall staff, and others) that many students strongly considered leaving, but found programs, services, and personal skills that enabled them to persist. The
The current study sought to better understand these students who contemplated leaving but did not. The goal of the study was primarily to understand how Pell-eligible students differ from other students in terms of their patterns of contemplating leaving, staying at the university through their senior year, and returning after having sat out for a semester or more.

**Literature Review**

In 2011, the Department of Education released a toolkit designed to help states develop college completion programs that would support President Obama’s goal of elevating the United States from 12th to 1st in the world in terms of college attainment (United States Department of Education, 2011). Since then, many states (including Tennessee) have developed agendas to boost college completion for the public good.

The completion agenda includes many different policies and programs including support for first-generation students (Blackwell & Pinder, 2014; Petty, 2014; Stephens, Fryberg, Markus, Johnson, & Covarrubias, 2012; Yingyi, 2009), increased public funding for students from low-income families (Cherng, Calarco, & Kao, 2013; Gilmore & Harris, 2008; Holliday, Cimetta, Yaden, Marx, & Cutshaw, 2014; Kendig, Mattingly, & Bianchi, 2014; Klugman, 2012; Nichols, 2015; Perez-Felker, 2015; Weaver & Yun, 2011), and big data analysis to better understand completion patterns (Allen, Bobby, & Bartolome, 2014; Cherng et al., 2013; Darrin, 2014; Klugman, 2012; Thomas, 2014).

Some researchers have taken a student-centric approach to understanding the culture of college completion (Ahmad, 2015; Blackwell & Pinder, 2014; Stephens et al., 2012; Sullenberger, Bloomquist, Wood, & Hostetter, 2015; Venuleo, Mossi, & Salvatore, 2016). The research reported in this paper extends that research tradition by using survey data to better understand the challenges of college students. The primary goal of the current study is to provide insight into Pell-eligible contemplators so that educators can understand how to identify those students who are considering leaving and help them find the resources they need to become completers.

**Methodology Description**

A survey (see Appendix) was used to identify and seek understanding of students who had attained senior standing at UT. In the fall of 2016, the survey was sent to all students (6,091) who had senior standing (90+ earned credit hours). We received 749 usable responses for a response rate of 12%. Demographic and socioeconomic variables were drawn from institutional records for all students who completed the survey. Table 1 summarizes key demographic factors for both Pell-eligible students and students from higher socioeconomic groups. At 43% of survey respondents, Pell-eligible students were represented in a higher proportion among the survey population than in the population as a whole. This was not an intended survey design factor, but it did lead to the opportunity to compare the two groups.

<table>
<thead>
<tr>
<th>Demographics of Pell and Non-Pell survey respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>In State</td>
</tr>
<tr>
<td>Out of State</td>
</tr>
<tr>
<td>White</td>
</tr>
<tr>
<td>Underrepresented Minorities</td>
</tr>
<tr>
<td>Other (Includes Unknown)</td>
</tr>
</tbody>
</table>
Nine questionnaire items were used to break the population into three primary groups. For each of those nine questions students selected one of three options indicating whether the named factor: “never made me want to leave,” “made me consider leaving but was resolved,” or “led me to sit out for at least one semester.” Students were categorized as “stayers” if they selected “never made me want to leave” for all nine items. They were coded as “contemplators” if they selected “made me consider leaving but was resolved” for at least one item and did NOT select “led me to sit out for at least one semester” for any item. “Returners” selected “led me to sit out for at least one semester” for at least one item.

Findings

Highlighted items in Tables 2-5 represent significant (p <.05 – p < .001) differences between Pell and Non-Pell students. As illustrated in Table 2, the nine screening items were drawn from the three basic categories of reasons for leaving that we had derived from the leaver’s studies. Numbers shown in Table 2 indicate the percentage of students in each category who contemplated leaving for the given reason. The lottery-funded HOPE scholarship is available to students who completed High School in Tennessee and who meet requirements related to grade point average and credit-hour completion.

Table 2: Factors that led students to contemplate leaving

<table>
<thead>
<tr>
<th>Financial Reasons</th>
<th>Pell</th>
<th>Non-Pell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trouble paying bills</td>
<td>39%</td>
<td>21%</td>
</tr>
<tr>
<td>Lost HOPE scholarship</td>
<td>14%</td>
<td>15%</td>
</tr>
<tr>
<td>Lost other financial aid</td>
<td>24%</td>
<td>13%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Academic Reasons</th>
<th>Pell</th>
<th>Non-Pell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difficulty adjusting to academic demands</td>
<td>33%</td>
<td>22%</td>
</tr>
<tr>
<td>Faculty did not support me</td>
<td>24%</td>
<td>17%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fit Reasons</th>
<th>Pell</th>
<th>Non-Pell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Felt like I didn’t fit in</td>
<td>26%</td>
<td>23%</td>
</tr>
<tr>
<td>Homesick</td>
<td>14%</td>
<td>12%</td>
</tr>
<tr>
<td>Wanted to be closer to home</td>
<td>10%</td>
<td>8%</td>
</tr>
</tbody>
</table>

It is interesting to note that while significant differences exist on items related to academics and finances, Pell-eligible students are not significantly different from other students in terms of the variables related to “fit.” This may be because students who had significant “fit” issues were among the “leaver” population who exited the university before their second year. Based on the findings for each of these reasons for leaving, it is not at all surprising that, as shown in Table 3, Pell-eligible students are much more likely to contemplate leaving than are non-Pell students.

Table 3: Overall categories of Pell and Non-Pell students

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Pell</th>
<th>Non-Pell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stayers</td>
<td>36%</td>
<td>30%</td>
<td>41%</td>
</tr>
<tr>
<td>Contemplators</td>
<td>54%</td>
<td>59%</td>
<td>50%</td>
</tr>
<tr>
<td>Returners</td>
<td>10%</td>
<td>11%</td>
<td>9%</td>
</tr>
</tbody>
</table>

The survey listed 22 programs and services and asked students to select those that they had used. For those that had been used, students rated their perceptions of how important those programs and services had been to their overall success. Somewhat surprisingly, there were relatively few significant differences between Pell and Non-Pell students in terms of programs and services used. Those differences are shown in Table 4.
Table 4: Differences in programs and services used

<table>
<thead>
<tr>
<th></th>
<th>Pell</th>
<th>Non-Pell</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-Campus Job</td>
<td>38%</td>
<td>30%</td>
</tr>
<tr>
<td>Student Counseling Center</td>
<td>21%</td>
<td>13%</td>
</tr>
<tr>
<td>Academic Coach</td>
<td>12%</td>
<td>7%</td>
</tr>
</tbody>
</table>

The high-incidence of on-campus jobs among Pell-eligible students probably reflects work-study opportunities for those students. Academic coaching is offered through the student success center and is available to all students. But students who enter college with high levels of risk such as low ACT scores and coming from a high school that typically sends few students to college are often assigned academic coaches. These risk factors often align with socioeconomic factors—including receipt of Pell grants. The relatively high use of the student counseling center among Pell-eligible students suggests that students from challenged socioeconomic backgrounds are often struggling with issues that extend beyond academics and finances.

Students who indicated that they had used academic programs and services were asked to rank how important those programs and services were to their ability to succeed as students. Figure 3 shows a “heat map” that plots both level of use and rating of importance for each of these services among the subset of all respondents who had contemplated leaving the university at some time during their academic careers.

Figure 3: Programs and services usage and rating for contemplators

Items circled in Figure 3 represent broadly recognized high-impact practices (Kilgo, Ezell Sheets, & Pascarella, 2015; Kuh, 2012). As predicted in the literature, UT students reported that programs such as service learning, study abroad, and undergraduate research had a high impact on their success as undergraduate students. But unfortunately, fewer than 30% of these contemplators reported having engaged in any of these programs. Items in the box in Figure 3 are ranked somewhat positively, and many have higher usage than do the high-impact practices. Among the programs and services reviewed, highest
use was for advising (with moderately high reported impact) and residence hall experiences (which seniors remember as having had limited impact on their success).

To gain greater understanding into factors that led to success for these students, the survey included an open-ended question that allowed students to use their own words to describe their “secrets to success.” Two researchers coded all of those responses into the seven categories presented in Table 5. It is interesting to note that the only significant differences among these categories is that Pell students are more likely to identify mentors and less likely to identify family members as important factors in their ability to persist until their senior year.

<table>
<thead>
<tr>
<th>Categories of open-ended responses for “Secrets to Success”</th>
<th>Pell</th>
<th>Non-Pell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grit/determination/etc.</td>
<td>43%</td>
<td>44%</td>
</tr>
<tr>
<td>Friends/clubs/Greek life, etc.</td>
<td>34%</td>
<td>33%</td>
</tr>
<tr>
<td>Mentors</td>
<td>26%</td>
<td>23%</td>
</tr>
<tr>
<td>Family</td>
<td>12%</td>
<td>16%</td>
</tr>
<tr>
<td>University Programs</td>
<td>9%</td>
<td>8%</td>
</tr>
<tr>
<td>Finances</td>
<td>4%</td>
<td>7%</td>
</tr>
<tr>
<td>University Services</td>
<td>4%</td>
<td>4%</td>
</tr>
</tbody>
</table>

A few selected quotes are provided below to summarize specific quotes provided by Pell-eligible students in response to the question about what had enabled them to persist to their senior year

- “I had an amazing academic advisor. She was wonderful. That has really helped. Also my courses have had lots of hands on opportunities that allowed me to be in a classroom, and it just showed me that this is what I want to do with my life.”
- “I feel obligated to get my degree because my parents want it for me and I believe my parents have good intentions. I trust them even though I may branch away from my degree completely.”
- “I found a close-knit community through the multicultural student life center where it was easy to meet people and connections and bonds.”
- “I was able to be independent and make my bills on my own otherwise I would have needed to drop out.”
- “The thought of one day being somebody.”
- “A bit of hard work and a whole lot of Jesus.”
- “Loved ones, Friends, Faculty, Peers, aaaaand coffee…”

Conclusion

The stayers study has provided input into new action plans to increase graduation rates at the University of Tennessee. By looking at Pell-eligible students who are often “invisible”, we were able to gain a better understanding of both what leads these students to consider leaving and what helps them stay and succeed. The university cannot reach its retention and graduation goal without addressing the specific challenges of about one-third of its students who have high financial need. We have added metrics around both under-represented minority groups and Pell-eligibility to keep us focused on helping improve success for these students who contribute to the diversity of the university.

The study provided a tool for talking with colleges, academic affairs units, and student life offices about how to improve outcomes for Pell-eligible students—particularly those who contemplate leaving the university. It placed a clear focus on the need for working with Pell-eligible students on issues related to financial aid and academic progress. It is not enough to provide adequate financial aid packages at the time of admission. Universities must support these students in making the necessary academic progress to retain that aid through early intervention strategies that engage both financial aid counselors and academic advisors. The study showed that Pell-eligible “stayers” identified that access to on-campus jobs, counseling, and academic coaching attributed to success from the student perspective. The student voice
needs to be included as a component of regular assessment in order to channel resources to the programs that make a difference.

The study helped to coalesce university-wide thinking on the importance of what we have identified as the “Four Ms” that often impact students who contemplate leaving: Money (ability to pay, retention of financial aid), Majors (selection of major), Math (ability to meet math requirements), and Mentors (ability to find a mentor).

Finally, the stayers study also provided a catalyst for more directly addressing the financial challenges which are so salient for this population. While plans are still in the developmental stage, the university is working toward focusing on how to incorporate stayer-study findings into programs that focus on retention of financial aid, strategic usage of work study, and coordination of academic advising and financial aid counseling.
References


Blackwell, E., & Pinder, P. J. (2014). What are the motivational factors of first-generation minority college students who overcame their family histories to pursue higher education? *College Student Journal, 48*(1), 45-56.


Appendix

Survey Questions

Please answer yes or no to each of the following. At any time while you have been a student at UT, did you have a faculty member who was…

- A mentor
- Someone who excited you about learning
- Someone who encouraged you to work toward your goals

Following is a list of programs and services offered at UT. Please put a check next to those you used:

- Academic Coach
- Academic Advising
- Alternative Breaks (fall/spring break trips)
- Career Services
- Disability Services
- Fraternity/Sorority
- Ignite (program offered during summer before first year)
- Internship and/or Co-op
- Lived in a Residence Hall
- Living/Learning Community
- Program in which you were a peer mentor or mentee
- Program in which you were a student leader
- Recreational Sports
- Service learning course that engaged with a community partner to solve a real-world problem
- Student Counseling Center
- Student Health Center
- Student media (e.g., Daily Beacon, WUTK, etc.)
- Study abroad
- Supplement Instruction/Tutoring
- Worked at an on-campus job
- Undergraduate research project
- UT coordinated community service/philanthropy

After students use check boxes to indicate which of the above apply, then present them with a shortened list of items they checked and ask them to rank each based on a scale of: Not at all important to my success, somewhat important to my success, or very important to my success.

For each statement, indicate whether it led you to consider leaving and/or actually sitting out for one or more regular (fall/spring) semester.
<table>
<thead>
<tr>
<th>Reason</th>
<th>Never made me want to leave</th>
<th>Made me consider leaving, but was resolved</th>
<th>Led me to “sit out” for at least one semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difficulty adjusting to academic demands</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty members did not support me</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Felt like I didn’t fit in</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Had trouble paying bills</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homesick</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lost HOPE Scholarship</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lost other financial aid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wanted a major not at UT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wanted to go to school closer to home</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (describe)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Finally, we’d like you to provide short answers to the following two questions:

1. Why did you decide to attend the University of Tennessee, Knoxville?
2. What have been the most important things that have helped you persist to your senior year?

Please check here if you are interested in participating in a follow-up focus group about students who succeed at UT.
Mandatory Supplemental Instruction in Mathematics: Evaluating the First Five Years of a Program to Promote Student Success in Calculus and Developmental Mathematics

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Abstract: Introductory mathematics courses can pose significant challenges for freshmen and often become barriers to student success and persistence in science and science-related majors. Supplemental Instruction (SI), a model of peer-facilitated, collaborative learning introduced at the University of Missouri-Kansas City, has a well-documented history of improving academic success in courses like these, but it also has an important limitation: participation is voluntary. By leaving the decision to participate to the discretion of students who may not always be the best judges of their own academic needs, SI fails to reach many students who could benefit from it, and as a result, limits its impact on student retention. In an effort to overcome this limitation and promote student success in mathematics, Delaware Valley University initiated a program of Mandatory SI in Calculus in the fall of 2012. Building on the initial success of this program, mandatory SI was expanded in 2013 to include a developmental mathematics course, Fundamentals of Algebra. This paper describes the process of implementing Mandatory SI in Calculus and Developmental Mathematics and evaluates the program's effectiveness in the first five years of its implementation.

Introduction

Very few models of academic support have demonstrated their effectiveness and documented their efficacy as thoroughly as Supplemental Instruction (SI), a model of peer-facilitated collaborative learning first developed at the University of Missouri-Kansas City. For more than forty years, it has shown itself to be a reliably effective means of improving student performance and reducing attrition in challenging courses (Arendale, 1997). It is a model program that has been widely disseminated both nationally and internationally, and has been applied with equal success among college freshmen and medical students. Yet, for all its success, the SI model does have one significant limitation: participation is voluntary. Because SI is voluntary, it self-selects motivated students, reaches only a fraction of the students who could benefit from it, and fails to have the broad institutional impact on retention that it might otherwise have.

Despite this limitation, however, the SI model is well-suited to serving a larger audience. It can be effectively adapted to serve a broad range of students and reach those who might not otherwise take advantage of it. It is a non-remedial program that focuses on challenging courses rather than “at-risk” students, and it has been shown to have a positive impact on student outcomes regardless of academic background (Malm, Bryngfors, & Mörner, 2011). In short, when participation is required SI can benefit all students, and it can provide academic support that is cost effective and proactive.

This is particularly important in freshman-level classes. It is easy to forget the adjustment freshmen are making when they arrive on campus. The freshman year is a period of considerable adjustment in which students are learning to navigate a new environment in which expectations are considerably different from those they may have experienced in high school. Having just arrived on campus, many are as yet unaware of this. Compared to high school students, they will spend less time in class while being expected to do considerably more work outside of class. Their compliance with course requirements will not be monitored as extensively as it was in high school. Required work, for example, may or may not be collected or even checked by the professor. Grading will also be significantly
different. They will be tested much less frequently than in high school, and when they are tested, their tests will cover more material and constitute a larger portion of their final grade for a course. Additionally, the nature of testing may also differ considerably from their experience in high school, placing much more emphasis on critical thinking, synthesis, application, and problem solving. In light of this, it may not be reasonable to expect students at the beginning of their college careers to be well-informed or aware enough to make appropriate decisions regarding their academic needs, yet in most cases, this is the expectation, and the unfortunate result for many students is that awareness comes in the form of low grades at a point in the semester when it may be too late for intervention to have a significant impact. It was this realization that many freshmen simply don’t know what they don’t know, that led Delaware Valley University to initiate a program that mandated participation in SI during the freshman year.

Implementing Mandatory SI

Identifying Courses for Mandatory SI

In the fall semester of 2012, Delaware Valley University initiated a pilot program to see if a mandatory program could extend the impact of SI to a larger group of students. We began by selecting a course for our pilot. After careful consideration, we chose Calculus I (MP 1204). There were several reasons for our decision. First, it was a freshman-level course with which students traditionally struggled. Second, it was consistently among the courses with the highest demand for peer-tutoring each semester. Third, it was a significant barrier course that often determined whether students would persist in science and science-related majors. Fourth, it was a significant foundation course that developed important skills required for success in upper-division courses. And finally, it was a course that focused heavily on problem solving.

The focus on problem solving played an important role in our decision. We felt that such a focus provided the best opportunity for SI leaders to maintain the collaborative emphasis of the SI model. We also felt that courses that focused on problem solving presented the greatest need for SI. SI emphasizes a student-centered, collaborative approach to learning, but it generally does so in an institutional environment in which content is usually delivered through lectures. Large lectures do not generally lend themselves to the development of problem-solving skills. Such skills cannot be developed passively. Skill development requires engagement and practice. While professors generally assign practice problems, for most students practice alone is unlikely to result in optimal skill development. In order to be effective, practice should focus on clearly defined and attainable tasks and take place in an environment that provides informative feedback and opportunities for repetition and correction of errors. (Ericsson, 1996). We believed the interactive and collaborative model of SI presented the best opportunity to clarify and focus student efforts in a way that could optimize their efforts outside of SI. Additionally, SI had recently been shown to have an impact in Calculus (Faowski & MacMillan, 2008). Finally, we hoped that weekly collaborative sessions could serve as a springboard for more informal collaborations outside the structured SI sessions.

After its first year, it was clear that the SI program in Calculus had been effective. Because of this success, we expanded our program in 2013 to include Fundamentals of Algebra (MP 0010), a non-credit, pass/fail, developmental math course. Even though developmental mathematics courses are not the type of courses typically selected for SI, we chose this class for mandatory SI in order to address concerns about retention and to see if the model of mandatory SI could be effective across the full spectrum of mathematics classes. While both Calculus and Fundamentals of Algebra both focused on problem solving, there were many ways in which the two courses couldn’t have been more different. While Calculus was perceived to be challenging by the students who took it, that generally was not the case with Fundamentals of Algebra. While Calculus presented a potential barrier to success and persistence in science and science-related majors, Fundamentals of Algebra presented a potential barrier to college
success more broadly. While Calculus was an important foundation course, Fundamentals of Algebra was an important prerequisite to college-level work. And while Calculus created a high demand for tutoring, Fundamentals of Algebra did not, despite the fact that the success rate in the course was only around 60%. This, of course, had as much to do with the students as the courses. Calculus students were not more likely to need help than their peers in Fundamentals of Algebra; they were just more likely to seek help. These contrasts ultimately led us to recognize that, despite their differences, mandatory SI was needed in both of these classes. If mandatory SI was needed in Calculus because Calculus students needed support, it was needed in Fundamentals of Algebra because developmental mathematics students needed the support to be mandatory.

Developing a Plan

The structure of the SI program for Calculus at Delaware Valley University was defined in the academic year prior to the start of the program. The bulk of the work involved laying the foundation for the program through budgeting, faculty development, recruiting and training prospective SI leaders, and scheduling classroom space at times that fit the schedules of both SI leaders and the students required to attend SI. We developed a plan to serve a projected range of between 100 and 130 students in mandatory SI sessions that would be course and instructor specific and capped at a maximum of 20 students. SI leaders were recruited based on faculty recommendations and trained during the spring semester of 2012, prior to the program’s introduction in the fall of 2012. After many meetings with the cooperating faculty members, we felt prepared to implement the program.

Implementing the Program

The implementation of mandatory SI was a broad initiative involving the cooperation and support of administration, faculty, students, and staff. The administration provided the budget, institutional support, and oversight, and served as a critical liaison with faculty. Faculty support, understanding, and commitment to the SI model was also critical, as was their cooperation in attending regular SI meetings, recommending SI leaders, and developing productive working relationships with those leaders. Student SI leaders formed the backbone of the program. Ultimately, the effectiveness of the program hinged upon their competence and commitment. They were the critical link between students and faculty, and their command of course content combined with effective training in collaborative learning techniques was the core of the program. Finally, the program required the support of staff across campus. The Learning Center played a critical role in training and administration, and the Registrar’s Office was indispensable in addressing the logistical and scheduling problems that were the inevitable consequence of requiring SI on a small campus with limited resources. Building relationships and developing campus-wide support was essential to the effective implementation of the program, and it provided a strong foundation that made it easier to expand the program to include Fundamentals of Algebra in the fall of 2013.

In requiring and later expanding SI, we found there were certain economies of scale. Some aspects of implementing mandatory SI changed very little despite the mandatory nature of the program. Budgeting, meeting with faculty, and recruiting and training SI leaders remained fundamentally the same. The budget numbers were larger, and the meetings and training sessions involved more people, but their essential nature remained largely unchanged. This even held true when we expanded the program in 2013 to include Fundamentals of Algebra, which more than doubled the size of the program. Scheduling, however, was a different matter. It presented the greatest challenge to broadly implementing SI as a mandatory program, and ultimately affected other aspects of the program.

As might be expected, coordinating the schedules of students and SI leaders presented a challenge in implementing mandatory SI. Rather than surveying students about availability and interest as we had done in our traditional SI program, students were scheduled into SI sections just as they would be for classes. These classes were both course and instructor specific and capped at a maximum of 20 students. The Registrar’s Office added SI as a 0-credit course listed with the course number followed by SI, so that students in Calculus I (MP 1204) were also scheduled into a corresponding section of MP 1204-SI. Scheduling in the fall was conducted through the Registrar’s Office for both freshmen and any upper-
class students registered in the targeted course, and SI sessions appeared as classes on students’ schedules at the beginning of the semester. Students were informed of the nature of the SI course that appeared on their schedules, and while a few students were unhappy about their mandatory SI placement, there was surprisingly little student opposition to the placement. Because they did not know what to expect in their first year of college, they were generally very accepting of mandatory SI and in some cases grateful for the support. This is, perhaps, the upside of the original concern with which our project began, that freshmen don’t know what they don’t know. There were some foreseeable complications to scheduling such as students wishing to switch SI sections, but generally, scheduling went smoothly in the fall.

One important aspect of scheduling that soon became apparent was the need for an effective system of following-up and monitoring student registration. In the fall, it generally involved students who added or changed lecture sections during the first week of class, but the spring semester presented a bigger challenge. It required considerably more monitoring and schedule adjustment. Unlike the fall, students in the spring were required to register themselves into mandatory SI sessions. Not surprisingly, not all students did this. Some simply did not register for SI and others registered for sections that fit their schedules but were listed for a different instructor. As a result, the first week of the spring semester required numerous schedule adjustments, after which all students who had not appropriately registered for SI were placed in appropriate sections that fit their schedules. Also, an additional SI section was added to accommodate the schedules of students who had conflicts with all of the available SI sessions.

Finally, in the third year of the program, we reached a solution that resolved many of our scheduling problems by making SI part of the Calculus and Fundamentals of Algebra classes, so that students were automatically registered for SI when they registered for class. Instead of scheduling SI as a separate class, lecture sections were divided so that they included SI. For example, a section capped at 40 students that met on Monday, Wednesday and Friday was divided into two sections capped at 20 students each, one that met on Monday, Tuesday, Wednesday and Friday, and another that met on Monday, Wednesday, Thursday, and Friday. The common times on Monday, Wednesday and Friday were the course lecture where all 40 students met, and the uncommon times on Tuesday or Thursday were the SI sessions where only half the students met. By doing this, students were automatically placed in the correct SI section, and that section was always linked to the appropriate lecture so that if students changed sections, their SI sections automatically changed too. This solution significantly reduced the need to manually adjust students’ schedules and was an essential improvement, particularly if we plan to expand the program further in the future.

Despite this solution, scheduling conflicts still placed constraints on some aspects of the program. For example, though recruiting and training SI leaders remained largely unchanged, it became important to have a deep pool of potential SI leaders since scheduling issues would inevitably preclude some willing and capable SI leaders from participating in the program during any given semester. In fact, all the students involved in the training during the spring did not end up working as SI leaders in the fall. This too was improved over time, but assigning leaders to SI sections remained a challenge, since it was often hard to fit SI into their already busy schedules. We found that the best way to minimize this potential complication was to recruit more SI leaders than we needed. Many students who had been trained were unable to work as SI leaders, but whenever possible, we recruited these students as peer tutors, a solution that offered them employment that fit their schedules and enabled them to develop their skills while allowing us to maintain contact with them in the event that they were needed for SI in the future.

Additionally, the constraints of scheduling required us to alter the SI model. In the end, we made two significant changes to the traditional SI model. First, as was our initial intent, our program was mandatory rather than voluntary. Second, due to constraints imposed by scheduling, our SI leaders were not required to attend lectures as is traditionally the case in SI. Instead, they were required to meet weekly with the course instructor to go over lecture content and material and also to meet weekly with the Learning Center Coordinator to focus on session planning and class management. Since these meetings were required regardless of the number of SI sessions a leader ran, we were able to work into the budget a
graduated pay scale so that SI leaders were paid slightly less for additional sections beyond their first. (They were paid $40 per week for one session, $65 per week for two sessions, and $80 per week for three sessions, which was the maximum number of sessions we allowed.)

Evaluating Mandatory SI

Method of Evaluation

SI is usually evaluated by comparing the grades of students who participated in SI with a control group of non-participants from the same class. In evaluating mandatory SI, however, this was not an option since all students were required to participate. Instead, this evaluation compares student grades under mandatory SI with the average grades of students in the same course during the same time period prior to the implementation of mandatory SI. Since SI in Calculus began in the fall of 2012 and ran for five years, grades under mandatory SI in Calculus are compared to the five years preceding the implementation of SI. Likewise, since mandatory SI in Fundamentals of Algebra was introduced in the second year of the program, the fall of 2013, and ran for four years, its grades are compared to the four years prior to the implementation of SI. Also, since Fundamentals of Algebra is a developmental math class that is graded on a pass/fail basis, the evaluation will differ slightly from Calculus, which uses a traditional letter grading system. Finally, to assess whether outcomes were affected by differences in the academic abilities and preparedness of students in the non-SI and SI cohorts, this evaluation compares the SAT math scores of the respective groups, using these scores as a common measure that is then used to gauge the impact of SI on the least prepared students in both Calculus and Fundamentals of Algebra.

Overview

Mandatory SI shows a considerable impact in both Calculus I and Fundamentals of Algebra. In both classes, it shows a substantial increase in the percentage of students who successfully complete the course, and in the case of Calculus, the data show a pronounced shift in the grade distribution, characterized by an increase in grades of A and B, and a corresponding decrease in grades of C and D. These data suggest that mandatory SI increases higher level performance while reducing average and below average performance. Further, the data suggest that mandatory SI can be an effective intervention in both higher level and developmental mathematics courses.

Calculus I

The grades in Calculus illustrate the trends we were hoping to see when we initially implemented mandatory SI. There was a significant improvement in grades across the board, and the distribution clearly shifted so that A and B grades increased, while C and D grades declined. The mean grade over five years increased by .44 points or nearly half a letter grade from 2.34 to 2.78, and the percentage of students passing the course rose 11.93% from a five-year average of 71.99% without mandatory SI to 83.92% under the new program. Also, the grade distribution shifted clearly in the direction of higher grades, and the variation in that distribution was reduced. The standard deviation (σ) decreased, showing grades more tightly clustered in the higher-grade range. Grades in the A range increased by more than 13%, over the average of the preceding five years. In fact, under mandatory SI, over 30% of students scored in the A range in Calculus I and over 60% received grades of B or better. Additionally, the percentage of students who passed with grades in the D range decreased by 4.72% to fewer than 8% of students. This is particularly encouraging since a grade of D is problematic, allowing students to proceed to subsequent courses for which they are not adequately prepared. Table 1 compares the grade distribution in Calculus during the first five years of mandatory SI with the grade distribution during the five years preceding the implementation of the program.
Table 1: *Calculus grades with and without mandatory SI*

<table>
<thead>
<tr>
<th>Grades in Calculus</th>
<th>2007-12 (No SI) n=564</th>
<th>2012-17 (SI) n=429</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>17.20%</td>
<td>30.77%</td>
<td>13.57%</td>
</tr>
<tr>
<td>B</td>
<td>24.11%</td>
<td>29.84%</td>
<td>5.72%</td>
</tr>
<tr>
<td>C</td>
<td>18.26%</td>
<td>15.62%</td>
<td>-2.64%</td>
</tr>
<tr>
<td>D</td>
<td>12.41%</td>
<td>7.69%</td>
<td>-4.72%</td>
</tr>
<tr>
<td>F</td>
<td>8.16%</td>
<td>5.59%</td>
<td>-2.56%</td>
</tr>
<tr>
<td>W</td>
<td>19.86%</td>
<td>10.49%</td>
<td>-9.37%</td>
</tr>
<tr>
<td>%AB</td>
<td>41.31%</td>
<td>60.61%</td>
<td>19.29%</td>
</tr>
<tr>
<td>%ABC</td>
<td>59.57%</td>
<td>76.22%</td>
<td>16.65%</td>
</tr>
<tr>
<td>Mean Grade</td>
<td>2.34</td>
<td>2.78</td>
<td>0.44</td>
</tr>
<tr>
<td>σ</td>
<td>1.24%</td>
<td>1.15%</td>
<td></td>
</tr>
</tbody>
</table>

Figure 1 illustrates the grade distribution in Calculus I before and after the implementation of mandatory SI.

Figure 1: Grade distribution in Calculus with and without mandatory SI

**Fundamentals of Algebra**

Mandatory SI in Fundamentals of Algebra (MP 0010) was begun in the fall of 2013 following the initial success of mandatory SI in Calculus. We had hoped to duplicate the success of SI in Calculus in a developmental math course, and over the past four years, the program in Fundamentals of Algebra seems to have been successful. Fundamentals of Algebra is a non-credit, pass/fail class which was targeted because of its low pass rate. Students are required to get a grade of 75% or better in order to pass the course. Prior to implementing mandatory SI, only 61.27% of students enrolled in MP 0010 successfully completed the course. In the four years since SI was mandated, that number has increased by nearly 12% to over 73% of students. Though the grade outcomes in pass/fail courses are less precise than in courses with letter grades, these data suggest that mandatory SI can be a successful intervention in all levels of
mathematics. Table 2 compares the grades of students in Fundamentals of Algebra in the four academic years before and after the implementation of mandatory SI.

<table>
<thead>
<tr>
<th>Fundamentals of Algebra</th>
<th>SI 2009-13 (No SI) n=630</th>
<th>SI 2013-17 (SI) n=520</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pass</td>
<td>61.27%</td>
<td>73.08%</td>
<td>11.81%</td>
</tr>
<tr>
<td>Fail</td>
<td>30.00%</td>
<td>21.35%</td>
<td>-8.65%</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>8.73%</td>
<td>5.58%</td>
<td>-3.15%</td>
</tr>
</tbody>
</table>

Figure 2 illustrates the impact of mandatory SI on student outcomes in Fundamentals of Algebra:

![Fundamentals of Algebra SI](image)

**Figure 2:** Successful completion of Fundamentals of Algebra with and without mandatory SI

**Comparing Non-SI and SI Students**

The outcomes in both Calculus and Fundamentals of Algebra show that mandatory SI can be an effective means of improving students’ performance in mathematics. Before asserting this with confidence, however, we must rule out the possibility that our outcomes resulted from differences in the academic abilities of math students in the years before and after the introduction of mandatory SI. If recently admitted students who participated in SI were more prepared or more skilled than their non-SI counterparts, the improved outcomes we observed could have resulted from this discrepancy rather than the presumed effect of mandatory SI. To gauge the relative academic abilities of the non-SI and SI groups, we compared the SAT math scores of students in SI with those of their non-SI peers. As it turned out, in Calculus the students in SI had an average math SAT score that was about 12.5 points higher than their non-SI counterparts. In Fundamentals of Algebra, the opposite was true. The SI students had an average math SAT score that was about 12.5 points lower than their non-SI peers. Table 3 shows the average SAT-M scores of students in Calculus and Fundamentals of Algebra with and without SI.
Table 3: Mean math SAT-M scores of students in Calculus and Fundamentals of Algebra with and without SI

<table>
<thead>
<tr>
<th></th>
<th>Mean SAT-M</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2009-13 (No SI)</td>
<td>2013-17 (SI)</td>
</tr>
<tr>
<td>Calculus</td>
<td>544.78</td>
<td>557.45</td>
</tr>
<tr>
<td>Fundamentals</td>
<td>431.14</td>
<td>418.55</td>
</tr>
</tbody>
</table>

This difference in test scores shows a slight discrepancy in the math abilities of Calculus students that could have influenced our outcomes, but it is a small difference, and one that seems unlikely to account for the dramatic change in outcomes we observed with mandatory SI. Further, if a discrepancy of this magnitude had significantly influenced outcomes in Calculus, a comparable difference could be reasonably expected to have a similar influence in Fundamentals of Algebra, producing improved outcomes for students with higher test scores and no SI. This, however, was not the case. The success rate of students in Fundamentals of Algebra with SI increased by nearly 12% compared to those without SI, despite the higher test scores of the non-SI group. This suggests that, though not identical, these two groups are quite similar, and certainly not dissimilar enough to account for the outcomes we saw after the implementation of mandatory SI, particularly since the disparities in the two classes run counter to one another, so that any exaggeration of the impact of SI in Calculus, would likewise understate the impact of SI in Fundamentals of Algebra.

The Impact of SI on Less-Prepared Students

After using SAT scores as a common indicator of the relative ability or preparedness of students to succeed in math courses in our comparison of non-SI and SI students, we soon realized that these data could help us assess the impact SI had on students who, based on SAT scores, came into math classes less prepared than their peers. After all, if mandatory SI was to be considered a success, we needed to show that it could help those students who needed it the most. To this end, we compared the outcomes of students whose math SAT scores were at or below the median for each class. In Calculus, we looked at the grades of students with scores at or below 550, and in Fundamentals of Algebra, we looked at the grades of those with scores at or below 430. (In Fundamentals of Algebra the median SAT-M score was 430 for both the SI and non-SI cohorts. In Calculus, the median SAT-M score was 550 for the non-SI group and 560 for the SI group, so we used 550 as the common cut-off for both groups of Calculus students.) This, we hoped, would indicate the extent to which SI could help those students who were less prepared than their peers for the rigors of their respective courses.

In Calculus, the grade distribution among these less-prepared students shows more modest gains than it had for all students, but the general trends remain the same. The average grade increased by .37, from 1.95 in the non-SI group to 2.32 for students in SI, an average nearly as high as that of all Calculus students prior to the start of mandatory SI when the mean grade for the course was 2.34. Grades of A and B increased, while D, F and W grades declined. The one noticeable difference in the grades of the less-prepared students is that grades of C, which had decreased among SI students in general, increased in this group. It is not surprising that less prepared students would receive proportionally more grades in this range, but when viewed in conjunction with the drop in D, F and W grades, the overall picture is still encouraging. In fact, the percentage of less-prepared students who passed Calculus with a grade of C or better while participating in SI was 63.31%, an increase of 17.90% over comparable students before SI began, and more strikingly, a higher percentage than that of all Calculus students in the five years prior to the implementation of SI, when fewer than 60% of students passed Calculus with a grade of C or better. Table 4 shows the grade distribution in Calculus among students with math SAT scores of 550 or lower before and after the implementation of mandatory SI.
Table 4: Calculus grades of students below the median SAT-M with and without SI

<table>
<thead>
<tr>
<th>Grades in Calculus 1</th>
<th>SAT-M &lt;=550</th>
<th>2007-12 (No SI) n=218</th>
<th>2012-17 (SI) n=169</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>11.93%</td>
<td>15.98%</td>
<td>4.05%</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>16.51%</td>
<td>24.85%</td>
<td>8.34%</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>16.97%</td>
<td>22.49%</td>
<td>5.51%</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>15.14%</td>
<td>12.43%</td>
<td>-2.71%</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>12.84%</td>
<td>7.69%</td>
<td>-5.15%</td>
<td></td>
</tr>
<tr>
<td>W</td>
<td>26.61%</td>
<td>16.57%</td>
<td>-10.04%</td>
<td></td>
</tr>
<tr>
<td>%AB</td>
<td>28.44%</td>
<td>40.83%</td>
<td>12.39%</td>
<td></td>
</tr>
<tr>
<td>%ABC</td>
<td>45.41%</td>
<td>63.31%</td>
<td>17.90%</td>
<td></td>
</tr>
<tr>
<td>Mean Grade</td>
<td>1.95</td>
<td>2.32</td>
<td>0.37</td>
<td></td>
</tr>
</tbody>
</table>

Figure 3 illustrates the grade distribution in Calculus with and without mandatory SI for students with SAT-M scores below the median for the class.

![Figure 3: Grade distribution in Calculus for students below the median SAT-M](image_url)

The outcomes in Fundamentals of Algebra were comparable to those in Calculus. Among students with test scores at or below the mean, those who participated in SI had a pass rate that was 15.42% higher than a comparable group of students without SI, and the overall pass rate was 66.30%, a pass rate that was, as it had been in Calculus, higher than the 61.27% pass rate among all Fundamentals of Algebra students prior to the implementation of mandatory SI. Table 5 shows the pass rates of students in Fundamentals of Algebra with test scores at or below the mean with and without SI.
Table 5: Successful completion of Fundamentals of Algebra below the median SAT with and without SI

<table>
<thead>
<tr>
<th>Fundamentals of Algebra SI</th>
<th>SAT-M &lt;=430</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2009-13</td>
</tr>
<tr>
<td>SAT-M &lt;=430</td>
<td>2009-13</td>
</tr>
<tr>
<td></td>
<td>(No SI) n=283</td>
</tr>
<tr>
<td>Pass</td>
<td>50.88%</td>
</tr>
<tr>
<td>Fail</td>
<td>37.10%</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>12.01%</td>
</tr>
</tbody>
</table>

In both Calculus and Fundamentals of Algebra, there is a strong correlation between participation in mandatory SI and improved academic performance as measured by students’ grades. These data also suggest that the impact of SI is not limited to students with any particular academic background. All students in SI, including those whose SAT scores suggested they were less prepared than their peers, showed significant improvement over comparable students who did not have SI. In fact, in both Calculus and Fundamentals of Algebra the success rate of less-prepared students who had SI exceeded that of all students without SI. These outcomes in the first five years of mandatory SI suggest that required SI is an effective intervention that can improve the performance of students of all academic abilities in both higher-level and developmental mathematics courses.

Summary of Data

The data show that mandatory SI has had a positive impact on student outcomes in both Calculus and Fundamentals of Algebra when compared to outcomes over a comparable period of time prior to the implementation of mandatory SI. The data from five years of mandatory SI in Calculus clearly show that mandatory SI contributes to increases in the mean grade of students and does so in a manner that dramatically increases the percentage of students performing at the highest level while reducing those passing in the problematic D range. Its effect on the overall pass rate is also encouraging. The percentage of students who passed Calculus increased by nearly 12%, and the percentage of students who passed with a grade of C or better increased by over 16%, while the percentage completing with a B or better increased by more than 19%. Further, the results from four years of mandatory SI in Fundamentals of Algebra show an increase in the pass rate of nearly 12%. The results in both cases are encouraging, particularly since they appear to affect the outcomes of students at all levels within these courses. We believe that mandatory SI has demonstrated its effectiveness in both higher-level and developmental mathematics and that mandatory SI can be an effective intervention in all levels of mathematics.

Conclusion

The success of mandatory SI in mathematics at Delaware Valley University over the past five years shows considerable promise in meeting our initial objectives of improving student outcomes in foundation courses, developing skills that will contribute to success in upper-level classes, and improving student retention in barrier courses in mathematics. We further believe that this program can be expanded to serve as a critical tool in significantly improving student outcomes and developing quantitative reasoning skills that, for many students, pose the greatest barrier to success in all levels of mathematics and in majors that demand high levels of quantitative reasoning and problem solving. Finally, our mandatory SI program indicates that the outcomes produced for a self-selected group of students under the traditional SI model can have a comparable impact on a much broader range of students if the program is mandated in the freshman year. With the promising results of our first five years of mandatory SI, we plan to make adjustments, improve the program, build on our successes, and broaden the impact of mandatory SI by expanding it to include additional classes.
References


Mentoring Through Texting at Oregon Tech: Facilitating Student Connections Through a Convenient and Engaging Platform

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Abstract: The Owl2Owl Mentoring through Texting initiative was designed to provide personalized support to first-time students by fostering student-to-student connections while increasing persistence, retention, and ultimately graduations rates. Owl2Owl utilizes experienced students as mentors for incoming new students (participants) to increase campus resource awareness, facilitate interpersonal connections, and promote student investment in the university. Registration records of students invited to join Owl2Owl indicate that 75% of participants continue to the following fall term, compared to 66% of our non-participant control group. Retention rates rise the longer participants persist in Owl2Owl; for three terms 90% of participants retain from one academic year to the next. Throughout the evolution of the Owl2Owl program, improvements were necessary and included, but were not limited to, imposing student-to-peer ratio limits, modifying technology used for texting, removing single-term opt-out options, and increasing marketing strategies. After the first year and half, Owl2Owl partnered with the Oregon Tech Psychology Department creating a peer mentorship class to teach mentor success strategies; this improved the quality of mentor-to-participant interactions and reduced operational costs. Since its inception, Owl2Owl has increased participant persistence and retention as well as yielded a positive return on investment. The success of Owl2Owl indicates that technology based mentorship programs are a low cost, scalable, and effective solution to low persistence and retention rates.

Introduction

Owl2Owl is a Mentoring through Texting initiative that provides personalized support for newly admitted students by fostering student-to-student connections via texting. It is designed to increase retention rates in efforts to target Oregon Tech’s low graduation rate. Owl2Owl utilizes experienced students as mentors for incoming new students (participants) to increase campus resource awareness, facilitate interpersonal connections, and promote student investment in the university; thereby increasing persistence and retention. More specifically, peer mentors give participants a human connection resulting in more students feeling a part of Oregon Tech. Owl2Owl helps students realize that there is someone (and by extension, Oregon Tech) who is rooting for them to do well. We have already seen immediate success with this program, due largely to the invaluable knowledge of Oregon Tech that Peer Mentors have and their connection with their mentees.

Background

In the 2014-15 academic year, Oregon Tech consisted of 3,744 students spread over 5 locations; 56% were located on Klamath Falls campus with 11% Online; 22% were in Wilsonville (Portland Oregon Metro area), and the rest spread out over the Seattle, Chemeketa, and LaGrande locations. Forty-eight percent of all students were transfer students and sixty-two percent were full-time (most attend the Klamath Falls campus). Fifty-six percent were male, and 44% female. Oregon Tech was dominated ethnically by 73% of students identifying as white, followed by 8% Hispanic and 6% Asian. Ninety-six percent were Oregon residents. Tech students’ ages varied mostly by campus but overall, 55% were
between the ages of 17 and 24, 34% were between the ages of 25 and 40, and 11% were over the age of 40.

In early January of 2014 universities attending the College Opportunity Summit in Washington, D.C. were asked to provide their concepts of new and innovative ideas on how best to support students who may struggle in a college setting. January 16th of that same year, at the College Opportunity Summit, Oregon Tech was one of three universities mentioned by First Lady of the United States, Michelle Obama, in her address to attendees. She mentioned Oregon Tech’s plans for an innovative texting initiative to “connect more easily with students who need some extra encouragement or academic support” (The White House Office of the Press Secretary, 2014). It was at that time, our then university President handed the project off to our Student Affairs division and by the fall of 2015 it was handed down to the Office of Retention. As the university did not utilize texting for any official communication, the retention office quickly set up a program to begin texting. Instead of working with just underrepresented students, the program was designed to text with all students because at some point in a student’s academic career they are “at risk” for not graduating. In the winter term of the 2014-2015 academic year, Owl2Owl was launched.

Personalized support “refers to a diverse variety of education programs, learning experiences, instructional approaches, and academic-support strategies that are intended to address the distinct learning needs, interests, aspirations, or cultural backgrounds of individual students” (Great Schools Partnership, 2015). Owl2Owl does not address educational programs or instructional approaches, but rather it addresses the learning experiences and academic-support strategies in our conversations. In order for Owl2Owl to be effective, it needed to communicate in a way that not only addressed all of the needs identified with providing personalized support, but it needed to do so by a receptive method. Owl2Owl’s target audience is primarily generation X and Millennials, with the exception of a smaller nontraditional pool of participants, who prefer both convenient and less direct forms of communication (Smith, 2011). According to Gene Sigalov, a Co-Founder of Simple Texting, 97% of all text messages are opened and read, 90% of which are within the first three minutes of being sent, a staggering comparison to a 10% rate for emails (Sigalov, 2012). This information helped to drive the implementation of texting as the platform of choice (it is also more convenient than email, in person communication, etc.).

A student worker within the office of retention thought it best if she began the program as a mentor so the conversations would be between peers. Student mentors more easily relate to fellow students (Dennis, 1993), allowing for the program to efficiently increase campus resource awareness, facilitate interpersonal connections, and promote student investment in the university. Owl2Owl is an innovative and progressive program with lofty goals of improving student performance, satisfaction, and well-being.

**Methodology**

To begin, the student population Owl2Owl would initially target had to be defined; along with the identification of the source of the student participant information. There was a debate on whether it would be best to work with current students or with new students, or both. After several discussions, the sample population was defined as all newly admitted students for the winter of 2015 and the data were obtained from Millennium FAST reporting tool, which pulls all its data directly from the Banner system.

Once the student population and data source were identified, the next step was to determine which of those students, based on campus location, would be selected. Oregon Tech has one residential and five non-residential campuses:

- **Klamath Falls**, Oregon – the only residential campus for Oregon Tech; geographically located in south central Oregon; offering undergraduate and graduate level courses focused on STEM majors as well as communication, business, information technology, and management degrees.
- Salem, Oregon - on the campus of Chemeketa Community College; one of several locations for the university’s dental hygiene programs.
- Wilsonville, Oregon – geographically located in the southernmost part of the greater Portland area; offering graduate and undergraduate programs in the fields of health, science, and engineering.
- Seattle, Washington – on The Boeing Company’s central manufacturing campus; offering undergraduate and graduate degree courses in engineering.
- LaGrande, Oregon – on the campus of Eastern Oregon University; one of several locations for the university’s dental hygiene programs. This site stopped admitting new students in 2016 as the location’s program was slated to be closed.

The experimental groups were defined as the participants who self-selected into the program. The control groups were identified as those invited to participate but opted not to participate. Due to a data oversight, those self-selected into the program, but who ultimately did not participate, were initially included in the non-participant list with all identifying indicators deleted. For this reason, all subsequent terms treated this population the same. Owl2Owl also recognizes the self-selection bias and that the process of such consists of inherent issues and appreciates that it will adversely affect data as “respondents who choose to participate will not well represent the entire target population” (Lavrakas, 2008, p. 1). This bias is addressed in the interpretation of the results.

The original target audience for Owl2Owl was identified as all newly admitted students to include: direct from high school, transfer, readmits, master’s level, and non-degree seeking students. This was altered (as indicated in Table 1) based on different trains of thought at the beginning of each term. For example, the first category to be eliminated was the master’s degree students, as mentors were not trained to facilitate conversations with that demographic. However, at a later date when there were mentors available to communicate effectively with these students, master’s level students were added back to help with their lower persistence rates. Another example involved non-degree-seeking students who at first were removed from the list of invitees as it was comprised primarily of students currently in high school. After a few terms it was decided to restart communications with this population for two reasons: to support them through their high school graduation and to hopefully convert them into Oregon Tech students at a higher rate.

At the launch of Owl2Owl in winter 2015, students in the identified group were invited to participate in the program via a letter and an email. The letter was mailed one week prior to the email. Responses were very low. Owl2Owl decided to replace mailing the invitation with a text invitation in hopes of increasing the number of responses. Data showed an increase in the participation rate from 13% participation for winter 2015 to the 27% participation for spring 2015; a 107% increase (see Figure 1). The only change made during this time was changing from mailing the invitation (winter 2015) to texting the invitation (spring 2015). The data strongly supports the idea that texting is a more efficient method of invitation and became the driving force behind the decision to implement texting as the preferred method of communication.

As a student does not physically need to meet with a mentor in Owl2Owl, this enabled the program to be inclusive to students of the campus they are attending. During Spring 2015, a student from The Boeing Company campus, located in Seattle, did not enjoy working with the mentor as the mentor’s conversations were geared toward an incoming freshman, not a full-time working adult in industry. Until such time that additional training could be secured, the Seattle students were removed from Owl2Owl’s list of target audiences. The Wilsonville campus proved similarly challenging because it also serves a student base of predominantly non-traditional full-time working adults. However, it remained a targeted campus as Owl2Owl was able to secure two peer mentors from the Wilsonville campus who were also working non-traditional students. As message content was analyzed, it showed that mentors were able to better relate if they were from the same campus. As such, the program began to segregate its participants from the Wilsonville campus so that participants there would receive texts primarily from Wilsonville mentors.
The number of Owl2Owl invitees available from term to term are consistent with Oregon Tech’s admission data showing that fall term is the largest draw of possible participants (over 600% increase from spring 2015 to fall 2015). To meet the expected demand for the first fall cohort, the university provided funds so that Owl2Owl could hire a Retention Advisor who would oversee and implement the program, as well as funds to secure many more mentors.

Several significant modifications were made before the start of the 2015-2016 academic year. As the first term (winter 2015) had so few students participating, one mentor for 17 students was ideal. However, the next term proved to be challenging with one mentor texting 53 participants. This high ratio of participant-to-mentor created problems which resulted in a drastic drop in the number of students who returned the following term. When talking to the mentor, it was evident there were difficulties with trying to keep track of the multiple conversations and establishing good solid relationships with participants. The heavy texting volume added a considerable amount of time to each week’s texting load as the mentor had to re-read many of the previous conversations to remind them of where the conversation left off. For these reasons the maximum threshold was set for the number of participants given to any one mentor; one mentor would work with 20 students to replicate the success and efficiency that winter 2015 displayed. With this limit on the number of participants assigned to each mentor, combined with a much larger list of invitees, a significant hiring push for mentors was required. The process to hire these mentors involved word-of-mouth, career fairs, and posting on Oregon Tech’s student job site to net as many applicants as possible.

Throughout the 2015-2016 academic year the data began to indicate that the longer a student participated in the program (even if just for one additional term) the longer they persisted at Oregon Tech. This will be discussed further in the Results section. Beginning with fall of 2016 it was determined that students would not be invited to join Owl2Owl for just one term with the option to remain subsequent terms. The wording was simply removed for all correspondence on the duration students would be participating and the mentors would keep communicating each term with the same individuals. Data collected in the 2017-2018 academic year will help determine if this approach requires any modifications.

Fall of 2016 also saw the introduction of a newly created Oregon Tech initiative that drastically altered the number of students available to invite to Owl2Owl. This program, which provides professional support to students who are identified as direct-from-high-school, took 325 possible participants away from the program. The result was a sharp decline in the amount of students Owl2Owl was able to serve, as shown in Table 1. After the first year of this new program, all the direct-from-high-school students will be automatically shifted into the Owl2Owl program as part of this initiative.

In the fall of 2017, all incoming new students will be automatically enlisted in either Owl2Owl or the aforementioned retention initiative for direct-from-high-school-students. In addition, the previous year direct-from-high-school-students will also be shifted into Owl2Owl. With roughly 300 students per year coming to Owl2Owl from this initiative, plus all not direct-from-high-school newly admitted students, combined with the excess number of continuing participants (due to the success resulting from the mentorship class), it would be safe to predict that Owl2Owl could break 1500 students per term in just over four years.

Owl2Owl has changed the technology used for communication several times in order to meet the growing size of the program and to increase its efficacy while decreasing cost. At first, the program worked with Smartphones for ease of use and to ensure mentors did not text using their personal phone, to protect their privacy for safety reasons. However, this was an inconvenience as mentors had to carry two phones. Starting with one Samsung Smartphone and then transitioning to Apple iPhones proved difficult for data archiving and ultimately data mining. In addition, for every 20 students added to the program, it required both an additional peer mentor and cell phone. With a goal of lowering costs and ensuring scalability, Owl2Owl sought other alternatives.
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Target Audience</td>
<td>All newly admitted students to include: direct from high school, transfer, readmits, master’s, and non-degree seeking students</td>
<td>All newly admitted students to include: direct from high school, transfer, readmits, master’s, and non-degree seeking students</td>
<td>All Newly admitted students to include: direct from high school, transfer, readmits, removed non-degree seeking, removed masters</td>
<td>All Newly admitted students to include: direct from high school, transfer, readmits, non-degree seeking*</td>
<td>All Newly admitted students to include: transfers, readmits removed direct-from-high school</td>
<td>Newly admitted students to include: transfers, readmits</td>
<td>Newly admitted students to include: transfers and readmits</td>
<td>Newly admitted students to include: transfers and readmits</td>
</tr>
<tr>
<td>Invitation Method</td>
<td>Letter sent to student’s current address on record and email sent to Oregon Tech address</td>
<td>Email sent to Oregon Tech address and text sent to current phone number on record</td>
<td>Text sent to current phone number on record</td>
<td>Text sent to current phone number on record</td>
<td>Text sent to current phone number on record</td>
<td>Text sent to current phone number on record</td>
<td>Text sent to current phone number on record</td>
<td>Text sent to current phone number on record</td>
</tr>
<tr>
<td>Number of Invitees</td>
<td>127</td>
<td>163</td>
<td>1075</td>
<td>242</td>
<td>185</td>
<td>822</td>
<td>194</td>
<td>141</td>
</tr>
<tr>
<td>Number of Participants*</td>
<td>17</td>
<td>44</td>
<td>167</td>
<td>58</td>
<td>44</td>
<td>67</td>
<td>29</td>
<td>62</td>
</tr>
<tr>
<td>Number of Mentors</td>
<td>1</td>
<td>1</td>
<td>11</td>
<td>10</td>
<td>8</td>
<td>5</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Communication Method</td>
<td>One Smartphone</td>
<td>One Smartphone</td>
<td>Apple Smartphone</td>
<td>Apple Smartphone</td>
<td>Apple Smartphone</td>
<td>Google Voice</td>
<td>Google Voice</td>
<td>TextMagic</td>
</tr>
</tbody>
</table>
### Mentor Training

No official training for mentor. This person physically texted from a desk next to the Director; all questions and coaching was conducted on an as-needed basis.

### Mentor Meetings

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mentee</td>
<td>No official meetings were held with the one mentor – please refer to Mentor Training above.</td>
<td>No official meetings were held with the one mentor – please refer to Mentor Training above.</td>
<td>Weekly</td>
<td>Individual as needed</td>
<td>Individual as needed</td>
<td>Three times a week based on PSY 385 peer mentoring class</td>
<td>Individual as needed</td>
<td>Individual as needed</td>
</tr>
<tr>
<td>Meetings</td>
<td>Covered by group meetings</td>
<td>Covered by individual meetings</td>
<td>Covered by individual meetings</td>
<td>Covered by individual meetings</td>
<td>Covered by individual meetings</td>
<td>Covered by individual meetings</td>
<td>Covered by individual meetings</td>
<td>Covered by individual meetings</td>
</tr>
</tbody>
</table>

*Does not include those students who returned as a participant from the previous term*
Owl2Owl stopped using cell phones in order to implement Google Voice for texting, which continued to provide our peer mentors a unique phone number for privacy but also improved data collection for the program. However, Google Voice was still not a viable option for long term usage, thus requiring additional research to find a lasting platform which was scalable, affordable, and data mining friendly. TextMagic was chosen and implemented in spring 2017 as the most suitable choice, which allows the immediate storing/tracking of data and prevents tampering/deletion of data resulting in a more efficient and effective communication platform. TextMagic also provides the mentor more options when texting as they can text from either their personal phone or a computer while still maintaining privacy.

During Winter and Spring 2015 no official training was required for the mentor. This person physically texted from a desk adjacent to the Director and so all questions were answered and coaching was conducted on an as-needed basis. As Owl2Owl increased the number of mentors, weekly meetings were necessary to keep continuity with program messaging and training. In winter 2017 and spring 2017, the program instituted individual meetings as needed because some mentors excelled—not needing additional training—where others required more coaching. When attempting to address training, the sheer number of mentors, student scheduling conflicts, and various campus locations created challenges in finding a time everyone could meet. The result was a net loss in conversation quality because mentors lost an important comradery piece amongst themselves and other mentor text examples to glean information for self-improvement.

In fall 2016, Owl2Owl partnered with the Oregon Tech Psychology Department to offer a psychology based peer mentoring course which teaches student workers how to be successful mentors. With the course led by a professor whose specialty is in the study of psychology, along with three class meetings per week, mentors became more accomplished and confident in their craft. Owl2Owl saw a decline in participants after the first fall term, however, the rise in participants of winter 2017 suggests that the peer mentorship class could be a productive way to retain participants, thus growing the program. This program will be replicated in the fall of 2017 attempting to reproduce the positive influence this initial class had on Owl2Owl.

Results

Owl2Owl was never designed to be a strictly monitored program for research purposes. That said, data has been used to influence the operations of the program term to term. Improvements and modifications to the program were data-driven by addressing trends and anomalies.

Figure 1 helps in identifying the most effective way of inviting students to participate—which we determined is texting. There is an increase from participation rate of 13 percent to 27 percent from winter to spring 2015. The only identifiable cause for this jump was changing the invitation process from letter and email to texting. Learning from this information, the program modified this invitation process for all subsequent terms.
Another observable data point is that fall terms tend to produce lower percentages of participants. The assumption is that with a higher number of direct-from-high-school students attending fall terms combined with their perceivable attitude of not needing any support, they are less prone to join. In addition, we speculate that the higher percentages of participants from winter and spring terms is due to the greater number of transfer students admitted in those terms. Transfer students have a tendency to appreciate and accept support when offered. As discussed previously, the low participant rate in Fall 2016 was confounded by the introduction of The ROCK program removing all Klamath Falls direct-from-high-school students from the Owl2Owl pool.

If students stay with the Owl2Owl program for two or more terms, they are more likely to persist to the next academic year. Figure 2 represents students who started texting in the fall of 2015 through the fall of 2016. As can be seen by this data, 67% of students who texted with us at least two terms returned to Oregon Tech the next fall term. Impressively, 89% of students who texted with us for three terms returned the following fall. When the analysis was complete, Owl2Owl modified its process from inviting students to participate for one term to automatically being enrolled for at least one full year.

This data illustrates a significance between the number of terms participated to the number of terms retained. However, with the small sample size, caution must be taken in assuming that this data will have the ability to be replicated when the sample size is large.
Student success can be defined in many ways, but for the purposes of this program, success is defined as being fully enrolled and/or graduated anytime between the time they joined Owl2Owl and the current term (Spring 2017). This detail must be tempered with the understanding that students self-selected into the program. Even when adjusting for the “rising star” effect (those students who would have reached out for help regardless of any intervention) there is still a consistency in the percentages of success being higher for those participating. To complicate matters further, re-admitted students were invited to participate. When compared to other students, readmitted participants typically have fewer terms left to graduation. The short timeframe between re-admission and graduation can skew the data. Further analysis will be required in order to determine if this is the case with the data in Figure 3.

A driving factor when running Owl2Owl has been to ensure this program is affordable and scalable. The data provided in Table 2 highlights a snapshot of one term’s Return on Investment (ROI). This positive ROI has been seen in every term since the program was implemented.
Table 2: Fall 2015 ROI for Owl2Owl

<table>
<thead>
<tr>
<th></th>
<th>Invited 1075 Students</th>
<th>29% Response Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Participants</strong></td>
<td>167</td>
<td></td>
</tr>
<tr>
<td>% Persisted to Fall 2016</td>
<td>75%</td>
<td></td>
</tr>
<tr>
<td>% Graduated in that year</td>
<td></td>
<td>2%</td>
</tr>
<tr>
<td>% Persisted to Fall 2016</td>
<td></td>
<td>64%</td>
</tr>
<tr>
<td>Grad or Persistence Rate</td>
<td></td>
<td>66%</td>
</tr>
<tr>
<td><strong>Non-Participants</strong></td>
<td>908</td>
<td></td>
</tr>
</tbody>
</table>

11% Difference but consider rising star effect - use 6% when calculating ROI

**Cost of the Program**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cost (see box to the right)</td>
<td>$200</td>
</tr>
<tr>
<td>Number of Participants</td>
<td>167</td>
</tr>
<tr>
<td>6% of these participants</td>
<td>10</td>
</tr>
<tr>
<td>Average 12 credits per Student</td>
<td>120</td>
</tr>
<tr>
<td>State Revenue @ $26 per credit</td>
<td>$3,120</td>
</tr>
</tbody>
</table>

**ROI in Dollars**

$2,920

**ROI in %**

1460%

**In Addition - with the new mentoring class:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of students in PSY385 - Mentoring Class</td>
<td>7</td>
</tr>
<tr>
<td>State Revenue (2 Credits @ $26/credit)</td>
<td>$364</td>
</tr>
</tbody>
</table>

**Additional Cost for Program**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>We needed one additional mentor at $10/hr</td>
<td>$10</td>
</tr>
<tr>
<td>Hours per term/mentor (roughly)</td>
<td>20</td>
</tr>
<tr>
<td>Cost for additional mentor</td>
<td>$200</td>
</tr>
</tbody>
</table>

**Total income after paying for additional mentor for Fall 2016**

$164

**Tuition Revenue (does not include fees)**

$2,338

**Conclusion**

After two years of operation, Owl2Owl has helped increase participant retention, persistence, and yielded a positive return on investment. The success of this program indicates that technology-based mentorship programs focused on increasing campus resource awareness, developing interpersonal connections, and promoting student investment can be an effective solution to low retention and ultimately low graduation. This technology-based mentorship program is low cost, scalable, and an effective part of the solution to low persistence and retention rates.

Data is at the forefront of decision-making when it comes to how Owl2Owl operates. Modifications are made in response to feedback from students, mentors, and after analyzing the gathered data. The creation of the new mentorship class aided in bringing funds into the university which helped to cover costs during terms the course was not taught. Owl2Owl gives peer mentors (successful students) the opportunity to share their experiences, developing a lasting and mutually beneficial relationship. Owl2Owl is here to stay as a texting program, and as an innovative initiative it will adjust to fit the unique needs of every incoming class.
References


Minority Male Mentoring:
A Multi-Tiered Model for College Success

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Abstract: Minority male college students continue to face overwhelming obstacles to pursuing their academic aspirations due to a mix of psychosocial, environmental, and systemic factors. In 2016-17, the California State University, Northridge (CSUN) Male Minority Mentoring (M3) program launched a multi-tiered intervention model to address barriers and facilitators to college success. In the first year, we conducted intensive outreach and recruitment activities to involve this hard-to-engage population. Activities included one-on-one peer and faculty mentoring, focus groups, basketball clinics, online PTSD screening, and time-limited weekly resilience and coping groups. Preliminary results and lessons learned will be discussed.

Introduction

Minority male college students continue to face overwhelming obstacles to pursuing academic aspirations. There is a large gap in graduation and retention rates between minority male college students and White college students, as well as minority female college students. Considering the impact of college success on individual quality of life and the collective well-being of our society, the Minority Male Mentoring (M3) program was launched at California State University, Northridge (CSUN) to address barriers and facilitators to college success employing multi-tiered interventions.

The purpose of this study was to examine implementation outcomes of the M3 program. Specifically, this study was designed to examine the feasibility, acceptability, and utility of the various M3 program components from the student participants themselves. Because our primary aim concerns implementation outcomes, we are not focused on evaluating the effects of the intervention. Given the pilot nature of this program with the limited sample size, formal testing of outcomes or estimation of effect size are not justified, as effect sizes would be unreliable (Kraemer, Mintz, Noda, Tinklenberg, Yesavage, 2006). Rather, we are concerned with developing and refining the M3 program, assessing feasibility, acceptability, and utility and developing the measures to evaluate effects in a larger randomized-controlled trial. To assess these implementation outcomes, we will evaluate (a) sample descriptives to demonstrate need for the M3 program, (b) the feasibility of recruiting and retaining student participants in M3, (c) and acceptability and utility of the M3 from the student perspective.

Background of the Problem

The nation is approaching a point in the future—estimated to be 2050—when minorities will constitute a collective majority (Quillen, 2010), yet educational attainment by minority males lags in comparison with minority women and Whites (Roach, 2010; Allen, 2013). Instead of being represented
on college campuses, African-American males make up almost half the inmate population and Latinos constitute 20 percent of that population (Roach, 2010). The six-year graduation rate for first-time, full-time freshmen at a U.S. public institution in fall 2008 was 60 percent (Snyder, de Brey, & Dillow, 2016). Figure 1 shows the six-year graduation rates rankings by gender and race/ethnicity (National Center for Education Statistics [NCES], 2017). Black, American Indian and Latino male college students lag behind White and Asian male and female college students in six-year graduation rates at public institutions (NCES, 2017).

![Figure 1: US public institution freshmen graduating within six years after start (2008 cohort; NCES, 2017)](image)

The California State University system launched a Graduation Initiative 2025 in January 2015. Some of the ambitious objectives include increasing the six-year graduation rate for first-time freshmen to 70 percent and eliminating the equity gap. The California State University, Northridge (CSUN) frames discussions about disparities in retention and graduation rates among sub-populations of students as opportunity gaps vs. achievement gaps. The opportunity gap refers to the disparity in rates of success in higher education between groups of students from different demographic backgrounds that result from the inequitable distribution of opportunities (CSUN Office of Institutional Research, 2017).

At CSUN, a large urban public institution serving 39,916 undergraduate and graduate students, opportunity gaps exist based on gender, race/ethnicity and socioeconomic status.

Among undergraduates, there are more female than male students. Among graduate students, the gender gap widens. CSUN found that 35% of African American and 23% of Latina/o first-time freshman students who began in 2014 did not return in 2015 compared to 15% Asian and 14% White students. Also, of those who began at CSUN in 2009, 49% of Latina/o freshmen and 43.9% of African American freshmen had graduated by 2015 compared to 57.3% of Asian freshmen and 62.6% of White freshman. Finally, the retention rate gap between students with (77%) and without Pell Grant (81%) support is four percentage points (CSUN Office of Institutional Research, 2017).

College education has a significant impact on the quality of life of an individual since most (60%) jobs in the United States require a higher education (Carnevale, Smith, & Strohl, 2010). Additionally, college education is positively related to healthier lifestyles, job satisfaction, and having children who are better prepared for school (Baum, Ma, & Payea, 2010). Given the importance of college, the disparities in graduation rates, especially among Black and Latino males, are a social problem worthy of attention as they are inadequately represented in enrollment, persistence, and graduation in post-secondary education (Villavicencio, Bhattacharya, & Guidry, 2013).
Table 1: CSUN student characteristics and undergraduate graduation rates

<table>
<thead>
<tr>
<th></th>
<th>Undergrad N=35,552</th>
<th>Grad N=4,364</th>
<th>Total N=39,916</th>
<th>Grad Rate-Undergrad 2009 Cohort, 53.1%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>16,384 (46.1)</td>
<td>1,593 (36.5)</td>
<td>17,977 (45)</td>
<td>46.5%</td>
</tr>
<tr>
<td>Female</td>
<td>19,168 (53.9)</td>
<td>2,771 (63.5)</td>
<td>21,939 (55)</td>
<td>58%</td>
</tr>
<tr>
<td><strong>Race/ Ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Latina/o</td>
<td>17,231 (48.5)</td>
<td>1,281 (29.5)</td>
<td>18,512 (46.4)</td>
<td>49%</td>
</tr>
<tr>
<td>White</td>
<td>7,801 (21.9)</td>
<td>1,522 (34.9)</td>
<td>9,323 (23.4)</td>
<td>62.6%</td>
</tr>
<tr>
<td>Asian American</td>
<td>4,049 (11.4)</td>
<td>428 (9.8)</td>
<td>4,477 (11.2)</td>
<td>57.3%</td>
</tr>
<tr>
<td>International</td>
<td>1,932 (5.4)</td>
<td>415 (9.5)</td>
<td>2,347 (5.9)</td>
<td>54.4%</td>
</tr>
<tr>
<td>African American</td>
<td>1,699 (4.8)</td>
<td>155 (3.6)</td>
<td>1,854 (4.6)</td>
<td>43.9%</td>
</tr>
<tr>
<td>Multi- Race/ Other</td>
<td>1,192 (3.4)</td>
<td>148 (3.4)</td>
<td>1,340 (3.4)</td>
<td>42.4%</td>
</tr>
<tr>
<td>American Indian</td>
<td>43 (0.1)</td>
<td>9 (0.2)</td>
<td>52 (0.1)</td>
<td>N/A</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>39 (0.1)</td>
<td>6 (0.1)</td>
<td>45 (0.1)</td>
<td>N/A</td>
</tr>
<tr>
<td>Unknown</td>
<td>1566 (4.4)</td>
<td>400 (9.2)</td>
<td>1966 (4.9)</td>
<td>59.8%</td>
</tr>
</tbody>
</table>

**Literature Review**

Minority male college students experience a mix of individual and environmental factors that serve as barriers and facilitators to college success. Additionally, exposure to traumatic events and post traumatic stress symptoms may interfere with learning and relationships on campus.

**Barriers to College Success**

**Individual**

Common individual-level barriers to college success include a lack of male role models, a search for respect outside of education, the sense of a failing education system, and a loss of cultural memory (Quillen, 2010). Findings in one study suggest that most African American and Latino participants had social networks that were inefficient, disrupted, and fractured resulting in prominent informational gaps about college-related information (Elliott, Brenneman, Carney, & Robbins, 2015).

**Environmental**

In addition to individual-level barriers to college success, minority males face obstacles at the community, institution, and societal levels (environmental barriers), which include poverty, language barriers, and community pressures (Quillen, 2010). Additionally, low-income and minority students, who are often first-generation college students, and their parents have limited accessibility to academic knowledge about college demands, the request process, and financial aid (Knaggs, Sondergeld, & Scahrtdt, 2015). Further, these students are less likely to receive sufficient encouragement from their parents to continue in higher education (Cabrera & LaNasa, 2001).

Financial concerns play a significant role to college success. First, attending college part time or even attending a two-year institution can be a barrier to college completion, mainly when paired with a taxing work schedule or lack of preparation for career path (Knaggs et al., 2015). Second, at-risk college students are often minorities or those whose families drop underneath the poverty line (Allen, 2013). Third, there is a 30 percent gap in college admission between low and high-income students (Perna, 2005). Finally, minority male students who have to pay for their developmental courses often use up their financial aid package (Villavicencio et al., 2013).
Facilitators to College Success

Individual

It has been suggested that “cool pose” (behaviors that prevent youth from expressing their true feelings in order to protect the self-esteem of the individual from negative perceptions) or posturing can be integrated with athletics as an outlet for Black youth to manage aggressions. Successfully managing frustrations through athletic participation (i.e. basketball) can prevent long-term aggression as well as develop prosocial relationships (Stevenson, 2002).

Environmental factors

In one study, minority male students (N = 51) engaged in mentoring, academic support, and service-learning activities achieved 100% retention and graduation rates (Cowan, Weeks, & Wicks, 2015). A Men of Color Initiative (serving more than 200) showed students who persist to graduation earn at least a 2.5 GPA and at least 48 credit hours by the end of their freshman year (Mata, 2011). A student's academic development and accessibility to financial aid have been established as predictors of college student persistence (Abu-Ghazaleh, 2014).

Trauma

The prevalence of trauma exposure is high in urban communities (Breslau, Wilcox, Storr, Lucia, & Anthony, 2004; Gudino, Nadeem, Kataoka, & Lau, 2011) and young people report high rates of post-traumatic stress disorder (PTSD) symptoms (Jaycox et al., 2002). Trauma exposure and stress symptoms are likely to interfere with the cognitive, emotional and social development of students and reduce their chances for academic success (Vander Stoep et al., 2005; SAMHSA, 2014). With appropriate supports and intervention, people can overcome traumatic experiences (SAMHSA, 2014); unfortunately, male students are less likely to use counseling services than female students (Elliott, 2015). Indeed, exposure to trauma events and post-traumatic stress symptoms may affect a student’s decision in continuing and finishing their college education (Boyraz, Horne, Owens, & Armstrong, 2013).

Methods

Intervention Model

In 2016-17, the CSUN Male Minority Mentoring (M3) program launched a multi-tiered intervention model to address the psychosocial needs of male minority students, begin to close the opportunity gap, and increase graduation rates. In the first year, we conducted outreach and recruitment, one-on-one peer and faculty mentoring, focus groups, a basketball clinic, PTSD screening, and coping and resilience groups.

M3 program components include: (1) Build strong bonds through activities such as: ropes course, basketball clinics, dinner events with mentors/leaders, and opportunities for cultural pride. (2) Promote holistic wellness activities including: goal setting, weekly coaching, linkages to the right resources on/off-campus, developing resilience and coping skills, and rites of passage group curriculum. (3) Implementing social marketing campaign focused on changing specific behaviors and designing specific strategies to ensure that behavior change can occur with attention paid towards making sure that any barriers to behavior change are reduced. See Figure 2 for M3 multi-tiered intervention model.
Focus Group Participants

A total of N=12 participants attended two focus groups: one comprised of n=7 participants and the other comprised of n=5 participants. Although we anticipated conducting more focus groups, the low participation rate is indicative of the challenges in engaging this student sub-population. Recruitment was conducted by the lead PI (first author). A list of all minority males in the College of Social and Behavioral Sciences (N=1,689) was requested from the CSUN Office of Institutional Research. A recruitment email was sent to students on this list identified as being on academic probation (n=94). Due to low response, a follow up email was sent to students with a grade point average (gpa) of 2.49 or below (n=378) because their risk for academic probation. Students who expressed interest (N=12) were contacted by the research team to assess eligibility. Eligibility for study participation included the following: 1) student enrolled at CSUN, 2) student identified as a Latino/Hispanic, African American, American Indian, or South East Asian male (underrepresented minority male). Although Asian-Americans are not typically listed as underrepresented minorities, among this group, the most vulnerable population are males of Southeast Asian and Pacific Islander descent in comparison to those of Northeast Asian descent (Roach, 2010). All participants were male, junior- or senior-level with the exception of one graduate student, and self-identified as Latino/Hispanic (n=9) or African American (n=3).

Focus Group Procedure and Data Collection

Focus groups were conducted to obtain an unbiased, comprehensive understanding of student success in underrepresent minority males. The focus groups were co-facilitated by two co-PIs (co-authors). After the focus group objectives and procedures had been fully explained, participants signed an informed consent form approved by the CSUN Institutional Review Board prior to any data collection procedures being conducted.

The focus groups lasted approximately 90 minutes, and were conducted at CSUN. A focus group facilitation guide was developed that included a series of open- and close-ended questions, with several follow up questions contingent upon participant responses. These questions probed for the following major domains: (a) barriers to student success, (b) strengths that contribute to student success, (c) motivation to graduate, (d) knowledge of institutional resources, and (e) recruitment strategies of minority males (see Table 2 for major focus groups topics probed and sample questions).

In line with focus group methodology (Morgan & Krueger, 1997), the focus group began with introductions of people in the room, details on the purpose of the focus group, ground rules for discussion that participants could add to, and limits of confidentiality. The discussion then proceeded to sharing of
personal experiences by co-facilitators and social work interns, then to basic open-ended questions, and then moved toward more questions deemed sensitive in nature. Focus group questions consisted of “round robin” questions (i.e., opening questions where all participants are expected to answer), open-ended questions with follow-up close-ended questions, “all things considered” questions (i.e., questions to narrow down responses from discussion), and summary questions (i.e., questions to ensure summary was accurately captured), which is all consistent with focus group methodology (Morgan & Krueger, 1997). Focus groups were video-recorded and transcribed by two undergraduate research assistants.

Table 2: Focus group domains and sample questions

<table>
<thead>
<tr>
<th>Domain</th>
<th>Sample Focus Group Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barriers to student success</td>
<td>If you could get rid of only 3 things that make it difficult to either come or concentrate in school, what would they be?</td>
</tr>
<tr>
<td>Strengths that contribute to student success</td>
<td>What are strengths that you, your family, or you cultural group possess that make you a successful student at CSUN?</td>
</tr>
<tr>
<td>Motivation to graduate</td>
<td>Despite everything that you have been through or that is happening to you, what gets you up in the morning to come to school?</td>
</tr>
<tr>
<td>Knowledge of institutional resources</td>
<td>What are resource/programs that can help with your demands?</td>
</tr>
<tr>
<td>Recruitment strategies of minority males</td>
<td>What would make you want to participate in the M3 program?</td>
</tr>
</tbody>
</table>

Qualitative Coding of Focus Groups

To capture the richness and potential diversity of students’ perspectives on student success, the current study used qualitative interviews coded for a priori and emergent themes using a coding, consensus, and comparison methodology (Willms et al., 1990) that followed an iterative approach rooted in grounded theory (Glaser & Strauss, 1967). Qualitative coding is particularly appropriate for gathering participants’ in-depth, subjective experiences (Marshall & Rossman, 2006).

Three meetings transpired with a co-PI (co-author) and three undergraduate research assistants to develop a preliminary codebook based on a priori codes stemming from the facilitation guide. After developing a preliminary codebook, the two focus groups were independently coded by two research assistants (the same two that were involved in codebook development) to capture a priori codes and elicit emergent codes (i.e., codes surfacing from the interview text) within the interviews. Responses were assigned codes by considering the frequency of and salience with which (i.e., importance or emphasis) a student discussed a particular theme. Segments of the texts, ranging from sentences to paragraphs, were assigned specific codes that enabled members of the research team to consolidate interview data into analyzable units. Disagreements in coding were resolved through discussion among research team members, and the coding of themes was modified accordingly based on these discussions. The codes were then applied to the same two focus groups, and codes that displayed low frequency were dropped. Major codes were subdivided into the following sub-codes a) individual-level, b) family-level, c) community-level, and d) institutional-level.

PTSD Screening Procedure and Data Collection

Recruitment flyers (see Figure 3) were distributed via targeted emails to minority male students, classroom presentations, and student support services staff. Students were directed to complete an online questionnaire regarding student demographic information and stress reactions.
Figure 3: Recruitment flyer for coping groups

PTSD Screening Participants
Table 3 summarizes characteristics of the students that participated in the online questionnaire.

Table 3: Characteristics of participating students

<table>
<thead>
<tr>
<th>Gender</th>
<th>N=48</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>10 (20.8)</td>
</tr>
<tr>
<td>Male</td>
<td>38 (79.2)</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td></td>
</tr>
<tr>
<td>Latina/o</td>
<td>39 (81.3)</td>
</tr>
<tr>
<td>Black/African-American</td>
<td>4 (8.3)</td>
</tr>
<tr>
<td>Other</td>
<td>5 (10.4)</td>
</tr>
<tr>
<td>Class Standing</td>
<td></td>
</tr>
<tr>
<td>Freshman</td>
<td>2 (4.2)</td>
</tr>
<tr>
<td>Sophomore</td>
<td>4 (8.3)</td>
</tr>
<tr>
<td>Junior</td>
<td>10 (20.8)</td>
</tr>
<tr>
<td>Senior</td>
<td>30 (62.5)</td>
</tr>
<tr>
<td>Graduate Student</td>
<td>2 (4.2)</td>
</tr>
<tr>
<td>Age, in years</td>
<td></td>
</tr>
<tr>
<td>24.4</td>
<td>(5.8)</td>
</tr>
<tr>
<td>PTSD Symptom Severity Score</td>
<td>22.5 (12.7)</td>
</tr>
</tbody>
</table>

Note. For continuous variables, numbers represent the mean (SD). For categorical variables, numbers represent raw totals (%).
Measure
Child PTSD Symptom Scale

The CPSS (Foa, Johnson, Feeny, & Treadwell, 2001), a 17-item self-administered questionnaire, measures PTSD symptom severity. Items map onto the DSM-IV criteria for PTSD. Sample items include...Respondents endorse how often these have been a problem in the last two weeks. Responses include “Not at all,” “Once in a while,” “Half the time,” or “Almost always.” Each response corresponds to a numerical value (0, 1, 2, 3, respectively), which is summed to determine PTSD severity score. The minimum score indicating a mild degree of post-trauma reaction is 11 (Foa et al., 2001). A clinical cutoff of 15 or greater is appropriate for diagnosing PTSD (Jaycox et al., 2010). Cronbach’s alpha for the CPSS in this study was .92.

Results

Qualitative Results on Student Persistence and Success

The final themes that emerged throughout the coding of M3 focus groups included the following: (a) students want to graduate but experience barriers to persistence at a variety of levels, b) strengths at various levels contribute to student persistence, and c) students are motivated, at a variety of levels, to persist in college and graduate. Data from the focus groups are presented by theme, and passages from the interview transcripts are included to provide additional contextual information. See Appendix for Focus Group Qualitative Codebook.

Students Want to Graduate but Experience Barriers to Persistence at a Variety of Levels

Students expressed that individual-level, family-level, community-level, and institutional-level barriers impact their ability persist in college. An example of an individual-level barrier that students described was being a first-generation college student. As one student stated, "Being a first-generation college student, I didn’t know what classes to take. I didn’t know anything, GE’s, nothing." Students also reported family-level barriers, such as being the caretaker of their family. As one student noted: "My mom had a stroke and she stopped working, so me and my brother need to help and pay rent and stuff like that. Currently I don’t have a job but I use my financial aid a little bit and do my best to give her what she needs." An example of a community-level barrier students identified was community violence leading to trauma. One student expressed: “My third year I had problems throughout, I had problems all year so that kinda kept me to myself without reaching out to anybody or trying to find mentors. So third year that’s when my best friend got murdered and I bombed all my classes and I ended up going on academic probation.” Finally, students identified institutional-level barriers, such as a lack of support from professors. As one student stated: “They kinda expect you to exceed at their level when the professor, they may come from this type of background, but you coming from a different type of background. You’re not on the same level but they don’t see that and you know when you struggling you try to ask for help, they kinda push you to the side and like figure it out on your own.”

Strengths at Various Levels Contribute to Student Persistence

Similar to barriers, students expressed that individual-level, family-level, community-level, and institutional-level strengths facilitate their persistence in college. An individual-level strength, as one student stated, was resilience: "I know growing up a male minority, I’ve seen it through most of my people, where the mother is the backbone of the family, the father is no longer the head. I think growing up, this breaks the hyper masculinity and get to understand the perspective and the struggle cause that’s how we all understand our struggle, and that’s where it comes out, the struggle is my strength.” An example of family-level strengths that students identified, was familial support and encouragement of academics. As one student expressed: “...As far as for going to college [she] was always like you need to stay here, if you need to live here because you know rent is expensive. If you need help, gas or anything like that, I will give you anything I can to support you. In that way she has always been helpful and have
pushed me finish and to value an education.” An example of a community-level strength students identified was a sense of belonging and peer support. One student noted: “I also, uh, joined a couple of groups on campus and you keep trying, you make a lot of close relationships with people there and they are like-minded people. That kind of stuff, you know that is where I get emotional help or these people are kind of going through the same things as we are going through, it can help.” Finally, an institutional-level strength that students stated was support from professors. One student expressed: “What I have found with teachers too is that they will help you if you reach out to them. That you actually care about learning and you are interested in the subject, they are going to help you out. I guess that is just my personal experience with how that goes.”

Students are Motivated, at a Variety of Levels, to Persist in College and Graduate

Students expressed that individual-level, family-level, and community-level characteristics are their motivation to persist and graduate from college. An individual-level motivator, as one student stated, was autonomy/competence: “For me I guess it’s an A, either in a class or on a test. We all know what it feels like to study really hard and get that A on the test it feels good so yeah just trying to do that.” Students also reported family-level motivators, such as the sacrifices made by their family. As one student noted: “Like what motivates me is that they came to the states hoping for one of their kids to actually graduate. And yeah, I’m trying to be that one that like ‘oh he succeeded.’” An example of a community-level motivator students identified was wanting to counter others’ expectations of them. As one student stated: I wanna like proceed that assumption that they have like, I may be black. I may be Latino. I may be Asian. But look I can do something I, can make something of myself and not just think I’m another statistic, cause I’m not. Like this is who I am this is who I’m trying to be in this world and just prove to them I’m getting my education, I’m going towards my degree.”

PTSD Screening

The results of our online screening for PTSD symptoms indicate that the items, “trouble concentrating” and “trouble sleeping,” had the highest means. Table 4 summarizes means for each of the 17 items of the CPSS.

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upsetting thoughts</td>
<td>1.58 (1.04)</td>
</tr>
<tr>
<td>Bad dreams</td>
<td>0.89 (0.86)</td>
</tr>
<tr>
<td>Act/feel happening again</td>
<td>1.02 (1.03)</td>
</tr>
<tr>
<td>Feel upset when think/hear event</td>
<td>1.50 (1.13)</td>
</tr>
<tr>
<td>Feelings in your body when think about event</td>
<td>1.51 (1.16)</td>
</tr>
<tr>
<td>Trying not to think/talk/feel about event</td>
<td>1.73 (1.16)</td>
</tr>
<tr>
<td>Trying to avoid activities</td>
<td>1.17 (1.20)</td>
</tr>
<tr>
<td>Not able to remember event</td>
<td>0.87 (1.12)</td>
</tr>
<tr>
<td>Much less interest to do things</td>
<td>1.37 (1.04)</td>
</tr>
<tr>
<td>Not felt close to people</td>
<td>1.53 (1.21)</td>
</tr>
<tr>
<td>Not able to have strong feelings</td>
<td>1.23 (1.00)</td>
</tr>
<tr>
<td>Feeling as if future plans will not come true</td>
<td>1.31 (1.16)</td>
</tr>
<tr>
<td>Trouble sleeping</td>
<td>1.64 (1.09)</td>
</tr>
<tr>
<td>Feeling irritable</td>
<td>1.29 (1.04)</td>
</tr>
<tr>
<td>Trouble concentrating</td>
<td>1.64 (1.05)</td>
</tr>
<tr>
<td>Overly careful</td>
<td>1.48 (1.30)</td>
</tr>
<tr>
<td>Jumpy</td>
<td>1.15 (1.27)</td>
</tr>
</tbody>
</table>

0=Not at all, 1=Once in a while, 2=Half the time, 3=Almost always

Figure 4 illustrates individual CPSS symptom scores. The red line denotes the minimum score of 11 indicating a mild degree of post-trauma reaction. The bar chart shows that most students endorsed symptoms well above this minimum.
Discussion

The purpose of this study was to assess the feasibility, acceptability and utility of a mentoring program for minority male college students at a large urban public university. Recruitment was challenging despite efforts to reach students employing different approaches (targeted emails, classroom presentations, on-campus outreach, student support services staff outreach, etc.). As a result, the M3 program model was expanded to initiate a social marketing campaign component to shift social norms about help-seeking and increase acceptability of program participation. This intervention is in development and implementation is planned for year two of the program.

It was expected to find a high rate of stress symptoms and that these might interfere with college success. Both qualitative and quantitative findings show that stress and trauma are indeed impacting students negatively. This is not surprising since research shows that low-income ethnic/racial minority urban youth are disproportionately exposed to chronic stressors (Cooley-Quille, Boyd, Frantz & Walsh, 2001). CSUN student body is heavily drawn from these intersecting communities.

This pilot program and study shows that minority male college students are worthy of focused attention, services and studies to better understand and serve their specific needs, particularly in this local and national climate focused on college success.

Strengths of this study include the development of a multi-tiered approach and program model. Another strength is the use of a mixed method assessment to better understand the needs, perspectives,
and experiences of minority male college students, an underserved, understudied and vulnerable population.

Limitations also exist. This study did not assess inter-rater reliability of independently coded transcripts. Also, the sample sizes for both focus groups and screening are small. The program is still in development and descriptive data is reported here. It is expected that outcome evaluation data will be forthcoming.

Conclusion

Factors associated with student success, particularly those that are amenable to change, are relevant for both local and national discussions about college student success. Minority males are a sub-population that needs to be better understood and served, especially when their disproportionate representation in higher education versus the criminal justice system is considered. The Minority Male Mentoring program endeavors to continue intervention research project to close the opportunity gap and increase college success for male students of color.
References


# Appendix

## Qualitative Coding Manual for M3 Focus Groups

### Barriers to Student Persistence in College

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Definition</th>
<th>Exemplar</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.A</td>
<td>Individual Characteristics: Work obligations</td>
<td>Assign this code when a student states that a barrier is work obligations that interfere with academics.</td>
<td>&quot;I had a couple of semesters where I fell back and had to do halftime. My freshman year because I just messed it up and I was a freshman. But subsequent years either because it conflicted with my work schedule or it just was a crappy professor and I decided not to take it that year and take it with someone else the following year.&quot;</td>
</tr>
<tr>
<td>1.B</td>
<td>Individual Characteristics: first-generation college status (knowledge of navigating higher education)</td>
<td>Assign this code when a student states that a barrier is lack of knowledge of how decide their schedule, plan for degree completion, or awareness of resource.</td>
<td>&quot;Being a first-generation college student, I didn’t know what classes to take. I didn’t know anything, GE’s, nothing.&quot;</td>
</tr>
<tr>
<td>2.A</td>
<td>Family Characteristics: Caretaker of their family</td>
<td>Assign this code when a student states that a barrier is having to provide for their family financially, take care of their parents or extended family members, or their own children.</td>
<td>&quot;My mom had a stroke and she stopped working, so me and my brother need to help and pay rent and stuff like that...currently I don’t have a job but I use my financial aid a little bit and do my best to give her what she needs.&quot;</td>
</tr>
<tr>
<td>2.B</td>
<td>Family Characteristics: Discourage academics or lack of familial support</td>
<td>Assign this code when a student states that a barrier is when parents discourage higher education or are unsupportive of academics.</td>
<td>&quot;I think from my parents, definitely academically, no offense to my parents but they can’t help me with anything pass not even Algebra. So pretty much I was on my own.&quot;</td>
</tr>
<tr>
<td>3.A</td>
<td>Community Characteristics: Violence/trauma</td>
<td>Assign this code when a student states that a barrier is violence in their community that have led to traumatic experiences.</td>
<td>“My third year I had problems throughout I had problems a year so that kinda kept me to myself without reaching out to anybody or trying to find mentors so third year that’s when my best friend got murdered and I bombed all my classes and I ended up going on academic probation.”</td>
</tr>
<tr>
<td>3.B</td>
<td>Community Characteristics: Lack of sense of belonging/Peer support</td>
<td>Assign this code when a student states that a barrier is when students feel that they do not belong in college or lack peer support/cohesion.</td>
<td>&quot;I don’t see a support system between them there’s not a connection because everybody’s trying to get their shit done at the end of the day it’s just individualistic but I think if there was a community like this, they’ve shown their strengths.&quot;</td>
</tr>
<tr>
<td>4.A</td>
<td>Institutional (CSUN) Characteristics: Lack of support from professors</td>
<td>Assign this code when a student states that a barrier is professors are uncaring, unsupportive, or discouraging of their success.</td>
<td>&quot;They kinda expect you to exceed at their level when the professor they may come from this type of background but you coming from a different type of background you’re not on the same level but they don’t see that and you know when you struggling you try to ask for help they kinda push you to the side and like figure it out on your own.&quot;</td>
</tr>
<tr>
<td>4.B</td>
<td>Institutional (CSUN) Characteristics: Lack of resources</td>
<td>Assign this code when a student states that knowledge of resources (e.g. internships) is limited or unknown.</td>
<td>&quot;At the same time you don’t know that there is jobs in our fields that are out there that you can get internships, you know what I mean? It’s like these kids that I am advising have no idea about that until I hit them with it. You check this out, you into films and NBC internships are always hiring.&quot;</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Definition</td>
<td>Exemplar</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
<td>------------</td>
<td>----------</td>
</tr>
<tr>
<td>5.A</td>
<td>Individual Characteristics: Sense of self-efficacy</td>
<td>Assign this code when a student states that a facilitator/strength is a belief in their abilities and desire to get an education.</td>
<td>“So I’ll say, some of my strengths is that I’m very time manageable, I’m also dedicated and motivated so it’s kinda like rubbed off on me so I’m like focused and understand what I have to do to in order to succeed as far as academic wise.”</td>
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<tr>
<td>5.B</td>
<td>Individual Characteristics: Resilience</td>
<td>Assign this code when a student states that despite personal setbacks or difficult experience, he continues to pursue his education.</td>
<td>“I know growing up a male minority, I’ve seen it through most of my people, where the mother is the backbone of the family, the father is no longer the head. I think growing up, this breaks the hyper masculinity and get to understand the perspective and the struggle cause that’s how we all understand our struggle, and that’s where it comes out, the struggle is my strength.”</td>
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<tr>
<td>6.A</td>
<td>Family Characteristics: Encourage or familial support for academics</td>
<td>Assign this code when a student states that facilitator/strength is their family’s encouragement of their pursuit of higher education or provide support (e.g., emotional, financial) for higher education.</td>
<td>“She wasn’t always like you know, technically a big help but especially as far as for going to college was always like you need to stay here, if you need to live here because you know rent is expensive. If you need help, gas or anything like that, I will give you anything I can to support you. In that way she has always been helpful and have pushed me finish and to value an education.”</td>
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<td>7.A</td>
<td>Community Characteristics: Sense of belonging/Peer Support</td>
<td>Assign this code when a student states that a facilitator is when students feel that they belong in college and have support/cohesion from their peers or community.</td>
<td>“I also uh, joined a couple of groups on campus and you keep trying you make a lot of close relationships with people there and they are like-minded people. That kind of stuff, you know that is where I get emotional help or these people are kind of going through the same things as we are going through, it can help.”</td>
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<td>8.A</td>
<td>Institutional (CSUN) Characteristics: Support from professors</td>
<td>Assign this code when a student states that a facilitator is professors that are supportive, caring, or encouraging of their success.</td>
<td>“What I have found with teachers too is that they will help you if you reach out to them. That you actually care about learning and you are interested in the subject, they are going to help you out. I guess that is just my personal experience with how that goes.”</td>
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<td>8.B</td>
<td>Institutional (CSUN) Characteristics: Access to resources</td>
<td>Assign this code when a student is encouraged and feels supported by a professor at CSUN or when a student gets information about their plan to graduate by a CSUN advisor/counselor.</td>
<td>“I just talk to my advisor. I always go up to her and ask her what classes I need to graduate”</td>
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<td>Code</td>
<td>Description</td>
<td>Definition</td>
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<tr>
<td>9.A</td>
<td>Individual Characteristics: Autonomy/ Competence</td>
<td>Assign this code when student states that their motivation to continue their education is for personal gains or satisfaction.</td>
<td>&quot;For me I guess it’s an A, either in a class or on a test. We all know what it feels like to study really hard and get that A on the test it feels good so yeah just trying to do that.&quot;</td>
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<tr>
<td>10.A</td>
<td>Family Characteristics: Family pride/ Sacrifice</td>
<td>Assign this code when a student states that their motivation is due to their parents’ sacrifices that serve as a catalyst for their academic success.</td>
<td>“Like what motivates me is that they came to the states hoping for one of their kids to actually graduate. And yeah, I’m trying to be that one that like ‘oh he succeeded.’”</td>
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<td>11.A</td>
<td>Community Characteristics: Counter others’ expectations</td>
<td>Assign this code when student states that their motivation is due to wanting to prove others wrong and not become what others expect them to be.</td>
<td>“I wanna like proceed that assumption that they have like, I may be black. I may be Latino. I may be Asian. But look I can do something I, can make something of myself and not just think I’m another statistic, cause I’m not. Like this is who I am this is who I’m trying to be in this world and just prove to them I’m getting my education, I’m going towards my degree.”</td>
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Nurtured, but Nudged:
Meaningful Mentoring to Retain Graduate Students

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Abstract: For many years, there has been an unspoken assumption that once a student reaches graduate school, he or she is mature and accomplished enough to “go it alone” in academia. Little research or consideration has been given to the topic of the needs of graduate learners as they pursue master’s or doctoral studies. This assumption prompts graduate faculty members to see their roles less as advisors, mentors and coaches, and more as scholars and researchers. But graduate students, like all human beings, need a balance of challenge and nurturing if they are to take on the difficult business of change that transformative education requires. The advisor/mentor can be the pivotal point in whether academic challenge turns into growth and satisfaction within his or her students, or whether the challenge overwhelms them.

Higher Education Advising and Mentoring

Advising at the undergraduate level takes many shapes and forms. It is interesting to note the evolution of the role of advisor/mentor from earlier conceptions as purely academic advising to more recent approaches that borrow heavily from counseling psychology, as well. Retention pioneers such as Tinto (1993), Bean (2005), and Kuh, Kinzie, Schuh, and Whitt (2005) highlight the critical role that connection on campus matters in students’ persistence to graduation; the faculty advisor/mentor, then, can be a key player in that persistence, both with his or her own connection to advisees and in facilitating their further connections to others on campus.

Developmental Academic Advising

Historically, there has been a differentiation and a division of labor when it came to relations with students on campus. Hardee (as cited in Drake, Jordan, & Miller, 2013) noted the difference between:

(a) faculty advising, and activity dispatched by members of the teaching faculty and directed towards assisting students in their educational, vocational, and personal concerns at a defined level of competence, and (b) counseling, which enlists the efforts of persons who are specifically trained and experienced in the areas of educational, psychological, or clinical counseling procedures. (p. 46)

It was not until the period of 1982-1984 that the concept of developmental advising was truly codified. Moving away from the separation of worlds, the new theory of advising married the two: “Developmental advising relationships focus on identifying and accomplishing life goals, acquiring skills and attitudes that promote intellectual growth, and sharing concerns for each other and for the academic community” (Drake et al., 2013, p. 50). Clearly, at this juncture, faculty advising took on a holistic meaning, stretching the advisor’s role well beyond mere academic advice. As Drake et al. point out, the essence of the advisor’s role now lay in “the interrelated areas that affect students…..educational, career, and personal goals” (2013, p. 50).

Probably no individual contributed more to this theory than Chickering in his 1969 work on the “seven vectors of student development for young adults.” These developmental tasks, most salient for those in their college years, were: developing competence; managing emotions; developing autonomy;
establishing identity; developing more mature and diverse relationships; developing a sense of purpose; and developing integrity through forming a personal set of core values and beliefs. Advisees’ developmental needs require that faculty advisors wear three hats: informational; relational; and skilled. These permit the advisor to develop a relationship with the student, disseminate necessary knowledge, and build conceptual abilities. Acknowledging that the spheres of educational, career and personal life will be inextricably linked, developmental advisors use strategic questioning to engage students in becoming goal setters and problem solvers.

**Assets-Based Advising**

As the theories of positive psychology and resiliency grew, aspects of each were integrated into advising models. Schreiner (as cited in Drake et al., 2013) chronicles the dominant paradigms in higher education. Since its inception until the 1960’s, she notes, it was “survival of the fittest,” in which the best students were admitted and faculty thinned the ranks of all but the brightest. As colleges in the 1960’s and 70’s opened their doors to a more diverse population, the paradigm shifted to “deficit remediation,” in recognition of the fact that not all entering students had had equal access to a quality education that prepared them for post-secondary success. “Both modes of operations exit in the current education environment,” Schreiner says, “but both fail to address a crucial element of student success: motivation” (as cited in Drake et al., 2013, p. 105).

The most recent shift is to assets-based or strengths-based advising, which uses the talents and personal assets that each student brings to campus as the basis for developing strengths that can be applied in the college setting. Leveraging existing talents to address potential challenges in higher education is at the heart of this approach. The model employs a five-step process. First, a student’s talents must be identified and articulated; once done, the advisor can affirm these talents and assist the student in translating these positive habits into academic and social strengths. Third, advisors have students envision their desired futures, which leads to “an image of a bright future for students that helps them persevere during difficult times” (Schreiner, 2013, p. 110) and provides motivation and energy.

Planning is the fourth phase, taking larger, dream goals, and breaking them down into concrete, smaller steps. Finally, advisors are concerned with teaching transferability of strengths, so that students can see how to take their talents from one venue to another (for example, from the football field to the classroom).

**Advising From a Self-Authorship Stance**

Self-authorship theory has grown out of the works of Kegan (1994) and Baxter Magolda (2008). In this developmental theory, one is concerned with the growth of the individual as s/he moves from beliefs and values inherited from family of origin, culture and community, to those more authentic ones that emanate from his/her unique self. In educational terms, this means learning to examine and question the fit of external requirements (parental expectations, faculty expectations, formulae for “success”) and the student’s own intentions. This can be a difficult and potentially painful process, as it may call into conflict past beliefs and values and present realities. Baxter Magolda (2008) called this “the crossroads”; “students come to the crossroads when external formulas conflict with internal voices. However, students in the crossroads do not always embrace change because they may fail to recognize the dissonance of the crossroads or choose to leave it unresolved” (Drake, Jordan, & Miller, 2013, p. 124).

Here is where the advisor/mentor can play a hugely transformative role; by lending the support necessary for the advisee to navigate dissonance and arrive at internal meaning making, the advisor validates the student as knower, but acknowledges the discomfort and distress that may attend the change process. The advisor uses reflective conversations as the main tool for transformation, especially in instances that require the advisee to make decisions and set goals. In practice, this requires the advisor/mentor to assist students in building their internal foundations through reflective conversations; help reduce the distraction of external pressures, such as peers, family, or social expectations so students can find their voices; encourage students to act on their internal voice, trust it, and align beliefs with actions. (Baxter Magolda, 2008, p. 283)
Appreciative Advising

Bloom, Hutson, and He (2008) define appreciative advising as “the intentional and collaborative practice of asking positive, open-ended questions that help students optimize their educational experiences and achieve their dreams, goals, and potentials” (p. 83). The six major components of appreciative advising are: genuine caring and a deep belief in the potential of each student; appreciating the positive impact other people’s lives and the future outlook; accepting that one can always hone one’s craft; being cognizant of the amount of power students view their advisors as having and carefully using that perceived power; having a genuine interest in one’s students and constantly learning from them; and being a culturally aware and responsive advisor (Bloom et al., 2008, pp. 32-33).

There are six phases of the process: disarm; discover; dream; design; deliver; and don’t settle. Each phase of the relationship involves different tasks. In the “disarm” phase, the goals are to provide a warm welcome to the student and create a safe environment for the relationship to begin and flourish. This is accomplished through sharing of appropriate personal stories and items (e.g., in one’s office) that allow the student to see the advisor as a human being. Welcoming and supportive non-verbal behavior also helps, but only if the advisor is culturally aware, as what is acceptable and welcoming behavior varies wildly from culture to culture. Bloom et al. (2008) point out that AA is a narrative-based approach, and as such attempts to “build trust and rapport with students via proper self-disclosure, invite students to make personal connections, and model storytelling that encourages students to share” (p. 40). This will only occur when the advisor is authentic, the stories are asset-based, and there is sincerity in the storytelling.

The “discover phase” uses positive, open-ended questions to help students identify and share their talents, strengths, and passions. These are questions that ask a student to tell a story when answering, and in that story, the advisor can both learn more about the student as an individual and help him or her identify assets that have been used to face challenges or solve a problem in the past. The “dream” phase is where advisors shift from creating a relationship and positive environment to understanding what the hopes and dreams of each student are. With this, the advisor helps students to envision a positive mental image of their future. The advisor also steers the student towards career paths and academic majors that can embody these dreams that have “good of fit” for the student’s passions and talents.

The co-creation of a plan to actualize the student’s dream is the work of the “design” phase. In it, advisors use goal-setting and concrete information to empower the student to make decisions. The advisor also make referrals to other resources that will be valuable in the pursuit of the dream.

The “deliver” phase is all about keeping the student on track to accomplish his/her goals. This involves positive feedback as steps are taken and strategies for avoiding pitfalls, or overcoming challenges that may be encountered. The advisor is diligent in checking up on the student and providing guidance if a student’s path changes as his or her plan unfolds.

Finally, the “don’t settle” phase is when, if a strong and supportive relationship has been built, the advisor can “start to lift the bar of expectations as the students grow in confidence” (Bloom et al., 2008, p. 98). Because the advisor may see untapped potential that the student doesn’t, s/he carefully stretches the goal-setting process so that the student moves outside his or her comfort zone to greater achievements. This happens because of the student’s faith in the advisor and faith in self that is internalized over the course of the relationship.

Intrusive or Proactive Advising

Proactive advising stems from research that shows that students are more likely to persist to graduation if they have at least one powerful connection with an individual at the institution. As Varney (2013) observes, retention relies on finding ways to get students engaged with and connected to the school. Proactive advisors become the touchstones for their students, serving as the main conduit between the student and the institution.

Intrusive, or proactive advising, stemmed from the work of Glennen (1975); his core concepts were to provide students with information they needed before they actually asked for it and to use each
individual’s interests, assets and personal goals to form meaningful relationships and increase college retention rates. Volunteer advisors, who were trained in this new approach, reviewed data on their assigned students, thus creating an early identification system for those who were at-risk for failure due to a number of criteria. Using the tenets of Glennen’s model, they were able to increase the retention rate among fragile students.

According to Varney (2013), proactive advising involves: deliberate intervention to enhance student motivation; using strategies to show interest and involvement with students; intensive advising designed to increase the probability of student success; working to educate students on all options; and approaching students before situations develop.

In some institutions, proactive advising is targeted mainly at students believed to be at risk for underperforming, based upon Admissions data. In the case of at-risk students, advisors reach out to students prior to their beginning enrollment, and continuously monitor student performance. After establishing a relationship with each unique advisee, they introduce rules, policies and procedures, along with clear explanations and expectations of students; monitor progress of students to determine how well they are using information provided; and customize intervention and target it specifically towards student needs (Varney, 2013). Like appreciative advising, this model asks students to identify potential challenges in their education before they occur and strategize how they will approach those barriers should they encounter them. Advisors are “intrusive” in that they usually require regular contact from their mentees, and if they do not follow through, will seek out those mentees and use means such as contracts to re-establish steps towards goal attainment.

**Motivational Interviewing**

Borrowed from counseling theory, motivational interviewing (MI) is a particularly valuable advising approach when students hit the inevitable roadblocks and are afraid to push through to change habits that have not worked for them in the past—like procrastination, writer’s block, and inability to get significant others to pick up roles so that the student can have time to study. Motivational interviewing builds on Carl Rogers' optimistic and humanistic theories (2003) about people's capabilities for exercising free choice and changing through a process of self-actualization. The basis of a good therapeutic relationship in both Rogerian therapy and motivational interviewing is a truly egalitarian partnership. Hughey and Pettay (2013) describe MI as “a collaborative, person-centered partnership of guidance to elicit and strengthen motivation for change based on the four general principles of a) expressing empathy, b) developing discrepancy, c) rolling with resistance, and d) supporting self-efficacy” (p. 67).

The advisor’s job in motivational interviewing is directive, urging the student towards self-motivational statements and behavioral change; this can be accomplished by creating awareness of the discrepancy between the advisee’s current state and his or her desired state to enhance motivation for positive change (Hughey & Pettay, 2013; Miller & Rollnick, 2012). Miller & Rollnick (2012) point out that developing discrepancy is what allows the participant to see that his/her present situation does not necessarily fit into his/her values, or it is not functional for achieving stated goals. Hughey and Pettay (2013) also warn that the advisor must learn to go along with the resistance and not argue with students who may not wish to change. This is counter-productive, since all meaningful change is motivated by a perceived discrepancy between present behavior and important personal goals and values. While the advisor may make observations or offer information, s/he leaves the actual choice to change solely in the advisee’s hands. While all of the aforementioned authors believe that each individual has the capacity to change, some may need the impetus that motivational interviewing can engender to begin the change process.

After establishing the advisor-advisee alliance, an essential element of this technique is constantly focusing on the positive side of things. Once this becomes routine, it is easier for the advisee to develop a positive mindset in order to achieve his or her articulated goals. Miller and Rollnick (2012) state that open questions, affirmation, reflective listening, and summary reflections (OARS) are the basic interaction techniques and skills that are used “early and often” in the motivational interviewing approach.
Advising and Student Mental Health

Sadly, advisors and mentors are increasingly viewed as components of the mental health screening process on contemporary campuses, as mental health concerns mount (see Kadison & DiGeronimo’s 2004 College of the overwhelmed, for example). According to Eiser (2011) a study by the American College Health Association found 45.6% of students responding reported feeling hopeless and 30.7% said they were so depressed that it interfered with functionality within the past year. Their report also documents a 2010 national survey of counseling center directors, who note sharp increases in clients with eating disorders, self-injury issues, and alcohol abuse (Eiser, 2011). Harper and Peterson (2005) reveal that faculty and staff see complex and clinical issues more often among students they teach and advise. In a rare study of graduate student mental health, Hyun, Quinn, Madon, and Lustig (2006) found mental health issues such as anxiety, depression, and feelings of isolation were key factors in dropping out.

While college faculty should not be mistaken for clinical counselors, their relationships with their advisees give them precious insights into student fragility and risk. Faculty can build student resiliency through the counseling stances mentioned previously. They also act as buffers against student stress, anxiety, and loneliness; Hyun et al. (2006) found mentoring to be a protector against these. They also reported that a student’s relationship with his/her advisors was a key factor in mental health, with dysfunctional relationships making mental health issues worse. Students who had a positive relationship with their advisors fared better on campus; when under stress, they were more likely to seek help if needed on the advice of their advisors.

All of the advising models mentioned previously are discussed, studied, and employed by undergraduate faculty, as there is national awareness of the need to boost retention rates through strengthening students’ connections on campus. But little is known about the experiences of graduate students as they navigate their programs of study. Following on studies of relational retention (Michael & Wilkins, 2012) Michael and Wilkins (2014) undertook a qualitative study of ninety graduate students and their experiences of advising and mentoring at the master’s and doctoral level.

Research Findings

The aforementioned studies affirm the power of advising to promote student persistence, even amid personal difficulties or poor academic preparation. However, each of the authors speaks to the advisor’s role within undergraduate education. Little research has been conducted in the graduate sphere, probably because of the assumption that if students have made it this far, they have the necessary tools to graduate. But a qualitative study conducted by this paper’s authors demonstrates how wrong this assumption is; advising/mentoring, it seems, is as crucial to graduate success as to undergraduate.

The study utilized SurveyMonkey and was constructed around six open-ended questions. Invitations to participate in the study were sent via email to recent graduates of both traditional and non-traditional masters and doctoral programs known to the authors through professional connections. These invitees were asked to share the survey with others who fit the criteria of successful graduation, thus creating a “snowballing” effect.

Participants were asked to describe any mentoring they had experienced in graduate school, to identify any aspects of mentoring/advising they felt were instrumental in their success, and to make suggestions to institutions as to how to improve mentoring/advising to assist graduate students. The study yielded strong themes held in common among participants.

Genuine Relationships

The most salient theme among the findings was that all all meaningful mentoring involves genuine relationships; those relationships provide the encouragement to persist. Without a genuine relationship with the mentor/advisor, the vast majority of students did not believe that they would have
persisted to graduation. As one said “The relationship served as motivation more than earning the degree itself. It was what got me to the finish line.” This is echoed in others’ responses: “A mentoring relationship that is consistent and genuine is key. Feeling like a mentor is really listening goes a long way in making mentees develop comfort in their own voice.” The authenticity in a good mentor-mentee relationship serves as inspiration to students, as they value the “give and take of ideas and feeling able to speak with this person about anything that would arise. The mentor was supportive of all my work and has pushed me to feel increasing confident in my own abilities even when I had doubts.” Further, a quality advisor spurs the student on: “I did not want to let down or to disappoint my mentor.”

Having doubts about one’s abilities and feeling like an “imposter” are two of the often-cited experiences of graduate education. Despite the fact that all respondents had been successful at the undergraduate (and in many cases, the master’s level as well), there is a fragility that resides in even highly-accomplished students, and faculty must recognize this. If they do not view their roles as including personal encouragement and ongoing support of their students, they are likely to lose them on the way to degree completion. Above all else, as this student notes, they must value “a personal connection. That someone really cared that I did my best. Mentors who download a check sheet to see whether you have program requirements done as their sole focus are not, my opinion, doing the right job.” In successful advising roles, faculty were adept at giving constructive feedback that their students needed to hear, but simultaneously building the students’ confidence and desire to strive for high-caliber work.

Some of the most memorable faculty members went beyond their classroom duties and helped students develop personal relationships in social settings. One recalls:

My primary advisor went well beyond his faculty role to develop a very personal relationship with me. He was interested in me as a person as well as a scholar and he supported me through a difficult personal relationship while encouraging me to produce a high-quality dissertation on a topic that was of interest to me personally and academically. With his mentees, this professor opened up his home for dinners and other gatherings, dined and dined us, and let us see into his own personal life, which was a very healthy model of marriage and childrearing. At parties, there was never a division of graduate students and faculty; everyone saw each other as professionals and related on a basis as equals, even though in the academic sphere, we clearly looked to our mentors as experts in the field.

**Mentors Embrace Appreciative Advising**

Whether they consciously and intentionally employ this philosophy and its practices, effective mentors embrace the tenets of appreciative advising. There was an integration of the key principles of appreciative advising identified, even among faculty members who mentored prior to the term “appreciative advising” having been coined. As mentioned earlier, there are identifiable steps in the AA process.

**Disarm (Advisors Practice Techniques to Make Students Comfortable)**

In the initial stages of the mentoring relationship, advisors work to create an environment that invites students to be genuine. Looking for points of connection, the mentor displays attributes that increase the likelihood of the mentee’s sharing of genuine feelings, goals, and concerns related to his or her educational path. As a graduate mentee describes her mentor, she locates important attributes related to her success:

Her humor, accountability, she shares the same personal interests as I do, we like the same things and share the same values... I knew my doing well was important to her and thus it made me want to do better for both her and for me! My mentor's own ego was not part of our relationship. She wanted me to succeed. Bad mentors can stall the process or even worse, destroy it.
Another trusts her mentor enough to engage in a genuine relationship: “She always believed in me. She was able to see through my imperfections and point me in a right direction.” Faith in the mentor, and the mentor’s faith in the mentee, are the key to academic risk-taking.

*Discover (Advisors Learn About the Student as a Person, Discover Assets, Goals)*

After students have been “disarmed,” there is the opportunity for advisors to help the student with self-discovery, and in the sharing of what each finds, the advisor is able to know the human being s/he is mentoring better. There must be trust in order for the mentee to openly share intimate parts of the self:

These mentors allowed me to be vulnerable by exposing my shortcomings and insecurities with them. I felt comfortable sharing with them what I did not know without them judging me or making me feel like this program was not for me.

*Dream (Encourage Students’ Dreams for Themselves Through Completing Their Program)*

In the dream phase, the mentors inspire the mentees to envision their desired futures. That dream future serves as the source of energy and renews commitment during times when the mentee’s energies and self-confidence wane.

“She not only helps me stay focused and engaged on current courses and study, but she helps me shape my future career and long term goals. We stay focused on those.”

*Design (Help Them Develop Concrete Strategies for Meeting Their Program Goals)*

Faculty advisors hold critical information about how to make program processes manageable and how to organize to efficiently complete work and attain the advisees’ goals. Rather than leave their students to figure this out for themselves, savvy advisors provided blueprints for success. A student attributes her success to her advisors: “Concrete tips on how to complete the work were most helpful. I didn’t need the cheering so to speak as much as I needed to hear more tactical tips.” Another praises “her knowledge of processes related to the program.”

*Deliver (Support Them in Accomplishing These Goals)*

Effective mentors didn’t leave it to chance that students would be adept at follow through after goal setting. They outlined the necessary steps, in a sequential way, breaking down the larger goals into more manageable ones.

*Don’t Settle (Push Them to Continue to Improve, to Get Through Rough Patches)*

Sometimes, the hard work of mentoring entailed pushing students beyond what they believed their limits to be; this could only occur in situations in which a strong personal relationship had been established—one that permitted the student to believe that whatever the advisor was asking him or her to do was not only necessary, but achievable. As a student illustrates in her comments:

At times, I felt that I had done the best I could, given the circumstances of being a single mother, working and going to school. I just didn’t think there was any more I could give, and I was okay with turning in the work as it was. But my advisor kept pushing me to revise the work, make it stronger, and clearer. My writing definitely improved, and also my confidence. But the most important thing was that she kept telling me that I could get through this, that it was important for me to be a role model for my children by achieving this goal and showing them that I valued education.

**Mentors and Motivational Interviewing**

Whether they attribute their techniques to motivational interviewing theory and protocol, effective mentors employ its tenets. Students spoke of their mentors’ approach when they were “spinning
their wheels” or afraid to abandon strategies that were not productive. At these junctures in the program, it was essential that mentors tease out what the perceived barriers were, through well-chosen questions.

She sat and asked me what I thought was holding me back and why. Why I was using the strategies I was, since they clearly weren’t working. She didn’t try to solve the problem—just listened. There were a lot of tears and a lot of shame on my part, but her non-judgmental attitude kept me in there and eventually I was able to dig myself out of my hole and move forward. That hole felt so dark and deep that I almost gave up dreams of my (doctoral) hood.

**Mentoring and Trust**

A mentoring relationship built on trust allows students to stretch beyond comfortable boundaries and grow. Building on the aforementioned theme, students elaborate on the role that mentoring plays in their growth as a scholar and human being. At times, the growth process was painful:

If it was not for the informal mentorship of my colleagues and the formal mentorship from my adviser, I am not sure I would have been able to finish. The candid feedback and honesty was raw and difficult to swallow at times but there was never a moment that I felt that my advisor/graduate mentor was not pushing me because they believed in my commitment and potential complete my degree.

As students themselves began to realize their potentials, they could value the “stretching” part of the mentoring relationship:

Personally, I appreciated the candid/tough love approach during my dissertation. It didn't always ‘feel good’ and I questioned my relationship with my adviser often. However, like any good coach or drill instructor this was the only way to access my full potential for what was expected. My informal graduate mentor helped me by talking through the feedback and it was at that point I reached clarity. Looking back, both roles were critical.

Effective mentoring promoted the kind of self-authorship that Magolda Baxter (2008) speaks of. As an informant said of the mentor: “He was very supportive of my intellectual pursuits. He challenged me and allowed me to pursue concepts and lines of thought that were considered nontraditional. This gave me great confidence in my ideas and way of thinking.”

**Living Role Models**

Effective mentors/advisors were living role models who spurred students’ developmental growth. Whether they were aware of it or not, mentees were watching their mentors for cues as how to develop into the scholars, and people, that they aspired to be. A graduate reveals how important that aspect of mentoring was:

He supported us but stretched us, and he actually used that word stretch. He wanted us to move out of areas of comfort, think in more multiplistic ways, see the connections among things. He modeled scholarship with his own intense interest in topics, his lecturing all over the world, and his writing. He was immensely human—talking about his own passions, his fears, his love of his family, his hobbies. He modeled a well-rounded life lived fully. He had a fantastic sense of humor, which he used to diffuse the inevitable challenges of research, balancing life and academics, finding funding for one's work. He was one of the healthiest individuals I've ever met, and certainly one of the best models of a ‘whole’ man I had ever encountered.
Intrusive Mentoring

At times, effective mentoring is “intrusive”, or, as Varney (2012) calls it “proactive.” As cited earlier, proactive or intrusive mentoring arose as a response to the drop-out rate among fragile undergraduate students—especially freshmen and members of under-served groups. But graduate students appear to need it also. While advisors may feel that graduate students do not need or want their continuous involvement in the academic process, students say otherwise. When asked what helped them persist to graduation, participants mentioned their mentors’ “having a relentless attitude about what I was trying to accomplish” and their “weekly check in’s.” Another praised a mentor for “continual check in’s and a ‘you can do it’ attitude.” “She knew when to push me,” a student recalls, while another sums it up: “my mentor believing in me, advocating for me, checking in with me, and most importantly—always pushing me to improve.”

What Institutions Can Do

Participants in this study had plenty of advice for institutions: First, hire the right faculty to be in the program—those who see their roles as going well beyond just delivery of content and overseeing research. They will automatically be mentors; this should be a seminal question in the interview process. Ideally, they will have had the experience of being well mentored themselves. In turn, they can work within whatever the program's structure is to identify veteran students who have the same qualities.

Beyond hiring the right faculty, there should be explicit training in the art of advising/mentoring. As one participant said: “Train mentors—don't leave it to chance. Invest in training mentors so they can utilize their natural talents most effectively.” Faculty mentors need to be reminded that their enthusiasm for the student and his/her interests is a motivating factor: “The ability of the mentor to be excited and engaged in the academic interest of the student is critical. The ability of the mentor to assist the student in making physical connections as well as intellectual ones is also key.”

Even though participants were graduate students, they believed that “Every 1st year student should be placed with a mentor.” Further, they should “be formally part of the orientation process right off the bat so new students have experiences with the mentors. The mentors should mentor somewhat intrusively in the beginning, as new students often are hesitant to reach out for help and support.” If institutions value mentoring relationships, they must create structures that allow for the interactions: “make sure the mentor and the mentee have the time for the relationship and that they are a good fit. Be flexible with mentor assignments to make sure both people in the relationship are succeeding.” Given that many programs are on-line, hybrid, or low-residency, mentoring must take many forms: “make sure it is local for people to access or online with easy access having people in place that are knowledgeable.”

In addition to advice from study participants, institutions need to provide faculty with quality professional development and training in the art of advising/mentoring. This needs to be expanded from traditional academic departmental orientations to broad-range presentations and discussions of the various theories of advising. The notion that advising at the graduate level may need to be intrusive is certain to be a novel concept for most graduate faculty.

Programs of study for master’s and doctoral students entering the field of higher education need to intentionally build in coursework that deals with topics relevant to quality mentoring and advising. Whether as a stand-alone course or as infusion into various courses, materials on relational education mentoring, theories of advising, student mental health, retention and building student resiliency need to
part of contemporary leadership programs in teaching and learning, leadership, and student services administration.

Sadly, there needs to be greater emphasis on the mental health aspects of advising/mentoring, as well, with a special emphasis on how effective mentoring can prevent or ameliorate the stress of academia. While faculty are trained to see their primary and most clearly articulated role as an advisor to provide assistance and guidance in purely academic endeavors,

a greatly under-appreciated role of effective advisors is to provide psychological support, guidance, and assistance to students who are often working through some of the most difficult periods in their lives, both personally and professionally. The amount of involvement advisors have in the personal lives of students is a matter of choice, but if they choose not to take an active role in helping students with mental health issues they at least need to know how to recognize problems and have resources to point students toward. (Turley, 2013, “Academic Advisors Should Receive Training”, para 1)

Opportunities for faculty to have specific professional development and opportunities to learn from counseling staff are necessary so that faculty know when and how to make referrals. Learning about how essential the relational and emotional components of learning are—even at the graduate level—may be a revelation for some, especially if they did not experience good advising or mentoring in their own graduate programs.

Students also wanted more opportunities for a variety of people to serve as mentors, mentioning that often they found mentorship in unlikely places and people. Department secretaries, research librarians, teaching assistants, and others became meaningful mentors if they chose to extend their formal roles and have the proper training to do so.

Institutions that value advising and mentoring will elevate their recognition of that aspect of the professoriate through awards, professional development opportunities, and research grants. Additionally, advising can be a part of on-going discussion in annual faculty evaluations; faculty should be encouraged to talk about their advising experiences, including identifying resources they might need to better support their mentoring.

Given the diversity of students now studying on college campuses, it is imperative to seek out and recruit a diverse array of mentors. It is particularly important that students can see mentoring from others of their demographic, yet there is a dearth of advising and mentoring done by faculty, staff and students from first-generation and other marginalized student groups at too many institutions. Different programs and departments on campus should determine how best to strengthen their advising and mentoring programs, beyond traditional definitions.

Finally, survey participants mentioned how valuable mentoring from other students could be, especially at the beginning of their programs. Student mentors should take part in “students only” orientation sessions where new entries feel free to ask questions they might not otherwise ask faculty or staff. Students can be assigned peer mentors or have access to a list of mentors to call on when needed. Often, as survey participants note, it is another student who serves as a lifeline in a time of crisis and can provide the perspective and encouragement to help his or her colleague persist to graduation.

Conclusion

College personnel have a powerful role to play beyond teaching content in the classroom or fulfilling their specific role requirements; while many hold formal roles as academic advisors, still others assume informal advising roles as students reach out for connections and information. Advising alone cannot influence many things on campus: it can’t directly change the curriculum, administrative decisions, fiscal exigencies, or extra-curricular offerings. But it is an avenue for creating the kinds of human connections that students need. As this paper has demonstrated, the field of advising has moved
from a traditional stance in which formal advising centered on academic matters to a more multi-faceted definition of the role, combining best practices from academic, career, and personal counseling.

Contemporary advisors/mentors work with a multitude of factors (academics, career goals, social connections, peer relationships, family obligations, financial status, and school-life balance) that influence student success. Sometimes nurturing, sometimes nudging, sometimes directly challenging, the advisor uses strategies mentioned above to guide advisees to the fullest expression of their potential possible.

Institutions that place high value on advising and mentoring need to adopt stronger strategies to develop and reward high-quality advisors. These will include training and professional development, public recognition, and professional opportunities for study and research.

Skilled mentorship makes all the difference in a student’s educational experience. This is equally true at the graduate level as well as the undergraduate level. In summing up her advisor’s many contributions, a study participant captures all of realms of that quality relationship:

There was ongoing, regular, meaningful contact that always encompassed both the academic and the personal spheres. There was timely, specific feedback, always starting with praise, and then delivering very concise, concrete messages about any areas that needed to be addressed in the academic work. There were connections made by the mentor so that students got to know each other and other professors who could be useful in the learning process. The mentor held social gatherings at his house two or three times during the academic year to celebrate our achievements and build bonds among students and faculty. For me, it was all of the personal threads that were woven together that made the academic experience so rich.
References


Michael, C. N., & Wilkins, V. (2014, November). *She threw me a lifeline*: Meaningful mentoring that retains graduate students. CAEL National Conference, Chicago, IL.


Online Learning Gets a Passing Grade: How Online Course Taking Impacts Retention for University Students

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Abstract: Online learning can be a vehicle that enables remote students who otherwise could not participate in university courses to progress toward a college degree. Skeptics of online learning argue that low success rates in online courses indicate students would be better off pursuing coursework in a more traditional setting. The research discussed in this paper addresses this critique by determining whether the online setting itself or extraneous factors primarily contribute to online student retention rates. Results from seven universities reveal variables that often predict online course taking, and the effect of online course taking on student retention with special attention given to the interaction of part-time status and online course taking.

Introduction and Background

Online learning continues to grow at post-secondary institutions across the United States. As of 2015, 14.3% of all students (2,902,765) were taking all their courses online while 15.4% of all students were taking a combination of online and onground courses (Allen & Seaman, 2017). Moreover, fully onground, traditional enrollments continued to decline (by almost one million between 2012 and 2015). While most researchers agree that learning outcomes from online courses are not significantly different from traditional courses (Bernard et al., 2009; Means, Toyama, Murphy, Bakia, & Jones, 2009), many question its efficacy, especially for students most at-risk for failure. That is, some important research suggests that student retention rates are smaller for online courses than for onground courses, especially at the community college level (Jaggers & Xu, 2010; Xu & Jaggers, 2011; Hart, Friedmann, & Hill, 2015). Interestingly, however, there is some indication that while retention rates are lower for students taking at least one online course, graduation rates are higher for this group (Shea & Bidjerano, 2014; Johnson, Cuellar Mejia, & Cook, 2015).

It has been suggested that one reason for this anomaly, is that students may take online courses because in some sense they have to. Many online students may, for example, be older, non-traditional students attending college part time. Data from the National Center for Educational Statistics (NCES), for example, indicate that adult learners (students older than 24 years of age) now comprise at least 40 percent of all undergraduate students, while just 26 percent of undergraduates fit the description of a traditional student (financially dependent, recent high school graduate, enrolled full-time) (NCES, 2013). Research indicates that adult learners are often juggling multiple responsibilities in addition to school, including work, family, and community obligations (Lundberg, McIntire, & Creasman, 2008). To accommodate adult learners’ busy schedules and assist them in achieving their educational goals, institutions must provide them with more flexible learning opportunities (Osam, Bergman, & Cumberland, 2016; Rabourn, Shoup, & BrekaLorenz, 2015). One such option is online learning.

Another possible reason for anomalies in findings on retention from studies comparing online and onground enrollments is procedural. This was explored by James, Swan, and Daston (2016), who differentiated between students taking all their courses online and students taking some of their courses online and some onground when comparing these to students taking exclusively onground courses. In addition, they looked beyond community colleges to explore retention among these groups at four-year colleges and primarily online institutions. They found that taking online courses was not necessarily
harmful in itself. Indeed, although retention rates were lower for students taking only online courses than for students taking only onground or blending their courses in most of these categories, much of that difference could be explained by extraneous factors. Essentially no differences in retention between delivery mode groups were found for students enrolled in four-year colleges or primarily online institutions once extraneous factors were controlled for. Only students taking only online courses at the community college level were less likely to be retained than students mixing their courses or taking only onground courses, and those effects were weak to moderate (James et al., 2016).

Research Questions

The research reported in this paper concentrated on students enrolled in four year colleges, as this population has not been well explored, and sought to replicate findings from the initial study (James, Swan, & Daston, 2016). In addition, particular characteristics associated with taking courses online were explored. The research also examined how delivery mode affected retention for this population by comparing retention for students taking their courses fully onground, fully online, or mixing onground and online courses within populations of students attending college full time or part time. Research questions addressed included:

- Do student characteristics vary between delivery modes (are students taking online courses somehow different from students taking only onground courses)?
- What is the impact of delivery mode on student retention with special attention given to the interaction of delivery mode and part-time/full-time status?

Methods

Sample

The data for this study includes 108,637 students from seven different universities who first enrolled between August 2009 and September 2014 and are members of the PAR Framework, a division of Hobsons, Inc. Participating institutions were four-year bachelors granting institutions that were part of public university systems in the southeast and upper-Midwest. All but one of the seven colleges were primarily residential (with one primarily non-residential), and all had a high percentage (at least 20%) of transfer students. They ranged in size from large to very small and in selectivity from selective to inclusive. Two of the institutions were historically black colleges. Data points were captured within a student’s first fall or spring term at their institution.

Variables

A number of variables were considered as possible predictors of course delivery mode, and as control variables in modeling the relationship between course delivery mode and failing to retain to the next year (stopping out). The full list of variables and descriptions can be found in Table 1. To avoid the possibility of data leakage, a phenomenon in which data not known until a later point in time or data on the outcome variable is inadvertently included among the independent variables, the values for each of these variables represent what was known only as of the student’s first term at the university. Continuous variables were split into categories due to nonlinear relationships with the outcome variables and for ease of interpretability.
Table 1: Variables considered

<table>
<thead>
<tr>
<th>Variables Considered</th>
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<tbody>
<tr>
<td><strong>Demographics</strong></td>
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<tr>
<td>Age at Entry</td>
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<tr>
<td>FAFSA</td>
</tr>
<tr>
<td>Gender</td>
</tr>
<tr>
<td>Pell</td>
</tr>
<tr>
<td>Race</td>
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<tr>
<td><strong>HS/Transfer Information</strong></td>
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<tr>
<td>High School GPA</td>
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<tr>
<td>Prior Credits</td>
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<tr>
<td>Transfer</td>
</tr>
<tr>
<td><strong>Major/Course Taking</strong></td>
</tr>
<tr>
<td>Part Time</td>
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<tr>
<td>Course Delivery Mode</td>
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<tr>
<td>STEM Major</td>
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<tr>
<td>Undeclared Major</td>
</tr>
<tr>
<td><strong>Outcome Variable</strong></td>
</tr>
<tr>
<td>Stop-Out</td>
</tr>
</tbody>
</table>

Data Analysis

To answer the first question of our study, what predictors or student characteristics were associated with course delivery mode, we used multinomial logistic regression to model the probability of a student being fully online, fully onground, or mixing their courses for each institution separately. Levels of delivery mode were initially considered as both ordinal (having an inherit order, in this case going from fully onground to mixed to fully online), and nominal (having separate unordered categories). When modeling delivery mode as an ordinal variable with a cumulative logit model, the Akaike Information Criterion (AIC) was much higher indicating the models were not as well fit. Furthermore, the score test for the proportional odds assumptions resulted in p-values below .0001, indicating that treating delivery mode as an ordered variable did not fit the data well. For these reasons, delivery mode was modeled as a nominal variable in a multinomial logistic regression.

The second goal of the study was to estimate the impact of delivery mode on student retention with special attention given to the interaction of delivery mode and part-time/full-time status. This was done using binary logistic regression models examining whether or not a student stopped-out prior to what would have been the student’s second year for each institution. All models were checked for multicollinearity among the independent variables by dummy coding variables in a linear regression, and assessing the variance inflation factor (VIF). No variable had a VIF greater than 10, a common rule of thumb when checking for multicollinearity (Dormann et al., 2013), in any of the regression models.

Effect sizes for independent variables are expressed as odds ratios, a commonly used metric to capture relationships between categorical variables in logistic regression (Allison, 2012). Odds ratios greater than one indicate greater odds of stopping out, while odds ratios below one indicate lesser odds. The further the odds ratio is from 1.0, the stronger the effect. While no standard rule of thumb exists in...
higher education research, in epidemiology studies, odds ratios between 0.9 and 1.2 are considered to have no effect; odds ratios between 1.2 and 1.5 are indicative of weak effects; odds ratios between 1.5 and 3.0 indicate moderate effects; and strong effects are generally indicated by odds ratios of 3.0 to 10.0 (Chen, Cohen, & Chen, 2010). These cutoffs can be useful for interpreting the odds ratios listed below.

Results

Predicting Delivery Mode

The first phase of the study analyzed what variables might predict a student’s course delivery mode. In the full sample, 79% of students were fully onground during their first term, 13% mixed their courses and 8% were fully online. At individual institutions, the percentage of students who were fully onground varied from 64 to 87%, the percentage who were mixing their courses varied from 8 to 23%, and the percentage who were fully online varied from 2 to 14%.

When predicting delivery mode, the reference level for comparison was students who were fully onground. Among the demographic variables, we found that female students had significantly greater odds of mixing their courses and of taking all of their courses online than male students at six out of seven universities. Additionally, we found that African American students had lower odds of mixing courses at four universities and lower odds of being fully online at six. Other minority students also had lower odds of mixing courses and of taking all courses online at five out of seven institutions. Pell recipients were more likely to be fully online at three universities, but there were not consistent findings when looking at the relationship between FAFSA and delivery mode. Student age was the strongest predictor of delivery mode among the demographic variables, as students who were 25 and older had greater odds of mixing their courses and of taking all of their courses online at all seven universities. The relationship between being 25 and older and taking courses fully online was especially strong, with odds ratios ranging from 3.12 to 8.44. Because older students likely have more constraints on their time than traditionally aged college students, they may benefit more from the flexibility provided by online course offerings and it is therefore not surprising to see they have greater odds of taking online courses. It is less clear, however, what might explain African American and other minority students having lower odds of attempting online coursework.

Among the high school and transfer variables, transfer status was one of the most common predictors as students who transferred in had 1.46 to 4.02 times greater odds of mixing their courses, and 1.54 to 24.93 times greater odds of being fully online. Additionally, students entering with more than 30 prior credits also had greater odds of mixing courses and of being fully online when compared to students who entered with no prior credits. It is worth noting that transfer and prior credits were correlated with each other, but not enough to raise concerns about multi-collinearity. Both high levels of prior credits and being a transfer student are also common characteristics of non-traditional students, adding to the evidence that non-traditional learners are more likely to enroll in online courses.

In examining the effects of choice of major and course taking behavior, we found that undeclared students had lower odds of mixing their courses and of being fully online at four of seven universities. This possibly reflects the notion that online students may have a clearer sense of what they want to study when entering a four-year institution. STEM majors had lower odds of mixing their courses at five institutions, lower odds of being fully online at four institutions, and higher odds of being fully online at two institutions. As such there isn’t as much consistency in the relationship between majoring in a STEM field and delivery mode in our data, which at least in part may be due to different types of majors being offered in online programs at different institutions.

One of the strongest predictors of being a fully online student was part-time status. This was a significant predictor at all seven institutions with odds ratios ranging from 2.83 to 21.29 when comparing fully online students against fully onground students. Once again, we suspect part-time students particularly benefit from the flexibility of online courses as they likely have less time available to dedicate to coursework or commute to course offerings on campus. Odds ratios for predicting delivery mode
across all levels of independent variables and all seven institutions, along with corresponding significance levels, can be found in Appendix A.

**Delivery Mode and Retention**

The second phase of analysis centered on the relationship between course delivery mode and student retention. Table 2 shows how retention rates varied by delivery mode across the full sample. Overall, retention rates were two percentage points lower for students mixing their courses than for fully onground students, and 13 percentage points lower for fully online students than for those who were fully onground. However, raw retention rates do not control for other factors that might be influencing retention. As observed above, many characteristics of non-traditional learners were significant predictors of taking online courses, indicating that differences in retention rate may reflect the different characteristics of online course takers rather than choice of delivery mode.

<table>
<thead>
<tr>
<th>Delivery Mode</th>
<th>N</th>
<th>Percent Retained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed</td>
<td>14,033</td>
<td>75%</td>
</tr>
<tr>
<td>Fully Onground</td>
<td>85,709</td>
<td>77%</td>
</tr>
<tr>
<td>Fully Online</td>
<td>8,895</td>
<td>64%</td>
</tr>
</tbody>
</table>

To test this, we examined the effect of delivery mode on stopping out (not being retained to a second year) using a binary logistic regression model that included the other predictors considered in this study as control variables. Because part-time status was such a strong predictor of students being fully online, and the authors suspect many part-time students take courses fully online due to having limited time available for coursework, the interaction of delivery mode and part-time/full-time status was also included in the model and found to be significant at five of the seven universities. Because we included the interaction term, odds ratios for delivery mode are expressed at the two different levels of part-time/full time status (Table 3).

Among full-time students, those mixing their courses had significantly greater odds of stopping out than fully onground students at four of the universities, however the odds ratios were fairly small for this effect ranging from 1.15 to 1.30 (Chen et al., 2010). Fully online students also had greater odds of stopping out than fully onground students among students who were full-time at four universities. Odds ratios were a little higher for this effect, though still moderate in size ranging from 1.42 to 1.92. The relationship between delivery mode and student retention differed among part-time students for most of the universities in our study. Both part-time students who mixed their courses and part-time students who were fully online had lower odds of stopping out than part-time students who were fully onground at two institutions, greater odds of stopping out at one institution, and no difference in odds at the other four.

In short, at five of the institutions the effect of delivery mode on stopping out was moderated by part-time status and taking courses online did not negatively influence the odds of retention for part-time students at all but one institution. Even among full-time students where a negative effect of taking online courses was observed, the effect sizes were smaller than one might expect based on the overall difference in retention rates. These findings are summarized in Table 3. Differences in retention are mostly explained by other factors than course delivery mode. Odds ratios for predicting stop-outs across all levels of independent variables and all seven institutions, along with corresponding significance levels, can be found in Appendix B.
Table 3: Odds of stopping out: Odds ratio estimates for delivery modes and part-time/full-time status

<table>
<thead>
<tr>
<th>Institution/Interaction</th>
<th>Effect</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery Mode Mixed vs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Fully Onground at Full</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td></td>
<td>1.15**</td>
<td>(1.04,1.27)</td>
<td>1.06</td>
<td>(0.92,1.22)</td>
<td>1.14**</td>
<td>(1.05,1.25)</td>
<td>1.11</td>
</tr>
<tr>
<td>Delivery Mode Mixed vs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fully Online at Full</td>
<td></td>
<td>0.81</td>
<td>(0.65,1.00)</td>
<td>0.55***</td>
<td>(0.44,0.69)</td>
<td>0.70</td>
<td>(0.49,1.00)</td>
<td>0.84</td>
</tr>
<tr>
<td>Delivery Mode Fully</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Online vs Fully Onground</td>
<td></td>
<td>1.42**</td>
<td>(1.16,1.75)</td>
<td>1.92***</td>
<td>(1.57,2.36)</td>
<td>1.63**</td>
<td>(1.14,2.32)</td>
<td>1.32</td>
</tr>
<tr>
<td>Delivery Mode Mixed vs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fully Onground at Part</td>
<td></td>
<td>0.96</td>
<td>(0.70,1.31)</td>
<td>0.72</td>
<td>(0.51,1.01)</td>
<td>0.80</td>
<td>(0.56,1.12)</td>
<td>0.50***</td>
</tr>
<tr>
<td>Delivery Mode Mixed vs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fully Online at Part</td>
<td></td>
<td>1.25</td>
<td>(0.94,1.63)</td>
<td>0.74</td>
<td>(0.54,1.00)</td>
<td>0.64*</td>
<td>(0.43,0.95)</td>
<td>0.41***</td>
</tr>
<tr>
<td>Delivery Mode Fully</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Online vs Fully Onground</td>
<td></td>
<td>0.77*</td>
<td>(0.63,0.95)</td>
<td>0.98</td>
<td>(0.80,1.19)</td>
<td>1.25</td>
<td>(0.89,1.75)</td>
<td>1.23</td>
</tr>
</tbody>
</table>

Note. *p < .05, **p < .01, ***p < .001.
Note. The numbers in parentheses display 95% profile likelihood confidence intervals for the odds ratio estimates

Discussion

The research reported in this paper sought to replicate findings from previous work concerning differences in retention between undergraduate college students enrolled solely in onground courses, students enrolled solely in online courses, and students taking courses both onground and online courses. In particular, it explored the retention to a second year of undergraduate students at seven four-year public universities that participated in the Predictive Analytics Reporting Framework. It also examined the potentially unique characteristics of students taking online courses.

Results revealed that students enrolled in online courses (either mixing courses or taking only online offerings) were more likely to be older, female and taking courses part-time than students taking only onground courses. The finding supports the notion that many students are taking online courses to help them juggle multiple responsibilities such as work, family, and community responsibilities. It suggests that online courses and programs should recognize this fact and consider how they can more fully support such students by becoming more flexible and accessible. As the number of non-traditional undergraduate students is growing and non-traditional students now outnumber traditional ones (NCES, 2016), colleges should be planning for both more, and more flexible online offerings.

Results also revealed that transfer students in our dataset were more likely than first-time freshmen to take online courses. It may be that such students are exploring courses at a particular institution before committing to it. It might be useful for those institutions to reach out to those students and make them feel welcome. Interestingly, we found that African-American students in our dataset were less likely than students from other groups to take online courses. This may be because some institutions in the dataset, most especially the two HBCUs, are just starting to develop online courses. It also could be that African-American students prefer face-to-face learning. Future research should investigate the result, perhaps through qualitative studies.

The findings also suggest that much of the observed differences in retention rates between students taking only online courses and students taking only onground ones at the schools studied here have more to do with these learner characteristics than with delivery mode per se. Indeed, while full-time students taking online courses had slightly greater odds of stopping out than full-time students taking all of their courses onground, this result was reversed for part-time students at two of the colleges studied. At four additional institutions there was no difference in retention between delivery modes for part-time
students. Only at one institution were part-time students taking online courses more likely to stop out. The results not only replicate previous findings but provide a more nuanced understanding of them. There is some indication of an interaction between part-time/full-time status and delivery mode, namely that taking online courses doesn’t make a difference in odds of retention for most part-time students and seems to even be beneficial for some; whereas full-time students are slightly less likely to be retained if they take online courses. Such findings, moreover, suggest that there are often several interacting factors that make the taking of online courses either beneficial or detrimental to student retention. Such factors and interactions surely deserve further investigation.

Limitations

The findings reported in this paper are derived from undergraduate students enrolled in the seven four-year, public universities studied and therefore are only reflective of only those particular students and institutions. Indeed, differences among these seven institutions are clear in the results. They highlight the notion that issues of retention and the taking of online courses are uniquely local and thus that individual institutions should investigate their own situations intensely. However, the procedures used in this study, most especially distinguishing between taking all and taking some courses online, and between full- and part-time students should certainly be explored by those seeking to understand the influences of delivery mode on retention at their institutions. Moreover, findings that undergraduates taking online courses are more likely to be older, female, and part-time students are supported by national data (NCES, 2016).
References


Appendix A

Odds Ratios for Delivery Mode by Institution

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Note. The reference group for HS GPA for institutions 4-6 was 2-3 rather than <2 due to having too few values in the <2 category.

Note. *=p < .05, **=p < .01, ***=p < .001.
### Appendix B

**Odds Ratio Estimates for Stopping Out**

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<td>Delivery Mode Mixed vs Fully Online at Part Time</td>
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*Note.* **= $p < .05$, ***= $p < .01$, ***= $p < .001$. 
On-Time and Debt-Free: A Data-Driven Holistic Coaching Model for Low-Income Student Success at Purdue

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Abstract: Purdue University has narrowed the graduation gap for low-income Indiana 21st Century Scholars eligible to enroll in an access and support program called Purdue Promise. The program combines full financial need assistance with four years of student success coaching. Purdue Promise is designed to graduate students on-time and debt-free, and assist students in strengthening self-efficacy, self-advocacy, help-seeking skills, and grit. Cohort-based programming designed on best practices did not lead to increased retention and graduation rates from 2009 to 2012. However, the implementation of an individualized coaching program in 2013 has contributed to increasing the program's four-year graduation rate from 37.4% for the 2009 cohort to 53.7% for the 2012 cohort. The fall 2013 cohort is the first in program history to receive coaching all four years and is projected to exceed the University's four-year graduation rate (currently 55.9%) at Census in September 2017. The Purdue Promise four-year coaching model—including individual meetings, online modules, freshman and senior seminar classes, and at-risk data mining—has contributed to the increased retention and graduation of low-income Purdue Promise students, with more than half the population being first-generation and up to 40% identifying as underrepresented minorities (URM).

Introduction

Purdue Promise was created in 2009 as Purdue University West Lafayette’s campus (Purdue-WL) support program for Indiana 21st Century Scholars (TFCS). At that time, TFCS at Purdue-WL had a graduation gap approximately 10% behind the all-undergraduate, four-year graduation rate. The TFCS award is a need-based scholarship that covers full-tuition and fees for eligible students based on family income in the 7th or 8th grade and achievement of certain metrics in high school. Thus, all Purdue Promise scholars are low-income Indiana residents. Many institutions offer financial aid or specialized programming for students with low-income status. Purdue Promise combines both intentionally for four years, making the program one of the strongest TFCS support mechanisms in Indiana. The total family income eligibility requirement for the Purdue Promise Award was initially capped at $40,000 in 2009. It was increased to $50,000 in 2013, with the average entering total family income across all cohorts at $24,245. For qualifying students, Purdue Promise automatically combines the TFCS award with federal, state, and institutional grants and Federal Work Study to cover full financial need for eight semesters.

Purdue Promise is both an access and success program. The population of students served by the program are under-resourced and historically considered as “at-risk” for low retention and degree attainment. Compared to all Indiana financial aid filers, during the first 25 years of the program, TFCS were “1.4 times more likely to be the first in their family to go to college … over 2.5 times more likely to be raised by single parents … [and their] reported family income was 65% lower than the average student who applies for financial aid” (Indiana Commission for Higher Education, November 2015). Purdue Promise participants are historically more diverse than the Purdue-WL all-undergraduate population, and
represent populations that are often marginalized in higher education (Table 1). As a result of income eligibility requirements, Purdue Promise has served approximately 60.2% of the 21st Century Scholars who have enrolled at Purdue-WL between 2009 and 2016. Early positive outcomes garnered university-wide attention which led to the fall 2010 addition of Emerging Urban Leaders (EUL). EULs were high-merit underrepresented minorities (URM) from Indianapolis Public Schools and select schools near and in Chicago, IL. Purdue defines URM as domestic students who indicate they are American Indian or Alaska Native, Black or African American, Hispanic or Latino, or Native Hawaiian/Other Pacific Islanders, including students who selected multiple races. Asian students are not included. The last cohort of EUL enrolled in fall 2012 when resources were reallocated to the Division of Diversity and Inclusion. Purdue Promise has enrolled 2,117 students to date, including 2004 TFCS, 106 EUL, and seven Purdue Opportunity Awards (POA) Scholars.

<table>
<thead>
<tr>
<th>Table 1: Demographics</th>
<th>Purdue Undergraduate 2009-2016 Cohorts (N = 52319)</th>
<th>Purdue Promise 2009-2016 Cohorts (N = 2117)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>URM</td>
<td>4491</td>
<td>8.58%</td>
</tr>
<tr>
<td>First Generation</td>
<td>8368</td>
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<tr>
<td>Pell-Eligible</td>
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<td>18.42%</td>
</tr>
<tr>
<td>Female</td>
<td>22527</td>
<td>43.06%</td>
</tr>
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</table>

**Background**

Purdue Promise evolved from the Purdue Opportunity Awards (POA) program, which awarded donor-funded first-year scholarships via a nomination and application process that covered full financial need for one year for low-income students representing the 92 counties in Indiana, and offered a first-year mentoring program with monthly first-year workshops. Purdue-WL awarded POA cohorts from 2004 through 2008, granting access to 452 students who otherwise may not have enrolled based on affordability. It quickly became apparent, both through data and student stories, that affordability continued to be a concern. While first-year retention rates for POA scholars were not far behind the university rates, and in some cases exceeded the university rates, persistence declined after the first-year. The program began offering smaller scholarships for second- and third-year students, but by 2008 it was clear that partial funding for high-need students who were given full-need scholarships their first year was not enough, as the first cohort’s four-year graduation rate was only 29.07%—far behind the university rate of 40.20% (Table 2).

<table>
<thead>
<tr>
<th>Table 2: Purdue Opportunity Awards retention and graduation rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohort Year</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>2004</td>
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<td></td>
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<td>2005</td>
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<tr>
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<td>2007</td>
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<td></td>
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<tr>
<td>2008</td>
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</tr>
</tbody>
</table>

*Note: Bolded font represents where POA retention and graduation rates are higher than the All-Purdue rates.*
In 2008, conversations began regarding the transformation of the POA program into Purdue Promise with four key differences: scholarship funding would cover full financial need all four years, non-financial support would be offered all four years, the program would be tied to TFCS eligibility, and students who met eligibility would be automatically awarded rather than selected from nominations and applications. It was believed these changes would increase access, retention, and graduation for low-income students, specifically TFCS. The Strategic Planning Committee Tiger Team Student Success / Student Experience White Paper (Jimerson et al., 2009) helped spur this idea into action, citing Purdue Promise as part of the strategy for increasing access and success of qualified first-generation and low-income students at Purdue-WL.

A Case for the Purdue Promise Coaching Model

Before the program was remodeled in fall 2013, Purdue Promise students were required to participate in extensive cohort-based programming, and first-year students received far more support than upperclass students. This included freshman orientation, a two-credit first-year experience seminar, monthly social events, a freshman financial aid workshop, a mandated relationship with an upperclass mentor, a one-credit sophomore-year experience course, kickoff and/or welcome back events for each cohort, a junior career development Saturday institute, a one-credit senior seminar, tutoring and/or mandated academic recovery peer mentoring, and an end-of-year celebration. Focus groups held with seniors in fall 2012 indicated students felt staff spent the majority of their time focusing on students not meeting requirements, and if they were making good grades and meeting requirements they were not supported, especially after freshman year. Most felt staff did not know their names, and that events were either redundant with support they were getting elsewhere on Purdue-WL’s campus or took up time that could have been better spent studying or working. Students were grateful for Purdue Promise funding creating opportunities for them to attend Purdue-WL, but did not feel they got much out of the program.

In response, to customize support for individual students, the staff piloted the coaching model during spring 2013 with the juniors of the fall 2010 cohort. When designing the coaching model, there was not relevant current research on student success coaching models, as coaching was predominately being used in higher education for career coaching and academic success coaching. Therefore, the Purdue Promise coaching model was custom-designed for Purdue Promise, with intentional thought toward low-income, first-generation, and underrepresented minority students. The model is rooted in Maslow’s hierarchy of needs (1943), appreciative advising (Bloom, Huston, & He, 2008), intrusive advising (Heisserer & Parette, 2002; Miller & Murray, 2005; Varney, 2007; Cannon, 2013), self-authorship (Baxter Magolda, 2007; Baxter Magolda & King, 2008), self-efficacy (Bandura, 1997) and self-advocacy, and more recently Bridges Out of Poverty (Payne, DeVol, & Smith, 2009). The pilot was intentional for juniors because the program historically retained students through junior year and then lost them over the summer before senior year. The pilot was an attempt to get more students to return for their senior year and to individually address barriers preventing or delaying graduation, in addition to assessing whether coaching would result in a better return-on-investment than the social events and student leaders.

Methods and Data

As indicated above, Purdue-WL identified a need to better support the TFCS in order to improve graduation and retention rates and advance the university’s mission. The POA program and early structure of Purdue Promise were not seeing significant impact in student performance, and in fall 2013, after the success of the coaching pilot, the program was restructured to become what it is today.

To prepare for assessing the new coaching model, an internal database for Student Success Programs was created to track scholarship status and requirements and log every interaction with students in a contact log. Module completion and feedback was logged in Blackboard. Caseload spreadsheets were created for each success coach, so pre-semester and post-semester data could be assessed (change in GPA, academic standing, classification, Satisfactory Academic Progress, enrollment, scholarship status).
The New Model

During fall 2013, the four-year, holistic, customized coaching model was adopted for all students in Purdue Promise, replacing the one-size-fits-all best practices framework previously used. The Program Coordinator and five Assistant Directors took on added coaching responsibilities in addition to maintaining some programmatic responsibilities (coordinating mentoring, academic recovery, and curriculum) until the team could demonstrate that coaching was worthwhile. Assessment feedback from students and academic advisors also led to some programmatic changes, covered in detail below.

The Purdue Promise four-year experience begins with summer orientation, where students sign their first scholarship contracts and agree to participate in the support program. Throughout their experience, students receive personalized success coaching consisting of two to eight individual meetings per semester with a success coach—depending on risk level—to assist them in overcoming barriers. GS 197 and GS 405, the program’s first-year and senior-year seminar courses, provide bookend classroom experiences on the transition to college and life after college, respectively. Additionally, scholarship recipients are required to complete a series of online personal and professional development assignments, referred to as the coaching modules.

Coaching Meetings

The next phase of restructuring Purdue Promise occurred in 2014, and involved reclassifying several Assistant Director positions to be Student Success Coaches. This newly-designed model emphasizes holistic coaching, rooted in the dimensions of wellness (SAMHSA, 2016), and building one-on-one relationships with students. Therefore, the budget was reallocated from programming and student leadership to primarily fund staff. The annual program budget is $151,523, while the costs of staffing (with benefits and professional development funding) are $538,004. The overall cost per student averages $578 based on enrollment numbers for 2016-2017. As previously noted, scholarship recipients are required to meet with their coach two to eight times per semester, based on risk factors. Purdue Promise uses a color-coding model to determine this, based on academic standing, term GPA, cumulative GPA, Satisfactory Academic Progress (SAP) status, etc. Green students are essentially on-track, likely to graduate, and can benefit more from assistance with career and graduate school planning than from academic guidance. Yellow students are generally part of the murky middle—the “sizeable but often overlooked group of students” with a GPA between 2.0 and 3.0 that “still stand a good chance of dropping out before completing their degree” (EAB, 2014, para. 2). Red students are those in obvious danger of being academically dropped, losing financial aid, or other similar concerns. Generally, Student Success Coaches meet with yellow and green students two to three times per semester, while Assistant Directors meet with red students four to eight times per semester to provide more intrusive support.

One noticeable benefit of the switch to a more relationship-based model was that the number of students on academic probation fell from around 17.5% of the Purdue Promise student population to 10%. Purdue Promise historically had an academic recovery program called MAPS (Meetings for Academic Planning and Success) led by Purdue Promise student-leaders, called Academic Resource Guides. The program consisted of 10 mandated meetings with prescribed agendas, but student feedback indicated the topics did not address their individual circumstances. Thus, MAPS responsibilities were shifted to professional staff coaches who were more highly trained and could consistently serve the students. In order to most effectively serve students, Purdue Promise staff undergo numerous trainings including, but not limited to: Bridges Out of Poverty, Safe Zone, Trans Inclusion, Green Zone, QPR (suicide prevention), financial aid, and Title IX. In 2016, Purdue Promise staff completed an average of 117.6 hours of professional development per staff member.

During the pilot semester of coaching meetings in spring 2013 with the then juniors (2010 cohort), Purdue Promise staff members logged 1,155 personal contacts and interactions with 179 students the program would otherwise only have seen at a partial-day Saturday Junior Institute (career development workshop). Staff members also logged 1,631 personal contacts with 455 other Purdue Promise students.
According to the 2014 Gallup-Purdue Index, which surveyed more than 30,000 college graduates across the United States, “if an employed graduate recalls having a professor who cared about them as a person, one who made them excited about learning, and having a mentor who encouraged them to pursue their dreams, the graduate’s odds of being engaged at work more than double” (Gallup-Purdue Index, 2014, p.10). These results, in addition to early assessment of the coaching pilot in 2013 encouraged Purdue Promise to continue with its holistic four-year coaching model. Since then, contact from the program has grown tremendously, totaling more than 158,350 meetings, e-mails, phone calls, text messages, and social media exchanges with more than 1,985 unique enrolled students starting with implementation of the coaching model in August 2013 through the end of the fall 2016 semester. In addition to serving current students, Purdue Promise has also recorded 4,043 phone and e-mail interactions with 1,918 prospective scholars in order to increase yield of low-income and URM students.

One other change in 2012-13 was extending the success coaching even if the student did not maintain their scholarship. This decision was made because in previous years, students who lost their scholarship were very rarely retained by the university. Now, with the “Once Purdue Promise, Always Purdue Promise” mindset, coaching support does not end just because financial support does.

**GS Classes**

In the initial years of the program, students expressed concerns that they were accumulating too much General Studies (GS) credit through their Purdue Promise course requirements, and for many of those students the credits did not count towards graduation. As a result, the mandatory first-year seminar was reduced to one-credit, the sophomore-year seminar was removed, and all seniors were required to take the same “Life after College” one-credit seminar. The curriculum that was formerly covered in the other courses was converted to an online medium and became a part of the coaching modules.

GS 197, the Purdue Promise First-Year Experience, focuses on strategies necessary for success in the transition from high school to college. Topics covered in this course include: stress management, study skills, time management, financial aid, budgeting, campus safety, diversity, and maintaining healthy relationships, among others. GS 405, Advancing Tomorrow’s Leaders: Preparing for Employment and Life after College, covers everything that students need to know about transitioning to life as a young professional, such as personal branding, negotiating salaries, funding graduate school, understanding taxes, navigating benefits packages, planning for retirement, and more. Each of these classes features a pre- and post-assessment which provides Purdue Promise staff with the data necessary to verify that the course objectives were met, in addition to informing choices on curriculum alteration.

Based on the data collected, the GS 197 and GS 405 course requirements benefit student success. Figure 1 outlines the correlation between GS 197 grade and first-year GPA based on an analysis of GS 197 grades from fall semesters between 2013 and 2015. A higher grade in GS 197 is correlated to a higher first-year GPA. This is important because Purdue-WL has an algorithm that predicts students who will receive a GPA at or below 2.5 at the end of their first semester. Students who participate in Purdue Promise support programming, including GS 197, often perform better than predicted rates.
In addition to coaching meetings, Purdue Promise students are required to complete a series of online personal and professional development modules through Blackboard. When established, the curriculum was very structured; each student completed three to four assignments which were based on their cohort. However, this prescriptive model was not customizable for students who were often ahead of, or sometimes behind, the expected developmental level. Therefore, in fall 2015 the modules were re-designed to focus on the dimensions of wellness (SAMHSA, 2016). Each semester, students complete a self-assessment to analyze areas of strength and weakness, and choose assignments they find the most beneficial outside of required coaching meetings. This customizable curriculum more effectively engages students, and increases buy-in from students who are more self-directed rather than being forced to do something they feel is irrelevant. So far, the data gathered by the university supports this conclusion, as noted in Figure 2.
Data Mining

The program staff regularly tracks and addresses 51 issues/concerns that affect Purdue Promise students’ ability to graduate on time, as well as 12 risk factors that lead to academic probation status, which in turn can lead to a loss of their scholarship (see details in Appendix A).

A crucial factor that contributed to the success of building the current Purdue Promise model was the Student Success database, particularly the contact log. Staff could demonstrate that students were responding positively to the opportunity to be coached based on the immense traffic to the office and contact with coaches (55,868 entries logged in 2015-16). Armed with stories about student meetings, the staff could articulate to stakeholders what was really impacting students’ success. This led to tracking the aforementioned 51 issues/concerns that impact on-time graduation. Additionally, department Directors over time have continued to advocate for Purdue Promise staff to gain full access to student records for Purdue Promise students. Staff have willingly participated in hours of training on financial aid, bursar, registrar, admissions, and advising systems to be able to serve as a one-stop shop for students, allowing them be more proactive in addressing barriers that may derail a student’s success. The Program Coordinator aggressively mines data to identify issues or concerns that the coaches follow up with via e-mail, phone calls, or texting. Research on low-income, first-generation, and underrepresented students over time has led many to assume if students are not successful it is due to lack of academic preparation (Engle, Bermeo, & O’Brien, 2006; Aronson, 2008; Engle & Tinto, 2008). However, Purdue-WL has not traditionally offered conditional admission nor offered remedial education. Thus, we have concluded that the factors really affecting student success most often involve non-academic life circumstances, which are best supported by success coaching.

Results of the Initiative

Purdue Promise was designed to close the four-year graduation achievement gap for 21st Century Scholars, and the ultimate goal of the program is to graduate students on-time and debt-free. The fall 2013 cohort is the first to participate in the “new” Purdue Promise. This cohort is also the first projected to not just meet, but exceed, the University four-year graduation rate. The most recent four-year rate of all students is 55.8%, and it has been climbing for the past few years. The forecast for the four-year graduation rate for the fall 2013 cohort for all students is 53.9%. Based on retention rates and internal analysis by Purdue Promise Staff, at present the 2013 Purdue Promise cohort’s four-year rate is projected to be 57.0%. Table 3 shows the Purdue Promise retention and graduation rates for the 2009 through 2015 cohorts compared to the overall university rates. A more detailed version of this table is available in Appendix B, and shows rates compared to TFCS not in Purdue Promise, as well as to Pell-Eligible students not served by Purdue Promise nor TFCS. Notably, Purdue Promise excels at retaining and graduating low-income and underrepresented minority (URM) populations. Table 4 shows the comparison of Purdue Promise Pell-Eligible student performance and that of those not served by the program. Table 5 illustrates the increased success of Purdue Promise URM students compared to their non-Purdue Promise peers.
### Table 3: Purdue Promise vs. all Purdue graduation and retention rates

<table>
<thead>
<tr>
<th>Cohort Year</th>
<th>Cohort</th>
<th>Original Cohort</th>
<th>1Yr Retention</th>
<th>2Yr Retention</th>
<th>3Yr Retention</th>
<th>4Yr Grad Rate</th>
<th>5Yr Grad Rate</th>
<th>6Yr Grad Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>Purdue Promise</td>
<td>171</td>
<td>87.13%</td>
<td>82.46%</td>
<td>72.51%</td>
<td>37.43%</td>
<td>64.91%</td>
<td>69.59%</td>
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<td></td>
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<td>6166</td>
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<td>46.76%</td>
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<td>82.06%</td>
<td>72.65%</td>
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<td>2011</td>
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<td>90.08%</td>
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<td>All Purdue</td>
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<td>2013</td>
<td>Purdue Promise</td>
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<td>92.63%</td>
<td>87.69%</td>
<td>83.49%</td>
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<td>2014</td>
<td>Purdue Promise</td>
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<td>2015</td>
<td>Purdue Promise</td>
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<tr>
<td></td>
<td>All Purdue</td>
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</tbody>
</table>

Note: Bolded font represents where Purdue Promise retention and graduation rates are higher than All-Purdue rates.

### Table 4: Retention and graduation comparison for Pell-Eligible students

<table>
<thead>
<tr>
<th>Cohort Year</th>
<th>Purdue Promise Pell</th>
<th>Non-Purdue Promise Pell</th>
<th>Purdue Promise Pell</th>
<th>Non-Purdue Promise Pell</th>
<th>Purdue Promise Pell</th>
<th>Non-Purdue Promise Pell</th>
<th>Purdue Promise Pell</th>
<th>Non-Purdue Promise Pell</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>87.1%</td>
<td>83.4%</td>
<td><strong>82.5%</strong></td>
<td>75.7%</td>
<td>37.4%</td>
<td>38.1%</td>
<td><strong>69.6%</strong></td>
<td>66.5%</td>
</tr>
<tr>
<td>2010</td>
<td><strong>91.9%</strong></td>
<td>87.0%</td>
<td><strong>82.1%</strong></td>
<td>79.1%</td>
<td><strong>42.6%</strong></td>
<td>41.6%</td>
<td><strong>69.5%</strong></td>
<td>70.3%</td>
</tr>
<tr>
<td>2011</td>
<td>90.1%</td>
<td>86.0%</td>
<td><strong>81.8%</strong></td>
<td>79.6%</td>
<td><strong>43.3%</strong></td>
<td>44.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>88.9%</td>
<td>86.8%</td>
<td><strong>81.2%</strong></td>
<td>80.6%</td>
<td><strong>53.7%</strong></td>
<td>50.4%</td>
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<tr>
<td>2013</td>
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<tr>
<td>2014</td>
<td><strong>92.8%</strong></td>
<td>90.5%</td>
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</tr>
<tr>
<td>2015</td>
<td><strong>90.2%</strong></td>
<td>88.2%</td>
<td></td>
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</tbody>
</table>

Note: Bolded font represents where Purdue Promise retention and graduation rates are higher than non-Purdue Promise rates.

### Table 5: Graduation and retention comparison for URM students

<table>
<thead>
<tr>
<th>Cohort Year</th>
<th>Purdue Promise URM</th>
<th>Non-Purdue Promise URM</th>
<th>Purdue Promise URM</th>
<th>Non-Purdue Promise URM</th>
<th>Purdue Promise URM</th>
<th>Non-Purdue Promise URM</th>
<th>Purdue Promise URM</th>
<th>Non-Purdue Promise URM</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td><strong>91.5%</strong></td>
<td>86.5%</td>
<td><strong>89.4%</strong></td>
<td>76.9%</td>
<td>29.8%</td>
<td>31.0%</td>
<td><strong>72.3%</strong></td>
<td>64.5%</td>
</tr>
<tr>
<td>2010</td>
<td><strong>94.0%</strong></td>
<td>86.8%</td>
<td><strong>88.1%</strong></td>
<td>80.4%</td>
<td><strong>41.8%</strong></td>
<td>37.7%</td>
<td><strong>73.1%</strong></td>
<td>69.9%</td>
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<tr>
<td>2011</td>
<td><strong>90.1%</strong></td>
<td>86.8%</td>
<td><strong>81.3%</strong></td>
<td>79.1%</td>
<td>30.8%</td>
<td>39.5%</td>
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<tr>
<td>2012</td>
<td><strong>90.1%</strong></td>
<td>87.4%</td>
<td><strong>82.7%</strong></td>
<td>79.6%</td>
<td><strong>48.2%</strong></td>
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<td></td>
</tr>
<tr>
<td>2013</td>
<td><strong>92.2%</strong></td>
<td>89.7%</td>
<td><strong>87.5%</strong></td>
<td>82.5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td><strong>94.5%</strong></td>
<td>89.0%</td>
<td><strong>88.3%</strong></td>
<td>82.1%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td><strong>91.0%</strong></td>
<td>90.9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Bolded font represents where Purdue Promise retention and graduation rates are higher than non-Purdue Promise rates.
At the onset of the coaching model pilot, the completion rate of meetings and modules ranged from 63% to 67%. Data after the fall 2013 semester of coaching for the entire program demonstrated that staff could get most students in for meetings, but struggled to get scholarship recipients to complete modules. Thus when the Student Success Coaches were hired, Purdue Promise set a goal for 2014-15 to have 90% of the students complete meetings and modules. In the fall 2014 semester, the program met or exceeded this goal in every category, and in fall 2015 rates increased in every category, with many coaches achieving 100% completion.

Additionally, Purdue’s Enrollment Management Analysis and Reporting (EMAR) developed an algorithm that predicts first-semester grade point averages and identifies at-risk students based on pre-college characteristics. The algorithm was piloted in fall 2013 and has been utilized for all cohorts since fall 2014. The 2014 and 2015 reports demonstrated that Purdue Promise participants outperformed their predicted grade point averages. The 2016 report will not be published until fall 2017.

Financial Aid Support and Debt Study

As mentioned previously, in addition to retaining and graduating students, helping students graduate with little-to-no debt is a crucial part of the program’s mission. Figure 3 represents the distribution of aid for the 2014-15 academic year, the most recently closed out year for the Division of Financial Aid. In 2014-15, $17,362,451 in funds was gifted to 867 Purdue Promise recipients. Institutional aid is need-based aid the student would have received regardless of Purdue Promise. Promise and the Purdue Opportunity Award (POA) total the expense amount that is specifically related to Purdue Promise. State, Federal and Private is money that the students brought with them such as Pell Grants, 21st Century scholars, and private scholarships.

![Figure 3: Gift aid to Purdue Promise recipients (2014-2015)](image)

The Division of Financial Aid at Purdue-WL conducted a debt study for graduates of the Purdue Promise program, and found that the combination of funding and support is indeed impacting scholarship recipients’ ability to graduate with less debt (Table 6). For comparison, the average debt of all Purdue graduating undergraduates was $27,530 in 2015-16.

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td># with Debt</td>
<td>24</td>
<td>92</td>
<td>99</td>
<td>94</td>
</tr>
<tr>
<td>Total Debt</td>
<td>$215,529</td>
<td>$1,221,630</td>
<td>$1,172,765</td>
<td>$1,364,741</td>
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<tr>
<td>Average Debt</td>
<td>$8,980</td>
<td>$13,279</td>
<td>$11,846</td>
<td>$14,519</td>
</tr>
</tbody>
</table>
Future Implications for Purdue-WL and Purdue Promise

Going forward, Purdue Promise has a memorandum of understanding (MOU) with the Provost Office that the program will expand while maintaining a ratio of 150 students per Student Success Coach, and one Assistant Director for every three to four Student Success Coaches. Purdue Promise works because of the high-touch, intrusive coaching and support. Expansion of the student population served would require an expansion in staffing to maintain the personal relations central to the success of the student coaching model.

The Purdue Promise Program Coordinator maintains a very close working relationship with state agencies such as the 21st Century Scholars Support Center and staff members for the Indiana Commission for Higher Education (ICHE). As Purdue Promise is the only program of its kind in Indiana, the State recognizes that Purdue-WL knows a lot about its 21st Century Scholars and takes advocacy from Purdue Promise staff seriously. Purdue Promise has been instrumental in legislation and policy change for 21st Century Scholars, particularly for the scholarship appeals process. The program’s success has led Purdue-WL to be recognized statewide in reports and presentations, thereby reinforcing support for the program from campus leadership.

A 2015 ICHE press release showed Purdue leading all state institutions in three categories measured for enrollment and completion, and placing second in a fourth category (Indiana Commission for Higher Education, January 2015). Table 7 presents data that recognized Purdue-WL in the press release.

### Table 7: Indiana colleges leading the pack in 2013-14 (ICHE, 2015)

<table>
<thead>
<tr>
<th>21st Century Scholars Enrolled in 30+ Credits</th>
<th>21st Century Scholars Completing 30+ Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ball State University (92.8%)</td>
<td>1. Purdue University West Lafayette (69.1%)</td>
</tr>
<tr>
<td>2. Purdue University West Lafayette (89.5%)</td>
<td>2. Ball State University (55.1%)</td>
</tr>
<tr>
<td>3. University of Southern Indiana (79.3%)</td>
<td>3. Indiana State University (41.1%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frank O’Bannon Recipients Enrolled in 30+ Credits</th>
<th>Frank O’Bannon Recipients Completing 30+ Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Purdue University West Lafayette (80.5%)</td>
<td>1. Purdue University West Lafayette (58.0%)</td>
</tr>
<tr>
<td>2. Ball State University (80.0%)</td>
<td>2. Ball State University (49.2%)</td>
</tr>
<tr>
<td>3. Indiana State University (61.9%)</td>
<td>3. Indiana University Bloomington (31.7%)</td>
</tr>
</tbody>
</table>

In November 2015, ICHE recognized Purdue Promise with the Champion Award for outstanding impact and contributions to the 21st Century Scholars program. Purdue-WL and the award were showcased in *21st Century Scholars: 25 Years of Supporting Student Success*, a publication distributed at a December 2015 celebration during the inaugural Student Advocates Conference. Based on this data from ICHE, Purdue-WL 21st Century Scholars outperformed [all] other Indiana public institutions in the categories of College Performance, College Retention, and College Completion in the 2015-16 academic year. Purdue-WL also matched four other institutions (including two Purdue regional campuses) in achieving a score of 100% in College Readiness for enrolled 21st Century Scholars. Table 8 is recreated from the *2016 21st Century Scholar Scorecard (States & Colleges)* for 2015-16 and shows comparison to main campuses or systems.

### Table 8: ICHE 21st Century Scholars 2016 college scorecard data for 2015-16

<table>
<thead>
<tr>
<th></th>
<th>College Readiness</th>
<th>College Performance</th>
<th>College Retention</th>
<th>College Completion (On-Time)</th>
<th>College Completion (150% Time)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Indiana Public Colleges</td>
<td>79%</td>
<td>60%</td>
<td>72%</td>
<td>22%</td>
<td>37%</td>
</tr>
<tr>
<td>Ball State University</td>
<td>100%</td>
<td>65%</td>
<td>88%</td>
<td>39%</td>
<td>51%</td>
</tr>
<tr>
<td>Indiana State University</td>
<td>79%</td>
<td>59%</td>
<td>79%</td>
<td>18%</td>
<td>29%</td>
</tr>
<tr>
<td>Indiana University - Bloomington</td>
<td>88%</td>
<td>71%</td>
<td>94%</td>
<td>48%</td>
<td>66%</td>
</tr>
<tr>
<td>Ivy Tech Community College</td>
<td>61%</td>
<td>43%</td>
<td>48%</td>
<td>8%</td>
<td>12%</td>
</tr>
<tr>
<td><strong>Purdue University - West Lafayette</strong></td>
<td><strong>100%</strong></td>
<td><strong>77%</strong></td>
<td><strong>95%</strong></td>
<td><strong>50%</strong></td>
<td><strong>72%</strong></td>
</tr>
<tr>
<td>University of Southern Indiana</td>
<td>84%</td>
<td>64%</td>
<td>81%</td>
<td>18%</td>
<td>31%</td>
</tr>
<tr>
<td>Vincennes University</td>
<td>30%</td>
<td>48%</td>
<td>60%</td>
<td>10%</td>
<td>26%</td>
</tr>
</tbody>
</table>
Due to the success of the program thus far, the university has chosen to use the coaching model from Purdue Promise as the basis of support for Summer Start, Purdue-WL’s first conditional admittance program. Summer 2016 was the inaugural year of Summer Start coaching, and was supported primarily by a graduate assistant. For summer 2017, two professional staff coaches have been hired so that students can receive the continued support that Purdue Promise has demonstrated to be valuable for at-risk student populations.

Other implications of the success of Purdue Promise include approved funding for a two-year pilot study abroad program and an “in-house” Financial Aid Administrator. The study abroad pilot opens access to study abroad to the low-income Indiana residents served by Purdue Promise by helping subsidize students’ out-of-pocket costs. It also advances Purdue’s land grant mission, by helping scholarship recipients develop intercultural competence and become global citizens ready for careers in a diverse workforce.

Discussion and Conclusion

The greatest challenge to changing the Purdue Promise program to a coaching model was convincing the Program Coordinator’s supervisor and some partners it was ok to get rid of “best practices” for all students and move to a model to support coaching. The ultimate measure of student success at Purdue-WL is retention and on-time graduation. Purdue Promise will continue to strive for students to graduate on time and debt-free. When Purdue-WL reports graduation rates to the Board of Trustees it also reports a “+X%” to represent the percentage of students who graduated through other institutions as seen through National Student Clearinghouse data. Purdue Promise tracks causes of attrition and transfer destinations, and will consider students’ graduation from other institutions to be part of the program’s success, particularly if coaches helped students successfully transfer using their state awards. Retention and graduation rates are evaluated annually after Census in September.

The 2013 cohort is projected to be the first cohort to exceed the University’s four-year graduation rate and will be the fifth Purdue Promise cohort to graduate. Thus, the program will begin to assess longer-term impact, including five- and six-year graduation rates, first destination data (job placement, graduation/professional school enrollment, military enlistment, and starting salaries), and student loan debt compared to University and national averages. In addition to this limitation, the data we used relied largely on institutional research data. Future studies need to incorporate more formalized student-centered analysis, making use of their feedback and perceptions on programming and support so that the program can be more informed to more effectively serve the students. Nevertheless, the data that guided the program development and decisions would bear great significance to other universities as they try to improve the retention and graduation rates of their own low-income students.
References


Appendix A

51 Issues/Concerns that Affect Students’ Ability to Graduate on Time

1. personal medical issue
2. family medical issue
3. death of a family member
4. death of a friend or other close relationship
5. entering into a marriage
6. having custody of your own child
7. supporting a child (do not have custody)
8. previously in the foster care system
9. homelessness
10. having a family member in prison
11. personal legal concerns
12. family legal concerns
13. personal substance abuse issues
14. family substance abuse issues
15. personal mental health concerns
16. family mental health concerns
17. personal financial concerns
18. family financial concerns
19. feeling like you do not belong at Purdue
20. lack of social connections at Purdue
21. campus issue: hate speech
22. campus issue: violence
23. campus issue: discrimination or prejudice
24. campus issue: other (please explain)
25. withdrawal from one or more semesters
26. withdrawal from one or more classes
27. number of times changed major
28. semester internship
29. participation in the co-op program
30. working while going to school
31. study abroad (where and when)
32. academic program takes longer than 4 years
33. academic drop
34. difficulty getting in courses to stay on track
35. financial aid warning for GPA
36. financial aid warning for credit completion
37. financial aid denial for GPA
38. financial aid denial for credit completion
39. military duties
40. participation in Purdue varsity athletics
41. motivational issues
42. not being academically prepared for college
43. difficulty with study strategies
44. courses too difficult
45. retaking courses
46. lack of tutoring / academic support available
47. difficulty connecting with professors / TAs
48. taking summer courses
49. living off campus
50. participation in Greek Life
51. Purdue Promise scholarship requirements

12 At-Risk Factors that Lead to Academic Probation Status and/or Loss of Scholarship

1. academic standing (probation or re-admit on probation)
2. classification (year in school)
3. semester GPA
4. cumulative GPA
5. Satisfactory Academic Progress (SAP)
6. still undecided/exploratory or enrolled in a “pre” major after second year
7. on Purdue’s “at-risk student” list in first semester based on the predicted at-risk algorithm
8. Purdue Promise MAPS (academic recovery) program eligibility
9. registration – below 12 credits, between 12-15 credits, over 19 credits
10. anticipated credit completion deficit
11. scholarship status
12. candidate status vs. anticipated graduation date

Note: These lists were developed over three years of the coaching model by tracking the challenges most commonly discussed in coaching meetings (via contact log notes) and issues most commonly referenced in scholarship appeals. Ongoing data-mining and retention assessment determine the at-risk factors.
## Appendix B

### Purdue Promise vs TFCS vs Pell-Eligible vs university retention and graduation rates

<table>
<thead>
<tr>
<th>Year</th>
<th>Cohort</th>
<th>Original Cohort</th>
<th>1Yr Retention</th>
<th>2Yr Retention</th>
<th>3Yr Retention</th>
<th>4Yr Grad Rate</th>
<th>5Yr Grad Rate</th>
<th>6Yr Grad Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>Purdue Promise</td>
<td>171</td>
<td><strong>87.13%</strong></td>
<td><strong>82.46%</strong></td>
<td>72.51%</td>
<td>37.43%</td>
<td><strong>64.91%</strong></td>
<td><strong>69.59%</strong></td>
</tr>
<tr>
<td></td>
<td>TFCS only</td>
<td>163</td>
<td>84.05%</td>
<td>77.30%</td>
<td><strong>73.01%</strong></td>
<td>38.04%</td>
<td>61.96%</td>
<td>66.26%</td>
</tr>
<tr>
<td></td>
<td>Pell-Eligible only</td>
<td>855</td>
<td>83.86%</td>
<td>76.73%</td>
<td>72.05%</td>
<td>38.83%</td>
<td>61.29%</td>
<td>67.60%</td>
</tr>
<tr>
<td></td>
<td>All Purdue</td>
<td>6166</td>
<td>88.97%</td>
<td>82.50%</td>
<td>78.61%</td>
<td>46.76%</td>
<td>70.60%</td>
<td>75.43%</td>
</tr>
<tr>
<td>2010</td>
<td>Purdue Promise</td>
<td>223</td>
<td><strong>91.93%</strong></td>
<td><strong>82.06%</strong></td>
<td>72.65%</td>
<td>42.60%</td>
<td><strong>66.37%</strong></td>
<td><strong>69.51%</strong></td>
</tr>
<tr>
<td></td>
<td>TFCS only</td>
<td>122</td>
<td>85.25%</td>
<td>77.05%</td>
<td>72.95%</td>
<td>45.90%</td>
<td><strong>68.85%</strong></td>
<td><strong>72.13%</strong></td>
</tr>
<tr>
<td></td>
<td>Pell-Eligible only</td>
<td>935</td>
<td>86.84%</td>
<td>79.36%</td>
<td>75.40%</td>
<td>42.89%</td>
<td><strong>66.95%</strong></td>
<td><strong>71.34%</strong></td>
</tr>
<tr>
<td></td>
<td>All Purdue</td>
<td>6353</td>
<td>90.23%</td>
<td>83.69%</td>
<td>79.19%</td>
<td>49.22%</td>
<td>72.61%</td>
<td>76.97%</td>
</tr>
<tr>
<td>2011</td>
<td>Purdue Promise</td>
<td>252</td>
<td><strong>90.08%</strong></td>
<td>81.75%</td>
<td>77.78%</td>
<td>43.25%</td>
<td><strong>65.48%</strong></td>
<td><strong>69.59%</strong></td>
</tr>
<tr>
<td></td>
<td>TFCS only</td>
<td>125</td>
<td>88.00%</td>
<td>86.40%</td>
<td>82.40%</td>
<td>57.60%</td>
<td>79.20%</td>
<td><strong>82.50%</strong></td>
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<td></td>
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<td>886</td>
<td>84.99%</td>
<td>78.67%</td>
<td>74.15%</td>
<td>43.45%</td>
<td><strong>68.28%</strong></td>
<td><strong>74.19%</strong></td>
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<td>6660</td>
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<td>80.95%</td>
<td>51.49%</td>
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<tr>
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<td>244</td>
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<td><strong>81.15%</strong></td>
<td><strong>77.46%</strong></td>
<td><strong>53.69%</strong></td>
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<tr>
<td></td>
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<td>137</td>
<td>87.59%</td>
<td>78.83%</td>
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<td><strong>68.28%</strong></td>
<td><strong>74.19%</strong></td>
</tr>
<tr>
<td></td>
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<td>800</td>
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<td>80.63%</td>
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<td><strong>76.97%</strong></td>
</tr>
<tr>
<td>2013</td>
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<td>276</td>
<td><strong>92.39%</strong></td>
<td><strong>87.32%</strong></td>
<td><strong>77.90%</strong></td>
<td><strong>53.69%</strong></td>
<td><strong>65.48%</strong></td>
<td><strong>72.13%</strong></td>
</tr>
<tr>
<td></td>
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<td>126</td>
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<td>75.40%</td>
<td>73.81%</td>
<td><strong>74.45%</strong></td>
<td><strong>85.27%</strong></td>
<td><strong>93.13%</strong></td>
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<td>76.47%</td>
<td><strong>74.45%</strong></td>
<td><strong>85.27%</strong></td>
<td><strong>93.13%</strong></td>
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<tr>
<td></td>
<td>All Purdue</td>
<td>6319</td>
<td>92.63%</td>
<td>87.69%</td>
<td>83.49%</td>
<td><strong>74.45%</strong></td>
<td><strong>85.27%</strong></td>
<td><strong>93.13%</strong></td>
</tr>
<tr>
<td>2014</td>
<td>Purdue Promise</td>
<td>292</td>
<td>92.81%</td>
<td>85.27%</td>
<td><strong>73.81%</strong></td>
<td><strong>74.45%</strong></td>
<td><strong>85.27%</strong></td>
<td><strong>93.13%</strong></td>
</tr>
<tr>
<td></td>
<td>TFCS only</td>
<td>160</td>
<td>93.13%</td>
<td>88.75%</td>
<td><strong>74.45%</strong></td>
<td><strong>85.27%</strong></td>
<td><strong>93.13%</strong></td>
<td><strong>93.13%</strong></td>
</tr>
<tr>
<td></td>
<td>Pell-Eligible only</td>
<td>688</td>
<td>90.26%</td>
<td>84.16%</td>
<td><strong>74.45%</strong></td>
<td><strong>85.27%</strong></td>
<td><strong>93.13%</strong></td>
<td><strong>93.13%</strong></td>
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<td><strong>74.45%</strong></td>
<td><strong>85.27%</strong></td>
<td><strong>93.13%</strong></td>
<td><strong>93.13%</strong></td>
</tr>
<tr>
<td>2015</td>
<td>Purdue Promise</td>
<td>347</td>
<td><strong>90.20%</strong></td>
<td><strong>88.03%</strong></td>
<td><strong>77.90%</strong></td>
<td><strong>53.69%</strong></td>
<td><strong>65.48%</strong></td>
<td><strong>72.13%</strong></td>
</tr>
<tr>
<td></td>
<td>TFCS only</td>
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<td>87.44%</td>
<td><strong>85.27%</strong></td>
<td><strong>73.81%</strong></td>
<td><strong>74.45%</strong></td>
<td><strong>85.27%</strong></td>
<td><strong>93.13%</strong></td>
</tr>
<tr>
<td></td>
<td>Pell-Eligible only</td>
<td>730</td>
<td>88.36%</td>
<td><strong>85.27%</strong></td>
<td><strong>73.81%</strong></td>
<td><strong>74.45%</strong></td>
<td><strong>85.27%</strong></td>
<td><strong>93.13%</strong></td>
</tr>
<tr>
<td></td>
<td>All Purdue</td>
<td>6855</td>
<td>91.76%</td>
<td><strong>88.03%</strong></td>
<td><strong>77.90%</strong></td>
<td><strong>53.69%</strong></td>
<td><strong>65.48%</strong></td>
<td><strong>72.13%</strong></td>
</tr>
</tbody>
</table>

Note: “TFCS only” includes students who are TFCS but not served by Purdue Promise. “Pell-Eligible only” includes students who are Pell-eligible but not served by Purdue Promise or TFCS. Purdue Promise piloted the coaching model in spring 2013, and implemented the model for all cohorts in fall 2013. Rates in bolded font represent Purdue Promise rates that exceed the TFCS only rates.
Abstract: Mathematics courses are gateway classes for many students. One of the most effective ways to open that gateway is to teach mathematics in a collaborative, unified *Mathematics Learning Center Model*. Within this model, students actively engage with mathematical and statistical concepts via conversation and problem-solving activities within a community of students and teachers. The elements of an effective mathematics learning center include team teaching, vertical curriculum alignment, collaborative learning, varied assessments, computerized feedback, written assignments, active learning, targeted support, professional development, and careful organization. At the University of Arkansas, the mission of the Math Resource and Teaching Center (MRTC) is to emphasize relevance, cultivate understanding, and promote utilization of mathematics and statistics by providing an engaging and collaborative educational environment for our diverse community of learners. In 2010, the enrollment in MRTC-supported courses was 3,651 students with a 66% success rate. Contrasting to fall 2015 when student enrollment grew by 57% to 5,744 students, the success rates for those students rose to 73%. This paper describes the essential elements of the *Mathematics Learning Center Model*.

Mathematics Classes are Gateway Courses

Gateway courses prevent students from retaining and graduating. The John N. Gardner Institute for Excellence in Undergraduate Education defines gateway courses as foundational, high-risk, and high enrollment (Gardner, 2017). Service collegiate mathematics courses such as College Algebra, Quantitative Literacy, Principles of Statistics, and Calculus are foundational. For most college majors, a mathematics class is part of their core curriculum and in STEM fields, a prerequisite for more advanced courses. College Algebra, in particular, is identified as a high risk class due to high DFW rates in the course (Hacker, 2012). Many majors require at least one mathematics class, thus, these courses typically have high enrollments across all sections.

Background

The University of Arkansas at Fayetteville is the flagship, land grant institution in Arkansas. Located in the northwest corner of the state, the university is a member of the Southeastern Conference (SEC) and is comprised of seven colleges. Student enrollment has grown rapidly in recent years. In the past 10 fall semesters, student enrollment has increased by over 46% from 18,648 students in 2007 to 27,194 students in fall 2016. During this same time period, student retention has remained fairly constant, around 82% for first-year students. However, the six-year graduation rate has risen from 58% in 2007 to almost 65% in 2016.

Service mathematics classes are considered gateway courses at the University of Arkansas. By state law, all college students in Arkansas are required to take at least a College Algebra or Quantitative Literacy course as part of the core graduation requirement. Many majors require students to take at least
one mathematics course besides College Algebra or Quantitative Literacy. Thus, a large portion of students are enrolled in mathematics classes during any given semester. In Fall 2016 semester, 2,017 students were enrolled in College Algebra and 85 students were enrolled in the newly designed Quantitative Literacy course in which 77% of these students received an A, B or C in the course. In contrast, in Fall 2007 when 1,142 students were enrolled in College Algebra, only 47% made an A, B, or C in the course.

The Math Resource and Teaching Center (MRTC) is the name given to the mathematics learning center housed in the Department of Mathematical Sciences at the University of Arkansas since the 1990’s. The primary responsibility of the center over the years has been to support students enrolled in gateway classes: College Algebra, service courses for non-STEM (Science, Technology, Engineering, and Mathematics) majors, and lower level mathematics courses for STEM majors. In Fall 2007, we implemented a pure emporium style curriculum to teach all sections of College Algebra. In these sections, students attended lecture one day per week. Then they were required to spend an additional two hours per week in the computerized math lab to work on electronic homework. All of their quizzes and exams were given on the computer. After one semester, we found the pure emporium model ineffective for our students as the failure rate had risen from 41% in Fall 2006 to 53% in Fall 2007. Thus, we began to develop a more hybrid approach to teaching College Algebra (and eventually other service mathematics and statistics classes) which we call the Mathematics Learning Center Model. Students still complete computerized homework, quizzes, and tests. However, they also engage in active learning activities in the classroom using written and oral assessments and assignments as well. After implementing the model, in Spring 2015, outside reviewers stated in the department’s Academic Program Review that the MRTC “shows considerable evidence of good practice, and it can document its success through the steady decrease in failure rates in the courses that it offers” (Jaco & Teitelbaum, 2015). The courses attributed to the Math Resource and Teaching Center include: Beginning and Intermediate Algebra, College Algebra, College Algebra with Review, Trigonometry, PreCalculus, Survey of Calculus, Finite Mathematics, Math Structures I, Math Structures II, and Introduction to Statistic. In Fall 2010 there were 3,651 students enrolled in these MRTC courses with a 66% success rate (percentage of students who received an A, B or C in the course). In Fall 2015, the number of students grew to 5,744 students as did their success rate to 73%.

As our center has evolved over the years, we have come to learn that a successful mathematics learning center is much more than just a space. It is the integration of all elements necessary for students to obtain a deeper understanding of mathematics and statistics. The nuts and bolts used to build the Math Resource and Teaching Center are a focused mission, space, learning aids, collaborative teaching tools, and human resources. The focused mission is on learning, understanding, and appreciation of mathematics for all learners. The space includes a teaching lab, computerized testing center, collaborative meeting/office spaces, and cooperative classrooms. The learning aids include varied learning activities and assessments involving technology, active learning, engaged pedagogy, writing, and oral communication. The collaborative teaching tools involve team teaching, focus groups, peer coaching, and professional development. The human resources, all people working in collaboration, include students, teachers, and administrators. Integrated together, these ideas build the Mathematics Learning Center Model.

**Focused Mission**

Several years ago, when writing shared mission and vision statements was vogue, the members of the MRTC faculty and staff collaborated to write the following mission and vision statements for the organization:

The mission of the MRTC is to emphasize relevance, cultivate understanding, and promote utilization of mathematics and statistics by providing an engaging and collaborative educational
environment for our diverse community of learners. The MRTC’s vision is a society where people effectively use mathematics and statistics to improve and enrich their communities. (University of Arkansas, 2015)

As with any vision and mission statement, we strive to make all decisions based on these ideals. At the heart of the mission statement is creating a collaborative educational environment. When the organization is collaborative, everything is interconnected. This is just like mathematics. A problem that many of our students share is that they do not understand the connections among mathematical ideas. Making these connections is essential. It helps students form a deeper understanding of mathematics and helps them relate mathematical ideas to other subjects and their own life experiences (National Council of Teachers of Mathematics, 2000). It is our hope that in modeling connectedness in our organization, they will be able to grasp the interconnectedness of mathematical and statistical concepts.

Space

At the University of Arkansas, the Math Resource and Teaching Center (MRTC) space is made up of a teaching lab (Math Teaching Lab), a testing center (Math Testing Center), collaborative offices, meeting spaces, and collaborative teaching spaces. Prior to 2015, these spaces were primarily housed in the Science Engineering Building, a utilitarian building made out of cement blocks which housed both the mathematical sciences and biology departments. In July 2015, the portions of the departments devoted to teaching in both biology and mathematical sciences were moved into Champions Hall, an innovative new building designed to foster a collaborative learning environment for undergraduate students. The MRTC makes up the entire third floor of the building.

Front and center of the MRTC in Champions Hall, is the Math Teaching Lab, a primarily “Bring Your Own Device” (BYOD) teaching lab reserved for students studying mathematics and statistics. This lab was designed with comfort and aesthetics in mind to create an inviting space where students would want to study. The room is bright and airy with large windows and mathematical art. Seating is set up to mimic that of a coffee shop with high and low bistro-style tables, booths, and couches. Chairs and tables are easily movable to accommodate both larger and smaller study groups. Previous research on learning spaces has shown that, in spaces like this, students find it easier to collaborate, they participate more, and they vastly prefer it, (97%) over computer desks. Students also feel “more connected” and have a “better sense of community” in such spaces (Zhang & Maddison, 2016).

In this “Bring Your Own Device” Lab, which accommodates 149 people, students are asked to bring their own computer, tablet, calculator, or whatever technology they need to study mathematics or statistics. The many collaborative spaces have a plethora of outlets to allow students to charge their devices. In addition, forty-one “zero clients”, which are ultra-thin terminals connected to a central server for storage, provide computer access to students who do not have or do not wish to carry their laptop or other device on campus. This system requires less energy and space than a traditional computer lab. As students enter the room, they swipe their cards in the “Minute Keeper” machine to record their attendance. The Minute Keeper program was written by the IT Specialist specifically to record attendance in the teaching and testing labs. The Math Teaching Lab is staffed with teachers from the department, peer mentors, learning assistants, and graduate teaching assistants. Ideally, all of the staff is knowledgeable in all MRTC mathematics courses, allowing students to ask questions any time the lab is open. Currently, the Math Teaching Lab is open Monday through Thursday from 8:30am-8:00pm, Fridays 8:30am-4:00pm, and Sundays noon-8:00pm.

The majority of students who utilize the Math Teaching Lab are required to take computerized tests and exams in the Math Testing Center, located in the adjacent room. Currently, the Math Testing Center opens 30 minutes after the Math Teaching Lab opens and closes 30 minutes prior to the close of the Math Teaching Lab. The proctors are teachers and/or hourly employees who each take turns supervising the testing center for a short period of time each week. For most classes, students are required to master a computerized homework set prior to being given access to take a computerized test.
The Math Testing Center was constructed paying specific attention to organizational efficiency and universal design elements to be compliant with the American Disability Act standards. The check-in portion of the Testing Center is a foyer, completely separate from the testing room. As students enter the foyer, they leave their backpacks and other belongings in small lockers, cubbies, or a special bench created for larger packages such as musical instruments. After the student leaves their belongings in the secured area, they present their student ID to the first proctor who verifies their identity with the University’s ID Card Reader, records their attendance on the Testing Center Minute Keeper machine, and gives them a piece of regulation scratch paper, their seat assignment, and appropriate calculator. At that point, the student enters the 103 seat computerized testing room which is proctored by one or two other members of the MRTC teaching and/or support staff. When students are ready to begin testing, they place a cup on top of the cubby wall behind their computer to indicate to the proctor that they are ready to receive the password and begin the computerized assessment—whether it is a quiz, test or exam.

In the MRTC, the tests are usually scheduled over a two-day time period for each testing group. This gives each testing group the flexibility to test at any time during that period. For example, a testing group may be assigned to test anytime the Testing Center is open on Monday and Tuesday of a given week. Students test on a first-come, first-served basis. This allows students to choose to arrive at the testing center when they feel prepared to take the test at times that are convenient for them. This frees the scheduler from the monotony of scheduling and rescheduling individual testing times for students.

At the end of most assessments, students are able to immediately see their scores and compare their answers to the correct answers. While reviewing their answers, if students feel a question was scored unfairly or if they feel they deserve additional credit for an answer, they are allowed to submit a “Pink Sheet” form. On this form, students must write an explanation as to why they feel they deserve credit or partial credit for their answer. The form is called a “Pink Sheet” because it is traditionally copied on pink paper to be conspicuous from the scratch paper. These “Pink Sheets” have helped reduce the amount of student stress in the testing center while also assisting in the learning process, allowing students time immediately after the assessment to reflect on items they missed.

In designing the space for testing, special consideration was given to students with physical or learning disabilities. If a student has such a disability, they register with the Center for Educational Access (CEA). The CEA Office has identified the Math Testing Center in Champions Hall as a “reduced distraction” testing environment which meets the needs of most requested accommodations. However, some students require a distraction-free environment. These students may take their assessments in one of three private testing booths that can be accessed from the Testing Center foyer. Students make arrangements to use these testing booths with the Testing Center Coordinator in collaboration with their CEA counselor.

In addition to the teaching lab and testing center, teachers need space to meet with students and each other. Prior to the design phase, university leadership determined that individual faculty office space was not to be included in the hall. Thus, architects designed collaborative office spaces for all MRTC teachers. These open office spaces were sectioned into pods in which teaching teams were assigned desk/computer/work spaces. This allowed the teams of teachers to work closely together to design curriculum, plan classes, and address student issues. Each teacher has a chair with wheels to allow easy movement between their desk and a common table placed in each pod for team collaboration. Since there is a serious lack of office space on our campus, these are the only office spaces available to the teachers.

In addition to the collaborative office space, meeting spaces and public study/gathering spaces are also available around the building to allow cross-team meetings, student group meetings, committee meetings, and collaborative meetings with personnel from outside of the department. Many of these meeting rooms and public study/gathering spaces have large display monitors to allow faculty to collaborate on computerized assessments, learning tools, or presentations.

Although not normally considered part of a mathematics learning center, the classroom should be included in planning a good environment for student learning. Classrooms should be designed to encourage collaboration by including movable furniture that allows teachers and students to rearrange the classroom space to allow for different combinations of student group work and active learning exercises.
When asked what they wanted more of, students overwhelmingly (86%) chose collaborative learning spaces such as this over quiet study spaces (Morrone, Ouimet, Siering, & Arthur, 2014). Throughout campus, a variety of collaborative classroom configurations are available which may include moveable tables of various shapes with student chairs or individual movable student desks. Technology should also be an integral part of the space to allow students to experiment, present, and explore a wide variety of topics in the classroom. Most classrooms are equipped with presentation monitors or projectors that can connect to a computer, laptop, tablet, or document camera.

**Learning Aids**

Since students learn in different ways and teachers have different teaching styles, an assortment of learning aids should be employed to create a productive learning environment. In an effective Mathematics Learning Center, these learning aids include a collection of learning activities and assessments involving technology, engaged pedagogy, and written and oral communication.

A wide variety of computerized mathematics educational software with corresponding electronic/paper textbooks is available for adoption in almost all service mathematics classes. Computerized systems are an important component for operating a large organization responsible for teaching many students and mentoring new teachers. They offer an efficient way to administer homework, quizzes, tests, and exams, freeing teachers to focus more on student learning and classroom activities. These systems also deliver immediate feedback to the students. Research has shown that these homework systems get positive reviews from students, with students in sections using online math homework software giving higher ratings to productivity outside of class, preparation for tests, and feedback than those in traditional paper/pencil homework sections (Zerr, 2007). These programs also have high favorability ratings among students (63%); and faculty are able to do things they were not able to do without it. A homework software study from the American Mathematical Society found that 76% of faculty use homework software because they believe students learn better with immediate feedback and the ability to re-work similar problems. A majority of faculty also use the software because it allows them to grade homework that was previously ungraded. The software is so popular among faculty, the study of 467 mathematics departments found that almost no departments had decreased or discontinued use of the software. In fact, 35%-50% of departments, depending on type of institution, had increased the number of sections using the software in recent years (Kehoe, 2010). In addition to positive reviews from students and faculty, students who take courses with online mathematics homework software systems also perform better (Zerr, 2007) and have higher retention rates (Burch & Kuo, 2010).

When choosing which systems are best to adopt, we learned from experience that the key is to unify and diversify. Adopt the best system available for all sections of a specific course. (e.g., we adopted the adaptive ALEKs program for remedial Algebra sections and MyMathLab for the more advanced Business Finite Mathematics classes.) Adopting the same software for all sections of a course is important to create a unified, carefully planned course curriculum. Adopting different systems across the mathematics and statistics curriculum provides a healthy competition between vendors to continue to support and improve their products. It also assures that if any one system goes down, the entire organization does not crumble simultaneously.

Another important technology to incorporate into the classroom are videos. Relevant, high-quality videos that introduce and explain mathematical topics are readily available online or as part of the popular mathematics educational software systems. In addition, high quality video recording equipment and software have become less expensive and user-friendly for teachers to create their own videos. Whether professionally produced or teacher created, videos can offer succinct lessons to teach and reteach concepts both to students and new teachers. These videos can be used to demonstrate how to use technology (graphing calculators, statistical software, etc.) or formulas which can open up class time for example problems, group work, or any number of other activities. Videos can be viewed and re-viewed...
24/7/365. They can be an important tool to help students gain a deeper understanding of mathematics and how the mathematical concepts relate to their world.

Although technologies continue to become an increasingly important part of assessing and learning mathematics and statistics in colleges across the country, students still need to be actively engaged in mathematical and statistical reasoning and problem solving both inside and outside the classroom. This engagement needs to include oral and written communication about mathematics. While students are engaged in communication about mathematics, they are able to develop critical thinking skills and reflective learning about mathematical concepts.

Within the classroom, students need to participate in active learning activities which require them to communicate with each other and their teacher about mathematics. Studies have overwhelmingly shown that active learning leads to better student outcomes. A meta study by Freeman et al. (2014) found that active learning increases performance on exams by just less than 0.5 standard deviations, and this holds true in all class sizes, course types, and levels. While some teachers believe they do not have the time for active learning, a study by Kogan and Laursen (2014) suggests that “covering” less material had no negative effect on student performance in future mathematics courses.

In the classroom, teachers must employ engaging pedagogy to foster a learning environment where students critically think and reflect on mathematical ideas. Students must be given a chance to experiment with mathematical ideas to develop their understanding and communicate those ideas with others. Engaging students in cooperative groups promotes learning and leads to retention and graduation (Tinto, 2004). In these groups, it is safe for students to “fail.” It is easy for students to give up if they fail while working alone, but working in a group allows students to share ideas and contribute different pieces of information, even if no member fully understands the concept. It also allows the teacher to give hints or provide guidance that they may not have time for if they needed to interact with each student individually. In this way students can learn that “failing” is not the end of the road, but simply a challenge that can be overcome.

Since all collegiate level mathematics learning does not happen in the classroom, students need a safe place to ask questions. In addition to talking to their teachers during office hours, students can meet with them or other members of the teaching team in the Math Teaching Lab. All MRTC teachers work shifts in the Math Teaching Lab using a “Co-Op” office hour model in which any student can ask any teacher for help. The opportunity to talk to different teachers about the material gives the students the chance to learn from different perspectives. In addition, the “Co-Op” office hours allow students an opportunity to ask teachers questions one-on-one that they may be too embarrassed to ask in class and may feel is a bother during office hours. These office hours present a unique opportunity, often not possible in the classroom, for students to make a positive connection with a teacher, which has been shown to increase student retention (Habley, 1988; Wyckoff, 1998).

In addition to maximizing assistance to students, “Co-Op” office hours also help the teachers to be aligned and informed. By working with students from other sections, teachers become aware of pacing in other sections of a given course and how other teachers approach the same curriculum. By working with students in different courses, all teachers become aware of curriculum in other courses. This assists teachers to be prepared to teach different courses as well as promotes vertical curriculum alignment, ensuring that prerequisite courses provide opportunities for mastery of essential topics.

Collaborative Teaching Tools

At the MRTC, we adopted a collaborative teaching approach embracing the simple philosophy, “more heads are better than one.” The elements of the collaborative teaching approach employed at the MRTC are team teaching, focus groups, peer coaching, and professional development. Communication between all members of the staff is essential.

All teachers are members of two collaborative teaching teams. In addition to teaching sections of the courses, all members of the team are responsible for ongoing curriculum redevelopment and team-
based lesson planning. This effort is led by a course coordinator who is given a course reduction to serve as the team leader for all sections of a specific mathematics or statistics course. The course coordinator is responsible for supervising the construction of the common syllabus, arranging weekly team meetings, mentoring teachers, and supervising the development and implementation of computerized assignments and assessments. This leads to an efficient method to ensure horizontal curriculum alignment, enabling all sections of the course to address the same learning objectives in a similar manner. Since all of the teachers for the course teach in collaboration, students have more people to turn to for help. Since all of the assessments, many of the assignments, and the grading rubrics are consistent across all sections, there is a greater feeling of “fairness” among the students, leaving them less likely to complain about their section teacher.

To enable the teaching teams to share good ideas with each other, the coordinators all meet weekly with the director and assistant director. In this meeting, the coordinators share good practices, ask for advice, discuss policies and procedures for the MRTC, and work on vertical curriculum alignment. Information from this meeting is then shared by the coordinators with the rest of the members of the teaching team in the individual class teaching team meetings.

Another way that information is shared between teachers from different teaching teams is through focus group meetings. In these meetings, a diverse group of teachers meet together to focus on one specific topic or problem. Membership on a focus group could include a graduate student teaching College Algebra, a clinical teaching professor teaching upper-level mathematics classes, and two instructors teaching lower-level mathematics classes. Focus group topics have included: journal club readings in mathematics or mathematics education, data analysis of various MRTC student data, writing and revising the MRTC Handbook (i.e., Policies and Procedures), or implementing universal design elements in the mathematics classroom. Each semester the groups and topics change based on the interests of the teachers and needs of the organization. These focus groups, tackling relevant, important issues of the day, have been considered by membership of the upper administration as one of the greatest contributions of the MRTC.

In addition to sharing ideas with each other, another key component of collaborative teaching is a collaborative effort towards developing professionally as a teacher. In the MRTC, there are many opportunities to participate in meaningful professional development. The week prior to the beginning of each semester, all MRTC staff participate in various professional development activities during “Pre-semester Meetings”. These activities may include bringing in an outside speaker to discuss and demonstrate good practices in teaching or allowing current teachers to showcase their own successful practices. In order for the investment in professional development activities to pay off, the topic of the activity must be decided by the needs and interests of the teachers. It also must be collaborative, reflective, and circular in nature so that the teachers actually implement the new ideas shared in the professional development activities.

One way to ensure that new ideas learned in professional development activities are applied is through peer coaching (Barkley & Bianco, 2010). In the MRTC, peer coaching is implemented by asking teachers to observe each other and provide feedback. One teacher described the experience as having an extra set of eyes in the classroom to see things that you would not normally see. Teachers do subtle things in the classroom which may add to or distract from the learning environment. Bringing these things to light informs both the teacher and the observer about good practices in teaching. Thus, creating an environment where the observer also learns about teaching from the teacher that they are observing. In addition to strengthening pedagogical aspects of teaching, peer coaching also informs curriculum alignment. Teachers on the same teaching team learn how other teachers address similar topics, while teachers from other teams learn how prerequisite material is discussed in the classroom or required in another course.

An important element of collaboration is careful communication. All members of the MRTC staff communicate with each other by attending various weekly meetings and email. As email becomes a less popular mode of communication among students, MRTC teachers and staff must communicate with students in a wider variety of modes including announcements in Blackboard, Twitter, and other social
media applications. In addition to these more formal methods of communication, all teachers and students are able to informally communicate with each other in the various collaborative spaces throughout the MRTC including the Math Teaching Lab, collaborative office spaces, and public study/gathering spaces. The opportunity for informal conversation helps to foster a more positive learning and working environment for both the students and teachers.

**Human Resources**

The most important elements in any organization are the people. For the MRTC to operate, it requires the collaboration of three groups of people: students, teachers, and administrators. Student success in learning mathematics and statistics is the goal. Teachers are considered successful when their students are successful. In turn, administrators are considered successful when the teachers and students are successful. Working in collaboration towards a common goal of student success helps ensure success of the organization.

The primary focus of the MRTC is on the students’ need to obtain a deeper understanding of mathematics and statistics. This can be a challenge as many students come to college underprepared to study collegiate level mathematics. These deficiencies must be addressed by creating an environment conducive to student learning for all students. The Math Teaching Lab provides an environment where teachers are able to explain pre-requisite material—information from earlier courses they may have forgotten or not initially understood—on an as-needed basis for students who are struggling. Since the Teaching Lab was designed to encourage student interaction, students are also able to help teach each other with these forgotten or misunderstood concepts.

Special attention is given to placing students in the correct mathematics and statistics courses. At the University of Arkansas, students may be placed in mathematics classes based on their Math ACT score, University of Arkansas Math Placement Test score, or enrollment in a previous course. As new research on multiple placement tools is conducted, our goal is to continue to explore alternate placement tools. Placing a student in the correct course requires that the course is sufficiently challenging and educational while also being a course in which the student can be successful. The course also must be appropriate for a student’s program of study. In an effort to place students in such a course, “stretch” courses were created for students of borderline mathematical ability levels. Students who possess most, but not all, of the prerequisite skills for College Algebra or Calculus I are able to enroll in “stretch” College Algebra, or “stretch” Calculus I, respectively, which meet an additional day per week to address missing pre-requisite knowledge. Currently, we are developing courses using the co-requisite model, offering recitation like support sections for students who require remediation.

Students also play an important part in assisting other students. First, students within classes are asked to collaborate with each other to assist in their learning. Second, successful students are employed by the MRTC to assist other students. Undergraduate students are employed in the MRTC as Learning Assistants, Supplemental Instruction Leaders, and Peer Tutors. Learning Assistants work with teachers in the classroom to assist students. Supplemental Instruction Leaders attend classes as model students and then conduct group study activities for the students outside of the classroom. Peer Tutors work in the Math Teaching Lab assisting students when they have questions. Students helping students is a powerful tool to ensure student success.

The MRTC teachers are a collaborative faculty focused on professional growth and student success. The teachers in the MRTC are made up of clinical professors, instructors, lecturers, adjuncts, and Graduate Teaching Assistants (GTAs). These teachers are focused on teaching and exploring new and better ways of teaching. Teachers are selected based on their knowledge of mathematics and teaching expertise, but also based on their desire to collaborate with each other to continually improve their teaching skills and the courses they teach. Experimenting with new and emerging teaching strategies such as flipped classes, self-paced classes, and online classes is encouraged. Teachers evaluate the effectiveness of the methods, make changes as necessary, and share and collaborate with other teachers to...
determine best practices and get ideas for future experimentation. Their jobs all include teaching the classes, working in the MRTC, developing professionally, and collaborating with each other. In addition, one teacher is assigned as the course coordinator for each MRTC course. The course coordinator acts as the lead teacher for the teaching team. Classwork varies slightly from teacher to teacher to accommodate teaching styles and individual student needs. Each teacher has a Surface Pro and collaborative work space.

Student-centered administrative support staff are critical. The support staff employed in the MRTC includes the Administrative Assistant, IT Specialist, Testing Center Coordinator, Director and Assistant Director. It is critical that each of these staff members are able to collaborate effectively to coordinate the many responsibilities and translate the organization’s mission and vision into daily operations.

The Administrative Assistant’s first responsibility is to assist students. He/she performs receptionist duties, clerical, and other administrative duties such as assisting personnel, daily operations, and Testing Center support. Someone who is approachable, friendly, and helpful is most beneficial for the success of the center.

Having an IT Specialist who is both helpful and knowledgeable is crucial to the success of the Math Learning Center. The IT Specialist must be competent to support both the diverse hardware and software needs of the center and all of the constituents. It requires an understanding to maintain a computerized testing lab, supporting a zero client system in the teaching lab, as well as the wide variety of the individual devices used by the center’s students and teachers. In addition, the IT Specialist must be adaptable to support the diverse learning platforms such as Blackboard, MyLabsPlus, ALEKS, and WebAssign. He/she must also be eager to learn how to run the newest mathematics and/or statistics educational software package on the latest personal computerized devices. The MRTC IT Specialist has also created educational supportive software to record class and lab attendance, implemented and managed software to ensure testing security, maintained webpages and other social media to streamline communication/information, and supervised data storage and retrieval to analyze student success. Not only is the IT Specialist expected to be knowledgeable of all of the latest hardware and software available to the students, he/she must also be willing to collaborate and effectively communicate with the students and departmental colleagues.

One of the key departmental colleagues is the teacher who is also assigned to work as the Testing Center Coordinator. This individual is given a teaching break to be responsible for scheduling tests and proctors. He/she is also responsible for ensuring that all students who require special accommodations are effectively served. He/she is also responsible for creating and organizing all Testing Center documentation including scratch paper and relevant forms. This position is a short-term, renewable commitment.

The Director and Assistant Director assume the leadership roles in the MRTC. Although they are responsible for supervising, hiring, and mentoring the MRTC employees and teachers, they must maintain a collaborative spirit in fulfilling these duties. It is in this collaborative spirit that all members of the MRTC can work together to create a better learning environment for the students. The Director and Assistant Director oversee curriculum development and alignment. They are responsible to research and implement strategies for improvement. They write, maintain, and disseminate the MRTC’s policies and procedures. They propose long-term and short-term goals for the organization. They organize and supervise the ongoing professional development of the teachers, staff and student employees. They make work assignments and meeting arrangements. They are responsible for program assessment and employee evaluations. In addition to collaborating with their colleagues in the MRTC, they must also collaborate and coordinate with other university stakeholders. All of these tasks must be completed in the collaborative spirit of servant leadership. The characteristics of servant leadership include valuing people, developing people, building community, and shared leadership (Laub, 1999).
Conclusion

Mathematics classes are gateway courses. Although gateway courses can serve as barriers to student success, the Mathematics Learning Center Model can assist students in overcoming these barriers. The Mathematics Learning Center Model is more than just a space. It is a combination of a focused mission, collaborative teaching tools, interactive learning aids, and collaborative teachers and staff devoted to student success. When creating a learning environment with student success at the heart of the mission, students are given the tools necessary to succeed, persist, and graduate.
Reference List


Optimizing Institutional Resources: Opportunities for Identifying At-Risk Students and Increasing Persistence Rates

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Abstract: Optimizing the use of existing institutional resources is crucial in this day and age due to fluctuating sources of revenue and shrinking financial support from state, federal, and external agencies. In order to meet these challenges, the Division of Student Affairs of Stockton University launched a retention program by using existing university resources including 129 volunteer faculty, staff, and student mentors to identify at-risk students and promote student persistence. This paper highlights the collaborative efforts between the Division of Student Affairs and Academic Affairs, the development of policies and strategies in promoting a student retention program, and its successes and lessons learned in implementing this program.

Introduction

The CARE Program (Coordinated Actions to Retain and Educate) was officially launched in the Fall 2013 semester by the Office of the Dean of Stockton University, in partnership with Stockton faculty, Office of Academic Advising, Office of Student Rights and Responsibilities, The Wellness Center, the Career Center and the Academic Tutoring Centers.

The CARE Program aims to help students navigate and maximize the benefits of various academic and student life resources available at Stockton. This program includes individualized mentoring by Stockton faculty, staff, and student mentors. It is designed to help at-risk students develop academically, socially, and personally and is open to other segments of the student population, including freshmen, transfers, and students on the Satisfactory Academic Progress list of Stockton’s Office of Financial Aid. The program also serves students who self-identify as needing CARE services.

Background

Stockton University offers both undergraduate and master’s programs in the northern region of the United States. Stockton is a public university located in southern New Jersey. It offers a total of 14 master’s and doctoral programs. The retention rate of freshmen who started in 2014 and returned in 2015 is 87 percent. In the Fall 2016 semester, Stockton had 8,728 full- and part-time undergraduate and graduate students. The four-year graduation rate for Stockton’s 2012 cohort of first-time students was 57 percent compared to 40 percent statewide.

“[With] increasing college tuition, soaring student debt, globalization and rapidly changing job markets, the cost of attending college and failing to graduate is higher than ever and our students pay the cost in high student loan debt and low earning potential” (Carey, 2005). In the summer of 2012, President Obama stated in his proposal to higher education institutions to, “hold colleges accountable for cost, value and quality (Cowan, 2013, para. 2).” Given Stockton’s low four-year graduation rate of 57 percent, there is an opportunity to increase its retention and completion rates by optimizing usage of readily available institutional resources, and possibly decreasing or maintaining the cost of education at Stockton.
To respond to these challenges, Stockton’s Division of Student Affairs developed a student-centered and volunteer-driven program which helped identify segments of the student population considered at-risk but not served by Stockton’s retention-related programs. These programs include the Preceptorial Advising Program, FRST Program, Honors Program, Learning Access Program, and Educational Opportunity Fund Program. The program serves an average of 100 students each semester with a one-on-one mentoring component. All 100 plus mentors are volunteers composed of Stockton faculty, staff, and students.

**Vision**

The vision of the CARE Program is to optimize the use of Stockton’s resources in collaboration with staff, faculty, and key administrators to help students realize their academic and career goals.

The Program explores retention initiatives that focus on retaining at-risk students including first-time freshmen, sophomores and transfer students, in collaboration with various departments at Stockton. The term at-risk is used to describe students who show signs of academic difficulties, time management and organizational difficulties, interpersonal relations problem behavioral concern (Adelphi University, n.d.), or any other situation that would threaten their status at the university.

The goals of the CARE Program are to; 1) retain and graduate 80% of program participants; 2) provide regular contact and support to program participants; and 3) help program participants become autonomous learners who can successfully manage their own educational experiences.

**Program Structure**

**CARE Team**

The CARE Team is comprised of staff, faculty, and student mentors who play an important role in retention initiatives at Stockton University. The membership of this group is a cross section of faculty and staff from institutional divisions and focuses on student retention and success through delivery of excellent student services supported by volunteer student mentors and tutors.

The work of the mentors (faculty and staff) and the CARE staff is to provide guidance and help students optimize the use of Stockton’s student life resources in order to achieve their academic and career goals. Peer mentors and tutors are Stockton students who volunteer to assist and provide tutorial services to program participants, maintain tutoring schedules, maintain participant contact, help coordinate workshops, and perform other tasks as assigned by the CARE Program Coordinator. Peer mentors must have completed at least 32 credit hours, maintain a 2.75 GPA, and be a full-time student with no prior disciplinary record.

At the beginning of each semester, CARE recruits mentors in collaboration with Stockton’s Faculty Senate, Student Senate, student organizations, the Honors Program, and other Academic and Student Affairs departments. Promotion and marketing of recruitment related efforts are done via email, distribution of brochures, flyers, and the presence of the CARE coordinator at various meetings with the sole purpose of recruiting mentors. After culmination of recruitment efforts, staff and faculty mentors attend a one-hour training while peer mentors attend a three-hour training. During the semester, CARE sponsors webinars and workshops on retention and mentoring which is open to all CARE mentors. The program is under the leadership of the CARE coordinator and supported by a program assistant. As of the end of the Spring 2017 semester, the program has 117 faculty, staff, and student mentors.

**Program Participants**

CARE Program participants come from various grade levels. From Fall 2014 through the Spring 2015 semester, an average of forty-one percent of participants were seniors, twenty-seven percent were
juniors, twenty-four percent were sophomores, four percent freshmen, and four percent graduate students. The program identifies potential participants by collaborating its recruitment efforts with various offices, such as the Office of Financial Aid, Academic Advising, Office of the Provost, Office of Enrollment Management, Athletics, and Stockton faculty. Specifically, efforts were initiated with the Office of Financial Aid in identifying “at-risk” students who failed to comply with the Satisfactory Academic Progress policy (SAP) of the Office of Financial Aid and recommending their participation to the CARE Program. To comply with Stockton’s SAP policy, students must demonstrate satisfactory academic progress toward the attainment of a degree. Specifically, students must meet three measurement components: cumulative GPA of 2.0, credit completion rate of 67%, and attempted credits cannot exceed 150% of program length.

In addition, the program also partnered with the Office of the Provost, Office of Academic Advising, and the Office of Enrollment Management and Athletics in providing CARE services to students who were academically reinstated back to Stockton, students on academic probation, and incoming freshmen or student athletes with low SAT test scores. The program is also open to students who self-identify as needing CARE services as a pro-active strategy in increasing retention and graduation rates at Stockton.

Program Operations
Program participants are assigned to mentors composed of Stockton faculty, staff, and students. They are required to attend academic and life skills workshops, a community service activity, meet with their mentors at least once a month, and connect with them on a weekly basis, if possible, via electronic means. A major component of these retention-related activities is to introduce and empower participants to optimize the use of various academic and student life resources available at Stockton. Program participants are referred to Stockton’s Academic Centers for academic assistance or assigned to CARE peer tutors, as needed.

In collaboration with faculty, staff, and various Stockton University departments, mentees are given the opportunity to participate in educational and cultural trips to graduate and professional schools and attend cultural events within New Jersey and the neighboring states. Participants also have the opportunity to participate in similar events at Stockton. These events provide an opportunity for growth and promoting rapport between mentees and mentors. Although the Office of Financial Aid can only require participants to participate for one semester, Fall 2016, students were required to actively participate in the program for at least two semesters.

In order to get program participants more involved in becoming autonomous learners and in helping them achieve their academic and career goals while at Stockton, they are strongly encouraged to utilize the Academic Tutoring Centers the first two weeks of the semester. The program developed excellent relationships with Stockton’s Academic Tutoring Centers, which resulted to the appointment of the Center’s coordinator of academic support as CARE liaison AY 2015.

Program Assessment and Evaluation
In the Fall 2015 and Spring 2016 semesters, the CARE Program and CARE mentors were assessed and evaluated using questionnaires on various aspects of its operations. These included overall effectiveness of the CARE Program as experienced by CARE mentors, and overall effectiveness and usefulness of the CARE Program as experienced by Program participants. Improvement of CARE program participants’ knowledge and skills after attending CARE sponsored academic and life skills workshops, and quality of service participants received from mentors and the CARE Program were also assessed. Similar questionnaires have been used since the program’s inception three years ago. Overall, responses to the assessment and evaluation questionnaires used in AY 2015 – 2016 showed promising results.

Retention and Graduation Analysis
Analyses of the program’s retention and graduation rates were conducted from Fall 2013 to Spring 2016. On average, the overall retention rate of program participants per semester was 54%. Since
Fall 2013, 738 students have participated in the CARE Program. Since Fall 2017 retention data is not yet available, only 615 of the 738 students are included in the tables below. Table 1 includes data on all CARE participants. Tables 2-5 provide data on four sub groups of CARE students.

Table 1: All participants in the CARE program

<table>
<thead>
<tr>
<th>Term</th>
<th># Students</th>
<th>1-Year Retention</th>
<th># Students Graduated</th>
<th>% Retention</th>
<th>% Degrees Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>FA13</td>
<td>124</td>
<td>65</td>
<td>61</td>
<td>52%</td>
<td>49%</td>
</tr>
<tr>
<td>SP14</td>
<td>81</td>
<td>48</td>
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<td>59%</td>
<td>54%</td>
</tr>
<tr>
<td>FA14</td>
<td>110</td>
<td>58</td>
<td>37</td>
<td>53%</td>
<td>34%</td>
</tr>
<tr>
<td>SP15</td>
<td>80</td>
<td>45</td>
<td>31</td>
<td>56%</td>
<td>39%</td>
</tr>
<tr>
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<td>122</td>
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<td>24</td>
<td>48%</td>
<td>20%</td>
</tr>
<tr>
<td>SP16</td>
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</tr>
<tr>
<td>Grand Total</td>
<td>615</td>
<td>332</td>
<td>215</td>
<td>54%</td>
<td>35%</td>
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</tbody>
</table>

Table 2: All participants with SAP and Active

<table>
<thead>
<tr>
<th>Term</th>
<th># Students</th>
<th>1-Year Retention</th>
<th># Students Graduated</th>
<th>% Retention</th>
<th>% Degrees Awarded</th>
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<td>SP14</td>
<td>10</td>
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<td>6</td>
<td>80%</td>
<td>60%</td>
</tr>
<tr>
<td>FA14</td>
<td>52</td>
<td>27</td>
<td>14</td>
<td>52%</td>
<td>27%</td>
</tr>
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<td>21</td>
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<td>7</td>
<td>62%</td>
<td>33%</td>
</tr>
<tr>
<td>FA15</td>
<td>42</td>
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<td>4</td>
<td>45%</td>
<td>10%</td>
</tr>
<tr>
<td>SP16</td>
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<td>Grand Total</td>
<td>201</td>
<td>107</td>
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<td>53%</td>
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</table>

Table 3: All participants with SAP and Not Active

<table>
<thead>
<tr>
<th>Term</th>
<th># Students</th>
<th>1-Year Retention</th>
<th># Students Graduated</th>
<th>% Retention</th>
<th>% Degrees Awarded</th>
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<td>71%</td>
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<tr>
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<td>56%</td>
</tr>
<tr>
<td>FA14</td>
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<td>7</td>
<td>50%</td>
<td>44%</td>
</tr>
<tr>
<td>SP15</td>
<td>26</td>
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<td>2</td>
<td>40%</td>
<td>8%</td>
</tr>
<tr>
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<td>62%</td>
<td>15%</td>
</tr>
<tr>
<td>Grand Total</td>
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<td>79</td>
<td>46</td>
<td>59%</td>
<td>35%</td>
</tr>
</tbody>
</table>
Table 4: All participants without SAP and Active

<table>
<thead>
<tr>
<th>Term</th>
<th># Students</th>
<th>1-Year Retention</th>
<th>% Retention</th>
<th># Students Graduated</th>
<th>% Graduated</th>
<th>Degrees Awarded</th>
</tr>
</thead>
<tbody>
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<td>36%</td>
</tr>
<tr>
<td>SP14</td>
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<td>16</td>
<td>59%</td>
<td>18</td>
<td>67%</td>
<td>67%</td>
</tr>
<tr>
<td>FA14</td>
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<td>14</td>
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<td>4</td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td>SP15</td>
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<td>53%</td>
<td>10</td>
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<td>59%</td>
</tr>
<tr>
<td>FA15</td>
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<td>14</td>
<td>56%</td>
<td>9</td>
<td>36%</td>
<td>36%</td>
</tr>
<tr>
<td>SP16</td>
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<td>15</td>
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<td>5</td>
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<td>19%</td>
</tr>
<tr>
<td>Grand Total</td>
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<td>81</td>
<td>50%</td>
<td>60</td>
<td>37%</td>
<td></td>
</tr>
</tbody>
</table>

Table 5: All participants without SAP and Not Active

<table>
<thead>
<tr>
<th>Term</th>
<th># Students</th>
<th>1-Year Retention</th>
<th>% Retention</th>
<th># Students Graduated</th>
<th>% Graduated</th>
<th>Degrees Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>FA13</td>
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<td>12</td>
<td>60%</td>
<td>12</td>
<td>60%</td>
<td>60%</td>
</tr>
<tr>
<td>SP14</td>
<td>28</td>
<td>10</td>
<td>36%</td>
<td>11</td>
<td>39%</td>
<td>39%</td>
</tr>
<tr>
<td>FA14</td>
<td>16</td>
<td>9</td>
<td>56%</td>
<td>12</td>
<td>75%</td>
<td>75%</td>
</tr>
<tr>
<td>SP15</td>
<td>16</td>
<td>10</td>
<td>63%</td>
<td>7</td>
<td>44%</td>
<td>44%</td>
</tr>
<tr>
<td>FA15</td>
<td>30</td>
<td>16</td>
<td>53%</td>
<td>9</td>
<td>30%</td>
<td>30%</td>
</tr>
<tr>
<td>SP16</td>
<td>10</td>
<td>8</td>
<td>80%</td>
<td>2</td>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td>Grand Total</td>
<td>120</td>
<td>65</td>
<td>54%</td>
<td>53</td>
<td>44%</td>
<td></td>
</tr>
</tbody>
</table>

The results of the data analysis showed various challenges and opportunities in terms of the efficacy of the CARE Program at various levels of operation. For example, the one-year retention rate of all SAP participants active in CARE vs. all SAP participants not active in CARE, was 53% vs. 59%, respectively, in Spring 2016 semester. However, for the past three semesters prior to Spring 2016, the one-year retention rates were higher for SAP students active in CARE.

Several elements shaped the results of the analysis. Participants join the program in either spring or fall and at various grade levels. They can leave the program after only one semester and CARE does not offer any incentives for students to stay in the program. Finally, at least 60% of students in the program are in Stockton’s Financial Aid SAP list for not completing 67% of their cumulative attempted credits and/or their GPA is below 2.0.

In addition, some students who were strongly encouraged or required by the Office of the Provost and other Stockton offices to join CARE did not actively participate in the program, but still continued their studies at Stockton. This was compounded by the fact that of the participants, or 220 out of 738, have a GPA equivalent below 2.0, started or stayed in the program from the Fall 2013 semester through the Fall 2016 semester. Given these prevailing conditions, it is a challenge for the program to maintain a steady and rising persistence and graduation rates each semester and will be addressed in the near future.
Note that we saw a substantial improvement in terms of CARE outcome and retention rates for the Spring 2017 semester. Seventy percent, or 61 participants, remained active or met with their mentors, and 95%, or 83 students, were retained for the Spring 2017 semester.

Conclusions

For the past three academic years, the GPA of CARE program participants increased an average of 7% and the number of participants with a GPA below 2.0 decreased an average of 52% at the end of the Fall semester. These are significant accomplishments considering that: 1) An average of 30% of participants each fall semester have a GPA below 2.0 and are supported by an average of 100 volunteer mentors each semester; 2) The program had zero budget until Academic Year 2015-2016, when the budget was increased to $8,000; and 3) The program can officially mandate students to participate in the program for only one semester, based on the Office of Financial Aid.

In summary, optimizing the use of resources, such as existing human resources (staff, faculty and student mentors) and various academic affairs and student affairs resources and services showed promising results at Stockton University and can be replicated by other schools. Specifically, if the optimization process is focused on three high impact areas. These are student engagement, program assessment and strategic partnerships.

Student Engagement

Increasing opportunities for CARE students’ engagement is of paramount importance to the program. Low attendance to on-campus and online academic and life skills workshops is still a challenge. Also, mentor-mentee interactions are low.

Program Assessment

In the Fall 2015 and Spring 2016 semesters, a total of 107 Program participants answered the questionnaire, an average of 48% completion rate for both semesters. Ninety-five percent, or 102 participants, who completed the questionnaire were satisfied with the services offered by the program. They confirmed that the current mentoring process and support services are effective or very effective in promoting student persistence.

Strategic Partnerships

Building upon strong partnerships with faculty, staff, and the whole Stockton community is vital to the long-term interest of the CARE Program. With the support of these entities, the CARE Program was able to identify and recruit potential failing students and refer students for various student support services. In addition, it was able to obtain feedback from faculty on participants’ academic performance and deploy on-campus and online academic and life skills workshop at no cost to the program.

Based on the Program’s past successes and challenges, CARE should further strengthen its strategic partnerships with Stockton’s faculty, staff, and various Stockton entities, specifically with Stockton’s Academic Centers, the Career Center, and the Office of Academic Advising. In addition, its recruitment efforts in partnership with faculty and various Academic and Student Affairs departments can be improved.

Finally, in order to improve student engagement, there is a need to provide a CARE study room/activity center/lounge to be used by Program participants together with their mentors, especially with the substantial increase of number of participants in the Fall 2017 semester (up to 213 participants, compared to 123 in the Fall 2016 semester). Currently, the majority of the peer mentors and mentees meet at the library, or they meet at various offices of faculty or staff mentors. There is no designated central area, study room or lounge for CARE students.
Acknowledgments

On behalf of the CARE Program, we express our thanks to Dr. Thomasa Gonzalez, Vice President of Stockton’s Division of Student Affairs, Dr. Dee McNeely-Greene, Assistant Vice President for Student Affairs, Dr. Pedro Santana, Dean of Students, Dr. Gerald Martin, Assistant Dean of Students, and Stephen Davis, Associate Dean of Students for their unwavering support to the CARE Program, and to Dennis Furgione of Stockton’s Institutional Research for providing valuable CARE related statistics (Tables 1 – 5) for this paper. Last but not the least, our sincere thanks to Megan Taylor, Shawn Cooper and all volunteer faculty, staff, student CARE mentors, tutors and CARE student workers for their valuable service to all CARE Program participants these past three years.
References


Positive Group Work Experiences are Predictive of College Student Persistence: A Prospective Study

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Abstract: Student persistence rates are a key gauge of the success of an educational institution. College student persistence is determined by the social and academic competence markers students face. Over the last decade, collaborative small group work has been increasingly implemented within higher education as a high-quality pedagogical tool and used extensively across academic disciplines. In line with this research, the authors investigated whether students’ positive group work experiences have an impact on their intention to persist in their academic program. A sample of 232 students (mean age = 22.79, SD = 2.12) was recruited. These students worked in small mixed-genders groups with three to four other students over the course of a semester. The intention to persistence was measured at the beginning of the semester, and again at the end of the semester, approximately five months later. Student group work experiences were measured using the Positive Group Work Experiences Inventory. After controlling for gender, age, and baseline intention to persist, both perceived inclusion and perceived respect predicted a higher intention to persist.

Introduction

Despite over 75 years of research on college student persistence1 (Jones & Braxton, 2010), there have been few substantial gains in student persistence in recent years (Tinto, 2007). Of all students who started college in the fall of 2014, 60.6% were retained at their starting institution: this is an increase of only 0.1% from the year before and a modest 2% increase over the past five years (National Student Clearinghouse Research Center, 2016). Low persistence rates can have a widespread impact. On a national level, college degree attainment has been linked to economic growth. Graduates from four-year colleges pay an average of 91% more in taxes each year than those with just high school degrees (Ma, Pender, & Welch, 2016). At an institutional level, student retention is used as a key performance indicator for the institution (Crosling, Heagney, & Thomas, 2009). On an individual level, persistence is necessary for a college student to realize the social and economic benefits associated with higher education (Wolniak, Mayhew, & Engberg, 2012). Accordingly, freshman persistence and graduation rates are

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1 According to Ruffalo Noel-Levitz, persistence refers to “the enrollment headcount of any cohort compared to its headcount on its initial official census date. The goal is to measure the number of students who persist term to term and to completion” whereas “Retention is the outcome of how many students remained enrolled from fall to fall. This number is typically derived from first-time, full-time traditional day students, but can be applied to any defined cohort” (Voigt & Hundrieser, 2008, p. 3).
among the metrics that define the quality of an academic institution (Culver, 2008).

College student satisfaction and persistence are determined by social and academic competence markers, along with a number of positive and negative social experiences that impact student persistence (Heverly, 1999). There are nine encompassing themes that affect persistence rates and overall student performance: background, money and finances, grades and academic performance, social factors, bureaucratic factors, external environment, psychological and attitudinal factors, institutional fit and commitment, and intention (Seidman, 2005). Accordingly, throughout a student’s academic career, there is a flow of constantly changing factors that impact student’s persistence including pre-college experiences, interactions with the institution, and attitudes towards the school experience (Seidman, 2005).

According to Tinto’s (1975) model of college student departure, dropout from college is the result of the individual’s experiences in the academic and social systems of the college. The higher the degree of integration of the individual into the college’s social and academic system, the greater the student’s commitment to the specific institution and to the goal of college completion (Tinto, 1975). Terenzini and Wright (1987) found that students’ levels of academic and social integration in one year had a positive influence on their level of academic and social integration in the next year. More recently, Strauss and Volkwein (2004) established that social activities, classroom experiences, and friendships are key predictors of institutional commitment.

A key component of students’ classroom experiences and social activities is working in small collaborative groups. Over the last decade, collaborative small group work has been increasingly implemented within higher education as a high-quality pedagogical tools (Chowdhury, Endres, & Lanis, 2002; Deeter-Schmelz, Kennedy, & Ramsey, 2002; Holtham, Melville, & Sodhi, 2006) and used extensively across academic disciplines (Adams & Slater, 2002; McKinney & Graham-Buxton, 1993; Payne & Monk-Turner, 2006; Vik, 2001; Warnemunde, 1986).

As Jassawalla and Sashittal (1998) have established, distinct cognitive, emotional, and behavioral factors transform a group of people into a collaborative team. Researchers have established that collaborative learning helps students to develop crucial social skills like communication (Pauli, Mohiyeddini, Bray, Michie, & Street, 2008; Volet & Mansfield, 2006), problem solving (Pauli et al., 2008; Volet & Mansfield, 2006), teamwork (Pauli et al., 2008; Volet & Mansfield, 2006), conflict resolution (Volet & Mansfield, 2006), and personal responsibility (Volet & Mansfield, 2006). Furthermore, collaborative group work provides students with increased insight into group dynamics, the efficiency and productivity needed to create a more comprehensive product, and exposure to alternative points of view (Kench, Field, Agudera, & Gill, 2009; Gatfield, 1999; Mello, 1993). As a result, group work encourages students to inquire, share ideas, clarify differences, and construct a new understanding of course materials (Hammar Chiriac, 2014).

When groups work well, team-based learning allows for a more complex learning environment and the undertaking of more intricate tasks (Mello, 1993). Thus, the objective of this study was to investigate whether positive group work experiences (Mohiyeddini, Johnson, Azoulay Jarnot, & Mohiyeddini, in preparation; Mohiyeddini, Azoulay, & Bauer, 2015) increase students’ intention to persist. We hypothesized that high levels of positive group work experiences are predictive of high levels of intention to persist among students.

**Method**

**Participants and Procedure**

The project was carried out in accordance with the Declaration of Helsinki principles. Participants were recruited at three different college campuses in South London during the lead author’s tenure at a university there. Interested participants were asked to participate in a study on “group work experiences” and provided written informed consent. The inclusion criterion was current membership in a small mixed-gender group work of three to four students for at least one semester. The classes were on different
subjects (mainly on research methods, abnormal psychology, and personality psychology). In each class, the aim of the group work for all students was to produce a collaborative report and/or a presentation as a graded course requirement. Researchers requested that participants mark their baseline questionnaire with a code word to allow data integration with a follow-up measurement at a later point. The questionnaires included demographic and socioeconomic information, and baseline measures of intention to persist.

Approximately five months after the first measurement, participants were asked to complete a follow-up questionnaire regarding their current intention to persist and their experiences with their group work. This time gap appeared to us as reasonable, given that five months constitutes almost 20% of the total learning time of a student during a three-year college degree, which is typical of students enrolled in the institutions in this study.

A total of 280 questionnaires were distributed among students of different subject areas at the beginning of the study. Two-hundred and sixty-five participants completed the first measurement and provided a personal code. Two-hundred and fifty-seven participants completed the follow-up questionnaire. Seventeen participants were excluded because of incomplete questionnaire data and eight participants were excluded because of a mismatch of their personal code. Thus, data analyses are based on a sample size of 91 male and 141 female participants (mean age = 22.87 years, SD = 2.08, range = 20-33), who had no missing data. Of all the participants, 39.7% described themselves as White-British, 29.3% as Black-British, 13.4% as Asian-British, and 17.7% as others racial/ethnic groups (mainly Swedish, Norwegian, German, and Italian). The dropout analysis indicated no systematic differences between the participants and the subsample of excluded participants.

Measures

Recently, Mohiyeddini et al. (in preparation) introduced the Positive Group Work Inventory (PGWI). PGWI was developed following a review of the relevant literature, the qualitative analyses of written reflections on group work experience produced by 69 students as part of their module assessment, and the authors’ personal deliberations on positive group work. PGWI comprises 24 items that measure six central factors of group work experiences: perceived respect (e.g. “We comment on each other’s performance with an appropriate tone”), perceived fairness (e.g. “The workload and responsibilities were fairly distributed among us”), effective commitment (e.g. “My group members were committed to our group work”), perceived transparency (e.g. “The rules for our collaboration were clear”), perceived support (e.g. “Other group members gave me the support that I needed to complete my part”), and perceived inclusion (“I had the feeling that I belonged to my group”). Each scale is measured by four items with a 4-point response format ranging from 0 (strongly disagree) to 4 (strongly agree). Cronbach’s alpha for the six scale of PGWI range between 0.81 (perceived transparency) and 0.92 (perceived inclusion).

Intention to persist was measured twice, once at the beginning of the study and again at the end of study (approximately 5 months later) with two items following Ajzen’s recommendations (1991): “I intend to complete my degree at my current university” and “I intend to continue with my education at my current university”. Participants rated both items on a six point (1 = not likely at all, 6 = very likely). Item responses were averaged, with higher scores indicating higher intention to persist.

Data Analysis

All calculations were performed using SPSS v.24 (SPSS Inc., Chicago, IL). Hierarchical regression analysis was used to examine the relationships between positive group work experiences and intention to persist. In the hierarchical regression analyses, age, gender, and the baseline intention to persist were entered as individual variables at Step 1 in the equation, followed by the PGWI scales at step 2. Prior to analysis, the variables were standardized in order to equate different metrics used in measuring these variables (Dunlap & Kemery, 1987). There was no sign of multicollinearity (the variance inflation factor values were well below 2.5 and tolerance statistics well above 0.2).
Results

Table 1 displays the descriptive statistics and the result of independent sample t-test. Given the number of comparisons, we applied Bonferroni corrections to control for Type I error. Following Bonferroni adjustments, there were no differences between male and female or between students from different classes.

Table 1: Descriptive statistics and the result of independent sample t-test

<table>
<thead>
<tr>
<th></th>
<th>Male Mean</th>
<th>Male SD</th>
<th>Female Mean</th>
<th>Female SD</th>
<th>t-value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fairness</td>
<td>1.981</td>
<td>0.699</td>
<td>2.177</td>
<td>0.727</td>
<td>2.057</td>
<td>.041</td>
</tr>
<tr>
<td>Commitment</td>
<td>2.368</td>
<td>0.955</td>
<td>2.160</td>
<td>0.733</td>
<td>1.773</td>
<td>.078</td>
</tr>
<tr>
<td>Respect</td>
<td>2.541</td>
<td>0.976</td>
<td>2.262</td>
<td>0.737</td>
<td>2.307</td>
<td>.022</td>
</tr>
<tr>
<td>Transparency</td>
<td>2.223</td>
<td>0.771</td>
<td>2.243</td>
<td>0.654</td>
<td>0.215</td>
<td>.831</td>
</tr>
<tr>
<td>Inclusion</td>
<td>1.953</td>
<td>0.624</td>
<td>2.156</td>
<td>0.538</td>
<td>2.549</td>
<td>.012</td>
</tr>
<tr>
<td>Baseline retention intention</td>
<td>2.484</td>
<td>1.478</td>
<td>2.411</td>
<td>1.374</td>
<td>0.373</td>
<td>.709</td>
</tr>
<tr>
<td>Follow-up retention intention</td>
<td>2.954</td>
<td>1.669</td>
<td>2.837</td>
<td>1.427</td>
<td>0.511</td>
<td>.611</td>
</tr>
</tbody>
</table>

The baseline intention to persist and follow-up intention to persist were highly correlated \( (r = .77, p = .001) \). Age was positively correlated with perceived respect \( (r = .13, p = .047) \).

The hierarchical regression analyses revealed that baseline intention was highly predictive of follow-up intention to persist \( (\beta = .667, p = .001, R^2 = 44.4\%) \). After controlling for the effect of age, gender, and baseline intention to persist, perceived respect \( (\beta = .125, p = .010) \) and perceived inclusion \( (\beta = .147, p = .002) \) were predictive of follow-up intention to persist accounted for \( \Delta R^2 = 5.5\% \) of incremental variance of follow-up intention to persist. See Figure 1.
Discussion

This study extends the literature examining student persistence. In support of our hypothesis, perceived respect and perceived inclusion were associated with high levels of intention to persist over and above the baseline levels of intention to persist. Accordingly, the more students perceived respect and inclusion, the higher their intention to persist and complete their degree at their current academic institution. Perhaps concerning is the relatively middling values of perceived inclusion ($M=2.15$ and $M=1.95$, for females and males respectively), indicating that students feel relatively neutral about their sense of belonging in their group. The predictive value of perceived inclusion suggests that if groups could foster a better sense of inclusion among members, that intention to persist could have an even larger impact on individual’s intention to persist, though the groups in this particular study did not do a particularly good job of fostering that kind of inclusive environment.

The high correlation between baseline intention to persist and the follow-up measurement suggests a relatively high stability of the intention to persist, which may lead to the conclusion that perceived respect and inclusion have a relatively small impact on intention to persist. However, considering that the time gap between baseline and follow-up measurements was about five months, these findings suggests that student intention to persist is a dynamic process that can be impacted by perceived respect and inclusion in group work experiences. It seems plausible to expect that this association will be stronger in a longer period.

Our findings are in line with recent theories and research on cooperation highlight the impact of perceived respect on team-relevant cognitions and behaviors (Blader & Tyler, 2009; Boezeman & Ellemers, 2007; Smith, Tyler & Huo, 2003; Tyler & Blader, 2003). Accordingly, perceived respect reflects that the individual feels valued by the team (Branscombe, Spears, Ellemers, & Doosje, 2002; Huo & Binning, 2008; Smith et al., 2003; Tyler & Blader, 2003) and is crucial to predicting and understanding how individuals experience cooperative behavior (Smith, Tyler, Huo, Ortiz, & Lind, 1998; Tyler & Blader, 2003). Additionally, individuals who feel respected by other team members experience higher levels of identification with the team (Sleebos, Ellemers, & de Gilder, 2007) and put more effort
into achieving team goals (Tyler & Blader, 2003). In a related vein, social identity theory (Tajfel, 1978; Tajfel & Turner, 1979) highlights that social identification processes, during which individuals tend to think of themselves in terms of their belonging to and inclusion in a social group or collective, have a crucial impact on individuals’ collaborative behaviors. Following social identity theory, our results extend these findings and may suggest that perceived inclusion in a team supports the sense of being a part of an academic institution as a larger community and therefore strengthens a student’s intention to complete their education at that institution.

**Limitations**

Although the current investigation advanced research on student persistence and positive group work experiences of students in several ways, there were also a number of limitations to the study. First, the study was based on self-reported data, which are affected by reappraisal of past events due to present (critical) circumstances, by impairment of memory over time, and by non-disclosure and reporting biases. Second, the questionnaire used in this study was presented in a consistent order and was not counterbalanced, which might have influenced the results and prompted order effects. Furthermore, considering the sample size, a non-random sampling method, lack of control group, and the recruitment of very few colleges, the generalizability of the findings are limited. Despite these limitations, the current study expands our understanding of student persistence and highlights the potential impact of positive group work experiences on students. It seems to be beneficial for academic institutions to implement strategies that enhance student group work experiences in order to increase student retention.
References


Vik, G. N. (2001). Doing more to teach teamwork than telling students to sink or swim. Business Communication Quarterly, 64(4), 112-119.


Abstract: While access for low-income, first-generation students has increased, successful completion of a college degree has not (Engle & Tinto, 2008). The First Generation Foundation (2013) reports that low-income, first-generation students are four times more likely to leave college after their first year than those without these risk factors and six years later, 89% had left without degree attainment. These statistics are particularly alarming, given that first-generation college students comprise 50% of the current college population. However, the key to successful retention to graduation may lie in factors beyond academic preparation or programs. In interviews, students from this demographic cited what the researchers later termed “relational resilience” as the critical element of their success (Michael & Wilkins, 2010). Relational resilience is the buffering effect that positive relationships have on individuals as they navigate change and transitions. This presentation reviews original research, argues for institution-wide commitment to “relational retention,” and provides administration, the professoriate, and student affairs personnel with pragmatic strategies for building fragile students’ resilience. “Relational retention” is “the intentional use of positive personal relationships to increase persistence to graduation” (Michael & Wilkins, 2010); it encompasses expanded roles for all campus personnel, including developing and nurturing relationships that lie at the heart of transformative learning.

Introduction

While approximately 55% of first-time/full-time students will earn their bachelor's degree within six years, only 11% of first-generation, low-income students will do so, according to Engle & Tinto (2008) in their Pell Institute report. Sadly, access for low-income, first-generation students has increased, but completion of a college degree, especially an undergraduate degree, has not (Pell Institute, 2008). Engle & Tinto (2008) found that low-income, first-generation students are four times more likely to drop out of college after their freshman year than those without risk factors; six years later, 43% had left without any degree attainment. These statistics are deeply upsetting, given that currently, first-generation college students comprise nearly a third of all matriculated college students (Institute for Higher Education Policy [IHEP], September 2012). In addition to the debilitating experience of personal failure, students who drop out are likely to end up with substantial debt.

Those students who do remain are likely to earn lower grades, require more developmental courses, register for fewer credits, take longer to graduate, withdraw from more courses, and need more additional academic assistance than their non-first-generation peers (IHEP, September 2012). First-generation students also tend to be financially independent, come from low-income backgrounds, and have dependents; they are more likely to enroll part-time, work more than forty hours a week, rely on more federal Pell grants, and attend public two-year or for-profit institutions; as the IHEP (2012) paper reports, “all of these characteristics are shown to be negatively correlated with college enrollment and persistence to a postsecondary degree” (p. 6).

There is no lack of scholarly literature and research on the transition to college and college retention. But the vast majority focuses on academic preparedness and the cognitive realm. But what does research tell us about the roles of the psychological and social domains in successful persistence to graduation? Lotkowski, Robbins, and Noeth (2004) found that social support and social involvement on campus were as important in retention to graduation as high school grade point average; these factors were
even more important than ACT assessment scores. Among those who had poor academic performance in secondary school, many students persist because of their successful social integration and feelings of fit within their institution. In 2010, Michael & Wilkins, based on their interviews with first-generation college students who had successfully persisted to graduation, coined the phrase “relational retention,” which “is the intentional use of positive personal relationships to increase the likelihood of persistence to graduation” (Michael & Wilkins, 2010). These relationships built resiliency within fragile students. Faculty and other key staff and administration, they concluded, are able to play a powerful role in relational retention, if they choose to see this as part of their role.

Review of the Literature

Faculty and staff have a critical part to play in helping first-generation college students persist and thrive during their freshman year. Jehangir (2010) found that students valued situations that departed from the typical “teacher-student” role. They were more likely to thrive in classrooms and other learning environments in which faculty modeled genuine caring about their students, and the students, in turn, learned to feel responsible for each other’s success.

Jehangir’s interviewees noted the importance of both faculty and their peers being advocates for them as they struggled to assimilate into campus life. When they felt cared for as unique individuals, they were more tightly wound into the campus culture and more likely to continue to graduation. When they saw faculty members truly invested in learning about them as people and about their cultures and backgrounds, they formed connections to classrooms that transcended the transmittal of mere content knowledge (Jehanger, 2010).

Bean & Eaton (2001) found that students who were “socially integrated” rather than “socially avoidant” experienced a sense of connectedness on campus that fed back into their positive psychological assessments of their own self-efficacy, ability to handle stressors, and internal locus of control. The greater their integration into the life of the campus, the higher their sense of personal competence and efficacy. Campus-based relationships served as social buffers against stress. Harper & Quaye (2009) and Jehangir (2010) confirm these findings.

While Martinez, Sher, Krull, and Wood (2009) concur with these findings, they sadly note that first-generation students are much less likely to be involved in campus life than are their non-first-generation counterparts. This is particularly problematic, given that the researchers also reported that first-generation students derived greater outcome benefits from extracurricular involvement and peer interaction when these took place. According to Stuber (2011), first-generation college students participate in fewer extra-curricular activities, athletics, and volunteer opportunities. Such activities are the pathway to new communities of peers and mentors with similar interests and may also yield contacts that are useful in internship, campus work, and career transitions.

In *College of the Overwhelmed*, Kadison and DiGeronimo (2004) found the first few years of college are steeped in tasks related to identity development. Young adults may cling to family and community values, but at the same time question their usefulness. This clash can be particularly painful for first-generation college students and other marginalized groups, whose cultural backgrounds frequently do not parallel the dominant values or beliefs expressed on majority campuses.

Marginalized students also lack “cultural capital”—the information and beliefs a student needs to succeed in the college environment. While parents of first-generation students obviously want their children to do well, they themselves do not possess the cultural capital specific to higher education to pass along to their children. Thus, their children lack “the information, familiarity, jargon, cultural understanding, experience, and emotional bearings that the students need to effectively tackle the challenge of the college environment” (Ward, Siegel, & Davenport, 2012, p. 7).

Many students undergo criticism if they do not maintain the level and frequency of connection to their community of origin. This is exacerbated if friends and family are threatened by perceived movement away from the culture of origin into the dominant culture of campus:
First-generation students often sense displeasure on the part of acquaintances and feel an uncomfortable separation from the culture in which they grew up. Such tensions frequently require students to negotiate relationships with friends and relatives, something that is not easy to do and does not always have a happy ending. (Ward, Siegel, & Davenport, 2012, p.73)

Additionally, some students may be isolated from these sources if they question or throw off conventions of their past; this is particularly true for students who may be questioning or redefining such hot topic issues as their sexual orientation, religion, or ethnicity.

Faculty’s Role in Retention

Tinto (1993) articulated the rites of passage inherent in going to college—separating from family, high school, local community, and forming a new identity, friends, and a community with similar values; if not navigated successfully, these tasks were key in students’ dropping out. He later expanded his own model (2000) to include even greater emphasis on “linking learning and leaving” (p. 81), arguing for building supportive peer groups through first-year learning communities so that each freshman developed a small group of early friends. Saying that “academic and social systems are two nested spheres,” he stressed the need for “bringing faculty back into the theory of student persistence” (p. 91). He draws a direct correlation between student persistence and “student-faculty contact outside the classroom….This relationship is likely to mirror how faculty actions shape student experiences within the classroom and, in turn, student willingness to seek out faculty beyond the classroom” (pp. 90-91). Student engagement with faculty, Tinto (2000) found, is linked to their willingness to seek out those faculty and other student peers outside of the classroom around their learning issues. Such engagement improves the quality of their learning and they are more likely “to develop values stressing the important of involvement with others” (p. 69). This stance, he discovered, predicts future involvement and “is associated with heightened intellectual and social development” (pp. 69-70).

Tinto (2000) remarks that interactions with faculty can occur in both formal and informal settings, but that both lead to enhanced intellectual development, and with that development, enhanced “integration into the academic system of the college” (p. 118). With this greater integration, first-generation students gain “greater exposure…to the multiple dimensions of academic work” (p. 118). This exposure begins to level the playing field as far as “college knowledge” that non-first-generation students possess upon their arrival.

Davis (2010) found that first-generation college students need personal relationships with faculty and staff: “The symbolic impact of being able to say: ‘I know Professor Smith,’ cannot be underestimated” (p. 197). Underserved populations often suffer from what Davis calls the “imposter syndrome,” the pervasive sense of somehow having been admitted to college without being truly qualified; for first-generation and marginalized students, there often is the sense that they are imposters who will be “found out.” Validation by faculty and staff on campus becomes a critical variable in resiliency and retention. Faculty mentors, according to Davis, must broaden their role in order to build relational resiliency in fragile students. He writes that “no one should be surprised that achieving a personal relationship with a faculty member is one of the strongest markers for academic success for students who are the first in their family to attend college” (p. 79). Filkins & Doyle (2002) note that first-generation students are often hyper-aware of their background and academic deficiencies and may avoid seeking out social contact with faculty, requiring faculty to be the instigators of the social contact in many cases.

Bean (2005) stresses the importance not only of connection to the institution, but of the sense of academic self-efficacy that a student must possess if s/he is to persist to graduation. A large part of self-efficacy must be rooted in the classroom experience, where the student “develops the sense of academic self-efficacy, approaches academic work, develops an internal locus of control related to academic achievement, gets good grades, feels loyal to the school, and choose to continue enrollment there” (p. 227).
Clearly, faculty are at the very center of this process. Upcraft, Gardner, and Barefoot (2005) acknowledge that some faculty members maintain a restricted view of their role as educators. This view appears with some variation on the general theme that first-year issues are beyond the scope of faculty matters. One variation on this theme is that retention issues are the purview of administration and student affairs personnel. (p. 200)

They go on to remark that such faculty see developmental education, remediation, co-curricular matters, and interpersonal relationships with students as “not part of the job description” (p. 200). Administration and faculty leadership must provide both ethical and financial arguments, rooted in research on the importance of faculty-student connections, against these narrow role descriptions.

The scholarly literature and research cited above demonstrate the necessity of beginning a dialogue and taking steps to redefine the professoriate. While some faculty continue to argue that their role and training should not be confused with that of a “counselor,” it behooves those who come into contact with college students in the classroom, and outside, to embrace tenets of relational education, mentoring, and human potential development within the parameters of their job descriptions.

What Students Tell Us About Retention: Case Studies

The concept of relational retention arose from interviews with students who were formerly part of a national, non-profit organization for whom both authors worked for more than a decade. The mission of the organization was to help under-served students around the country access and succeed in college. These particular four students were part of a qualitative study conducted by the authors, using semi-structured interviews. Each interviewee had completed his or her four-year degree successfully and agreed to share his or her story. The researchers were particularly interested in exploring the challenges the students faced, the strategies that they used to persist, and the factors that they attributed to their persistence to graduation. Meaningful relationships were at the heart of each interviewee's story, and this theme arose in one hundred percent of the interviews.

Londyn

As a first-generation college student new to campus life “Londyn” recounts, “Starting college was very scary. I was terrified to leave my dad. He had just had some serious medical issues. I knew if I didn’t leave then, I never would. It was now or never. If I didn’t go to college and stay there, I would lose the chance. I know it was my only chance and I was determined.”

“The first three weeks I cried myself to sleep every night. I was miserable. I knew I could not give up.” Londyn found that the people in key college offices, including the financial aid office, were not friendly. That indifference “made me want to give up and leave, it made me want to quit many times. I found people looked down on you when you didn’t know certain things.”

Having failed at college once, Londyn knew that the stakes were high. “I knew if I was going to make it, I needed to be part of something bigger than myself, I needed to make friends, be part of a community and find a purpose. I found my sorority the middle of my first semester.”

“By spring semester I was vice president of Sigma Delta. We were 24 girls, I had a sense of belonging, I had people I trusted; I trusted them with my life. I had something to do outside of class to be accountable. I belonged to something that I valued and because I valued it, I worked hard to stay there. Your grades have to be good to stay in sorority. That helped me to focus.”

Beyond the sorority, classroom connections also bolstered her sense of belonging: “I enjoyed my professors both inside and outside of class. I built a relationship with professors fast, once I found a place where I felt comfortable.” The combination of peer support with adult mentoring and guidance proved to be the right combination for Londyn, allowing her to persist to graduation on her second college attempt.
Raul

Raul is the first in his family to attend college. A Harlem native of Dominican descent and strong community roots, he left his close-knit home community to attend college. He recounts, “Leaving the City to go to Clarkson University was a big deal for me and for my family.” No one in his family had left home like this before and college was a foreign land, one that was inscrutable in many ways when he first arrived. The transition into college worked well for Raul, although it was not easy. He recounts, “there were many times I just wanted to give up and go home.” What helped Raul persist to graduation? The Higher Education Opportunity Program [HEOP] “made my transition to college much easier.” As part of the program, Raul spent five weeks on campus the summer before college started. He took three classes and by the end of five weeks, “I had 8 college credits and I knew how the school works. I met the professors who became my support system and knew the other students in the HEOP program well.”

Raul never stopped thinking of home. His feelings were strong “I was not able to talk to and spend as much time with people from back home that I was close to. It was hard at first but you get closer to the people who are there [at college].” It became easier to be away from home when the connections Raul made with his professors became strong and deep. “This time at college in the summer also allows parents to know what it’s like to have to have you so far away. It gave my family and me a dry run of the college experience. When dad came to pick me up, he started crying. He didn’t know he was going to cry.”

Raul first learned about what civil engineering was from a college professor who thought he might excel in the discipline, as it combined many of his interests. The professor arranged a summer internship, and that internship turned into a job offer once he completed college. Raul, now 27, owns a house, a car and lives 15 minutes from his suburban New York City job. He family comes up from Harlem for long weekends and extended visits.

Stephanie

Seemingly worlds away, Stephanie, who grew up in the rural Adirondack mountains of New York and attended a pre-K to grade 12 public school whose total population was 190 students, also was facing transitional issues. The salient challenges of her first term included being “homesick so much. I missed the way my old teachers were, how they knew about me, knew who I was.” Entering a challenging nursing program at a college a distance from her home, Stephanie initially floundered, calling her parents and pleading hysterically for them to pick her up and take her back. Fortunately, her first-semester English professor stepped into a mentoring role that supported Stephanie through her initial challenges: “She had been a principal in a small town, and she was just what I was looking for. I got really close to her. She would actually talk with us one-to-one and listened to us express our feelings. Even though the course was Research and Rhetoric, she let us use the writing as a way to work through our issues.”

Stephanie was also lost as to how to tackle the ramped-up academic requirements at college. “My RA really noticed that after the first few weeks, when I would go around knocking on everyone’s door and introducing myself, I kept my door shut and really didn’t socialize. I thought that was how I had to study because I was struggling with the work so much in the beginning. She suggested that I leave the door open, study in an environment where other people were around, and I learned that I didn’t have to be so closed in and alone so much.”

Stephanie’s faculty advisor reinforced the value of interconnected learning, suggesting that the nursing students form their own study groups. This suggestion was instrumental in helping Stephanie succeed. “Nursing is very competitive and very hard, so it’s hard to have a social life. My peers are not my best friends, but they’re like my co-workers or professional colleagues. We do study groups together and every Thursday, we will have dinner together after ten hours of clinicals. It doesn’t take the place of family but it’s the support like a professional network.”

Edward

Edward grew up in a Vermont foster home with six other children. He is popular among his peers. His highly developed social skills helped Edward to navigate many through difficult situations. What helped Edward get through college? “Self-discipline and having nothing to lose by being in college. I had
nowhere else to go if I decided to leave. Nowhere, so I stayed and set out to make friends.”

Edward navigated college on the Reserve Officers’ Training Corps [ROTC] program. “The army became my family. It was when I joined the army that my life began. The Veterans Affairs office at my college was very helpful and invested in my getting through college successfully. They knew the college people well and helped me through every situation.”

The hardest time for Edward at college was holidays when students went home. Closed dormitories at vacation times meant Edward would have no place to live. For that reason, Edward elected to live off campus in a small room. “The space was small and all I had was a mattress on the floor but the space was mine. It was my home.” After several holidays alone, he was invited to join his professor and his family. This gesture made Edward want to work harder at college because, “I knew that it mattered to this professor. Sometimes it felt that it mattered more to him than it did to me. I didn't want to let him down. That kept me going.”

In each of these students’ cases, connections with others proved to be the key to retention. So, what do these stories tell us about implementing relational retention to build student resiliency on campus?

What Faculty and Staff Can Do

**Adopt Assets-Based Stance**

Hao (2011) introduced the idea of “critical compassionate pedagogy” when faculty are working with first-generation college students. Similar in many ways to earlier notions of “holistic education,” this stance asks educators to take an active role in examining their standard classroom practices and activities to ensure that they do not assume first-generation students are operating at deficit positions; this stance also requires faculty to practice compassion at all times in interactions with their students. Faculty operate within and outside of their classrooms as advocates for the first-generation student and recognize him or her as a whole human being—both in personal strengths, which are brought to the academic discourse, and in challenges that may be unique to each student; this is critical to success in other campus arenas as well.

There are four necessary components to compassionate communication: observation, feeling, need, and request. According to Hao (2011), first-generation college students are too frequently viewed from the “deficits” model, and therefore are assumed to have greater academic needs and less to contribute to the life of the classroom and campus. By employing the four components within one’s classroom, a skilled faculty member can: observe who each student is as a unique learner and individual; recognize the feelings s/he possesses about what will be necessary to successfully work with the first-generation student; choose a pedagogical approach that will address the student’s needs; and request information from the student that will be incorporated into improving learning strategies and environments.

**Be an Ally**

All college personnel have a powerful role in validating first-generation students’ sense that they belong on campus and in the classroom, and that they can succeed. As Terenzini et al found in their 1994 study, instructor support not only encouraged students to believe that they could succeed, but it instilled an “obligation to succeed” because of their connection to the instructor; this is also true for other key individuals.

Students who took part in the study (Terenzini et al., 1994) identified common characteristics in faculty they considered to be allies: positive communication, creating a sense of belonging, providing classroom activities that include their life experiences, and being noticeably invested in the students. The IHEP report (2012) describes successful faculty allies as those who are “transforming their roles into stronger champions for first-generation student success” (p. 9).

Faculty and staff who themselves were first-generation are especially positioned to serve as allies and role models. A key component of Ward et al.’s (2012) learning matrix for first-generation students is the involvement of such faculty in mentoring programs, informal dinners, and specially-designed seminars and lectures. Yet all faculty can recognize “that FGS bring a unique yet underrepresented perspective into
academia” (Housel & Harvey, 2009, p. 31) and create “a space that is respectful and appreciative of all” (p. 31). Additionally, faculty can connect students with successful first-generation students who can serve as mentors and provide the student’s eye view of college life. These connections, and the ensuing mentoring—whether formal or informal—can be the lifelines that keep students afloat as they integrate into the system.

Use Culturally Responsive Pedagogy

Harper and Quaye (2009) stress the need to adopt culturally responsive pedagogy in the classroom in order to more fully integrate first-generation and other underserved populations. In such a model, faculty strive to develop curricula that enable students to develop as individuals and learn more about themselves; this cannot take place in a curriculum whose issues, topics, or materials are not meaningful to students. They draw on the work of Au (1998), who proposed major tenets for effective education of students of diverse backgrounds. She argues for the “need to move from a mainstream to a diverse constructionist orientation” (p. 314). This involves considering primary language of community of origin, making connections to the community of origin, including culturally responsive course content, and organizing classrooms and interactions with students in culturally relevant ways. These suggestions are particularly relevant for first-generation college students who also are members of minority or marginalized groups.

Diversity in learning styles based upon cultural preferences and conditioning is another important consideration. While it may seem daunting to address every individual’s preferences in each and every academic assignment—especially in a large class—monitoring to be certain that there are myriad ways of presenting and assessing course content is certainly possible.

Co-Construct Knowledge

Baxter Magolda and King (2004, as cited in Harper & Quaye, 2009) developed the Learning Partnerships Model as a means of engaging marginalized students in predominantly White classrooms. But the tenets are valuable to first generation students’ classroom experiences, as well. The professor’s role within this model is to: “validate students as knowers; encourage students to use their experiences in learning; and mutually construct knowledge with students” (Harper & Quaye, 2009, pp.166-167). This model entails faculty giving up their historical role as knowledge “authority figures,” but the social construction of knowledge that the model affords invites partnerships with their students that respect diversity of experience.

Harper & Quaye (2009) quote one of their student participants, as he describes the ideal balance of cognate and social knowledge construction: “Make issues related to racial/ethnic minority groups a central part of the curriculum. Engage this type of material as they would engage physics” (p. 167). While the student acknowledges that a physics professor cannot be expected to spend the majority of his or her class time on literature or the arts related to students’ backgrounds, he stresses that the professor can point out contributions to the field by individuals from various ethnic and racial backgrounds. Attention to the dynamics of such variables as social class, gender, religion, and sexual orientation can widen the circle of knowledge construction.

Collaborate While Learning and Leading

Harper & Quaye (2009) see collaborative learning experiences as one of the primary means of promoting success among students. Working cooperatively, rather than competitively, to master course content allows for learning both about the subject at hand as well as about classmates as people. Intercultural competence can be gained when students are encouraged to discuss different ways of approaching knowledge and problem solving. While some institutions offer living-learning communities, where students from the same classes share an actual dormitory with classrooms, the savvy instructor can duplicate many of those experiences through such activities as peer review of writing, sharing reflections and personal insights, and discussing the ways in which different cultures construct and value knowledge. “By exchanging knowledge, students begin to develop an appreciation for others, which can translate into an acceptance of differences” (p.171).
Serve Others While Learning

Upcraft et al. (2005) are strong proponents of service learning as a powerful tool in first-generation college student acculturation on campus. Service learning contains elements that have been recognized as engaging the strengths of first-generation and marginalized students. It is mentored, hands-on, applied in nature, and community-based. The aforementioned authors note that first-generation students may have little knowledge or unrealistic ideas about career and academic major choices. For example, many students gravitate towards the business major because they believe that it is lucrative, rather than making the choice based on personal interests or “goodness of fit.” They also may enter college in Marcia’s (1980) stage of foreclosure—mere acceptance of one’s career path based upon what others have told them, rather than self-scrutiny and individualized choice based on prior experience.

McKay & Estrella (2008) found that the quality of interaction with faculty is directly correlated with how first-generation students perceive their efficacy in accomplishing short and long term goals. Students reported that discussions about the content of the course, their experiences during service learning, and their reflections on what they had learned about themselves during the experiences were vital in promoting personal growth. This sense of greater competence, confidence, and social connection, in turn, promoted a greater likelihood of persistence.

Service and other forms of experiential learning directly support the preferred learning styles of newly entering college students. According to Upcraft et al. (2005), 60 percent of entering students prefer learning styles “characterized by a preference for direct, concrete experience; moderate to high degrees of structure; linear, sequential learning; and often the need to know why before doing something,”(p. 362.) while 75 percent of faculty prefer global styles of teaching, rooted in the worlds of concepts, ideas, and abstractions, and assume that students need “a high degree of autonomy in their work” (p. 362). Heeding these findings, even faculty who are not teaching service learning or experiential courses can adapt their teaching styles to the needs of newly entering first-generation students; in fact, these approaches will assist most new students.

Active Involvement in the Classroom

To invite first-generation students into the academic tradition, wise faculty who teach freshman year classes will use multiple techniques to connect students to the curriculum, and to each other. Among these are small group discussions, “writing to learn” activities, case studies and scenarios, and problem-based learning (Upcraft et al., 2005). Small group discussions offer opportunities for all students to participate actively, which may be especially difficult if they are enrolled in large classes. Study groups, project groups, and class groups which remain consistent throughout the term build relationships among students and also expose them to diversity in opinions, backgrounds, and learning styles. Instructors can use writing to learn activities to help students capture their thoughts and views in order to reflect upon them and potentially revise them. Not only does writing help students better understand their texts (Bean, 1996), it also helps them better know themselves. Further, this approach accommodates students who prefer thinking things through prior to engaging in discussion or other class activities.

Case studies (which tell stories) and scenarios (which present situations) value the life experiences that first-generation students bring to the classroom, as well as exposing students to diverse approaches to solving the same problem. Indeed, any kind of problem-based learning (PBL) tends to appeal to students because it “literally turns instruction around. Instead of teaching students what they need to know and then posing problems or cases in which students explore implications and applications, PBL approaches begin with the problem, and the problem drives what students learn and in what order” (Upcraft et al., 2005, p. 253). Used within learning groups that stay together throughout the term, PBL draws on skills that most first-generation students already possess; in order to overcome obstacles and gain access to post-secondary education, they already have proven themselves as adept problem solvers in the real world.

Promote Peer Connections

Skillful instructors can use their classrooms in ways that connect first-generation students with peers, especially if they are not involved in living-learning types of situations. Davis (2010) found that
while instructors assumed that students would seek each other out for academic support, many had no experience in doing so; first-generation students, he found, need to be placed in study groups, as they often do not perceive the need to be in them, nor have the confidence to form one. Pointing new students towards others who can mentor—informally or formally—can help bolster their acculturation. Creating panels or opportunities for more veteran first-generation students to share their experiences may lessen the “imposter syndrome” (Davis, 2010, pp. 186-187). It behooves faculty to see their role as additionally including some of the characteristics of a host/hostess on campus, introducing students to others who have walked their path, and those who have experiences that are divergent from their own. As Harper and Quaye (2009) succinctly put it: “weak institutions are those that expect students to engage themselves” (p. 6). They go on to point out that “an erroneous assumption is often made that students will naturally learn about their peers simply by coming into contact” (p. 7). Instead, they argue, the campus must be committed to facilitating engagements, and “educators must facilitate structured opportunities for dialogues to transpire” (p. 7). Social activities hosted by faculty are key in such facilitation.

**Advance Academic Advising**

Faculty for whom academic advising is a formal part of their role must realize that most first-generation students will need specialized academic advising. Davis (2010) summarizes studies showing that first-generation students take longer choosing their major and make choices based upon different criteria than their non-first-generation counterparts. These criteria may not necessarily lead to “goodness of fit” between the student and his/her academic concentration. Often, choices are made out of perceived fiscal necessity and the beliefs that certain majors lead to better salaries that can support them and their families. When concentration choices do not fit a student’s interests and talents, s/he often must abandon the major eventually, thus taking more time and spending more money to graduate.

Academic advisors also can play a powerful role in integrating first-generation students into campus life.

Academic advisors can use some of their time with students to explain the advantages of engagement and encouraging them to become involved with peers in campus events and organizations and invest effort in educational activities known to promote student learning and development. (Harper & Quay, 2009, p. 316)

Because students may be reluctant to take advantage of advisors’ office hours and once-a-term meetings may not be sufficient, many institutions with high populations of first-generation students are resorting to mandatory, regular advisory meetings. They also are hiring more advisors and avoiding the cost-savings tendency of using those outside of the academic disciplines in advisory roles.

**What Institutions Can Do**

The 2012 IHEP report identifies three key strategies to support faculty as they transition from knowledge-disseminators to the value-added role of key ally to first-generation students. The first step involves augmenting existing and developing new opportunities for faculty to work in collaboration when working with first-generation students. This is particularly effective when cross-disciplinary collaborations exist, inviting students to understand how knowledge is constructed from a variety of disciplinary lenses.

A second approach is to formalize and reinforce “changes to faculty roles as related to student success” (IHEP, 2012, p. 10). This strategy requires both “explicit language to support first-generation students in faculty position descriptions” (IHEP, 2012, p. 10), recognition of this effort in annual faculty performance reviews, and public recognition or incentives for effectively working with this population. In institutions in which “publish or perish” and research requirements overshadow teaching and mentoring, new emphasis must be placed on the value of this role shift.

A third recommendation of the report (IHEP, 2012) centers on engaging faculty in the academic
disciplines and departments whose courses pose the greatest challenges to first-generation students. As they tend to need more developmental courses in math and English than their non-first-generation peers, students can benefit from faculty efforts to revitalize the curriculum in these and STEM courses.

Harper and Quaye (2009) reaffirm these suggestions and also call for greater funding for faculty development and research related to success with first-generation students. They find that faculty also need coaching in learning how to set clear expectations for classrooms that are respectful of all members:

When students share perspectives that are harmful to others, faculty members should address those comments immediately. However, it is equally important for faculty not to silence those who share controversial ideas. This tricky balance can be managed through creating classroom settings that respect differences. For example, White students should be invited to understand their privilege and be able to work through their own anxieties in classroom settings. (p.173)

For most classroom professors, such skills in classroom management have not been an explicit part of their graduate training. Harper & Quaye (2009) further suggest that faculty participate in professional development aimed at developing rich and diverse curricula. This can be achieved, in part, through collaborative peer review of course syllabi, where faculty review each other’s syllabi to determine the degree of diversity represented in the assignments and viewpoints that undergird their courses.

Obviously, meaningful professional development in all of the aforementioned areas is required, as are new ways of measuring faculty and student success in the classroom. Additionally, it is not surprising that Housel & Harvey (2009) entitled their book The Invisibility Factor. While the book shares many poignant stories of first-generation students’ sense of invisibility on campus, it virtually ignores the fact that first-generation faculty and staff experience the same invisibility. Some of the most powerful professional development may come in the form of current faculty listening to the poignant personal reflections of first-generation college students, faculty, and staff who have successfully navigated college life.

Lotkowski et al. (2004) called for the creation of activities and programs that intentionally facilitate the building of social and learning communities and use faculty, staff, and student mentors to be the conduit of cultural capital that may be lacking when first-generation students arrive on campus. The authors hailed programs and academic courses that build mentoring and support groups into their fabric as powerful agents in increasing students’ motivation, self-confidence, and engagement on campus. At the center of many of these strategies are caring college personnel who define their roles beyond traditional boundaries and see themselves as transformers of young lives.

Conclusion

All college personnel are key factors in relational retention. By intentionally increasing the number of first-generation and other underserved college students who have meaningful relationships with people while at college, institutions can significantly affect the probability of these students successfully persisting to graduation by building their resiliency. In doing so, more students will be in a position to fulfill their potential and create a new generation of students who assume that post-secondary education is part of their birthright and are prepared and supported by higher education institutions to attain their academic goals. A shift in the way that college personnel think about their roles can transform narrower definitions of their responsibilities to those that embrace the relevance and richness of being in relationship with the students whom they serve.

The first-generation college students whose stories are included in this paper are but a tiny fraction of the nation-wide population; from what one can glean from their experiences, connections with faculty and staff proved integral to their success. Yet it is critical to understand that in none of the stories were students the initiators of the relationships. Campus personnel must recognize that in order to form meaningful relationships that will improve retention rates, they must take the first steps—both personally
and programmatically. They must recognize their power to affect educational outcomes and be excited about the potential to transform lives.

From the students’ stories, it is evident that institutions that promote relationships between students and faculty and staff are in a position to influence student success in different domains. In Raul’s case, an entirely new career path opened to him. Additionally, his engineering professor provided the cultural capital, in the form of networking to produce an internship, that Raul otherwise would have lacked. In Stephanie’s case, her Resident Assistant staved off what could have developed into a mental health issue when she recognized that Stephanie was isolating herself as she struggled with the more difficult academic expectations at college.

That individual’s intervention and sound suggestions for making social connections saved Stephanie’s freshman year. Edward was increasingly motivated to succeed because he knew his success mattered to his professor; he also found a new “family” in the ROTC Program. But Londyn’s story illustrates how fragile first-generation and marginalized students can be, and how indifferent, cold, or haughty treatment from even one individual on campus can make a student “want to quit many times.”

Relational retention relies on the recognition that first-generation and marginalized students may not come to campus with precisely the same “college knowledge” that their more privileged counterparts do, but that they bring myriad assets and experiences that can bolster their learning and enrich the college community. An early aspect of building resiliency is to help all students identify those assets and recognize how they have translated into resiliency in past academic and social situations. Having a clear understanding of strengths and strategies for employing those strengths in new situations prepares students for challenges they may encounter.

In order to forge meaningful relations with students, college faculty and staff must begin all encounters by seeing first-generation and marginalized students as “at promise,” rather than “at risk.” This simple shift in assumptions then can lead to exploring the question “what can I do in my role to help each student I encounter identify and fulfill that promise?” Adopting new pedagogy, creating new curriculum, developing new partnerships, or critically examining “what we’ve always done” requires hard work, and at times, discomfort. But entering new and sometimes “foreign” territory in the classroom and on campus precisely mirrors what first-generation and marginalized students are being asked to do. Hopefully, this shared experience leads to a greater dedication to connections in the classroom and community that keep students on campus.
References


Reimagining Student Affairs: Connecting Leadership to Institutional Effectiveness Measures

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Abstract: Recently I became the Vice President of Student Affairs at an urban community college with plummeting measures of effectiveness – student satisfaction, enrollment, retention, and completion rates were at an all-time low, and both accreditation and legislative oversight bodies expressed concern. We needed to reimagine the student experience and align activities with what could yield demonstrable improvement. First efforts built director-level capacities in resource management and collaboration. We integrated strategic planning with leadership development, challenging each unit to analyze alignment of processes with retention-focused goals. Next, we identified unproductive activities and made decisions to redesign or eliminate them. After that, we made shared decisions on how to reinvest resources freed by this evaluation. Finally, we developed clear and mutually accountable reporting systems to measure the impact. As we built a student experience that nurtures a sense of belonging, security, and hope—attributes related to persistence—we discovered staff who lacked those very attributes. The years of diminished institutional success had eroded the efficacy and good will of long-standing employees, and that downward spiral was similarly compromising our student services. Having a collaborative, mission-centered, leadership-focused approach to improvement helped us to improve productivity, morale, and success for students and staff alike.

Introduction

The urban community college analyzed here has a story that is not unique. Performance have steadily decreased since 2008, the noted high mark in the number of high school graduates (see Table 1).

Table 1: Performance measures for urban community college (2008 and 2014)

<table>
<thead>
<tr>
<th>Output Variable</th>
<th>2008</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unduplicated headcount</td>
<td>22,049</td>
<td>10,023</td>
</tr>
<tr>
<td>Market share of first-time full-time undergraduates</td>
<td>24%</td>
<td>18%</td>
</tr>
<tr>
<td>Market share of part-time undergraduates</td>
<td>39.2%</td>
<td>29.4%</td>
</tr>
<tr>
<td>Percent of recent college bound high school graduates</td>
<td>28.9%</td>
<td>26.9%</td>
</tr>
<tr>
<td>Fall-to-fall persistence for developmental students (&gt;80% of FT FT)</td>
<td>75%</td>
<td>54%</td>
</tr>
<tr>
<td>Fall-to-fall persistence for college ready (&lt;20% of FT FT)</td>
<td>51%</td>
<td>38%</td>
</tr>
<tr>
<td>Graduation or transfer within 4 years</td>
<td>27%</td>
<td>34%</td>
</tr>
</tbody>
</table>

These measures also show a lack of edge over regional competitors. The institution was losing enrollments to an out of district community college. Students were voting with their feet to attend a school that was farther away and more expensive.

The drops in the performance measures also precipitated a revolving door in top leadership, with three presidents and one interim president over this six-year span and numerous changes at the vice president level. Indeed, of the current cabinet only one member has been in the current leadership position for more than three years. With a decrease of unduplicated headcount of more than 54%, resources also dwindled. Budgets were tightened. Funding for professional development all but evaporated. The facilities deteriorated. Wages were frozen. More and more costs of benefits were passed to employees.
The Student Affairs division includes Student Development—first-year advising, student life, career services, disabilities and wellness services, and TRIO programs; Enrollment Management—admissions, dual enrollment, testing, records and registration, financial aid, and Upward Bound; and Judicial Affairs. The leadership structure includes the VP, two deans, and a director or coordinator for each of these areas. Whereas the executive leadership at the institution (President’s Cabinet) was uniformly new to their positions (a few had been at the institution but in other positions), the mid-level leaders in the division had long histories both at the institution and within their positions. Most of these directors and coordinators, as well as the plurality of front-line staff and faculty, had been there during the times of healthy enrollments and strong productivity measures and had witnessed the institution’s steady decline.

I came to this institution with a good understanding of the challenges. Having worked at another institution in this urban area for some time, I knew the school’s reputation and struggles, yet I also knew that the college’s community, internal and external, had great good will for this school. There was a passion for the work and a hunger for this institution to contribute strong transfer students of color to local universities and to prepare capable workers to meet the city’s growing knowledge economy. Moreover, leading Student Affairs would be particularly challenging for me, as my career had spanned faculty and academic affairs positions. Still, it seemed an apt challenge, as my scholarship has long centered on academic transformation through aligning effort and technology with effective retention systems (Weber, 2014; Weber, 2015).

The work described here describes how applying principles of internal leadership development to a model for student success can be a catalyst for reversing negative trends. Spoiler alert: while not a fairy tale happy ending, there is good news to report.

Reimagine: The Golden Circle Approach to Institutional Effectiveness

The brief overview above depicts an institution in crisis, but not without resources. On the plus side, there were passionate, committed, knowledgeable faculty and staff who believed in what the institution could become to serve the community. On the negative side, the students, the “customers”, did not share that passion. Their enrollment behaviors of choosing a competitor for initial enrollment or transferring out before credential completion showed a misalignment between students’ beliefs about the institution (and the beliefs of those who would influence their enrollment decisions) and the great hopes and passions of those who worked for those students.

What was needed was a way for Student Affairs staff to connect to students in more productive ways and thus to improve outcomes and then to influence potential and current students to once again believe in the institution’s promise. Our solution was to undertake a program in leadership development for mid-level leaders. The purpose for centering on this solution was to honor the staff’s passion and good will by adding resources for improving communication, collaboration, and resource management. Specifically, the program was intended to prevent burnout and waste and to improve the student experience at touch-points central to student persistence and completion. Because resources were scarce, leadership development materials and activities were created “in-house” and embedded in twice monthly staff meetings to take the place of using that time for reporting out.

Simon Sinek’s Golden Circle (2009) is a tool we used to support this transformation. Sinek identified a pattern in how great leaders inspire passion, commitment and action. They start from the “inside out” by beginning with the “why”, the leader’s motivation, purpose, and vision; then articulating the “how”, the processes that link the vision with the mission; finally, specifying the “what”, the logical result of those processes. This approach is the opposite of uninspiring mission and vision statements that start with what we do, then explain how we do it, and, if anyone is left listening, then communicating a broad why. Starting from the inside out allows leaders and followers to build the momentum needed to build capacities through effective process and product design.
The leadership development program implemented in the Student Affairs division was informed by the Golden Circle. For the entire division, we started with this “why”: We love this community and believe that it deserves a great community college that inspires our students to share a sense of belonging, security and hope. The leaders of each unit within the division collaborated with their staff to develop individual “why” statements, each connecting primarily to one of the core concepts. Those units focused on helping students to develop and share a sense of belonging crafted statements of beliefs about why students who feel connected to and accepted by others at the school will be more persistent and successful. Those focused on security aligned their visions with supporting students’ physical, social, and cognitive needs. Those who attended to hope described their passion and purpose around access, affordability, and adding value to the academic credential.

Work on articulating the “how’s” for each unit needed systematic training and feedback in leadership qualities. Therefore, the leadership development program became the primary “how” for top-level division leadership. Informed by sources that focus on student persistence (Habley, Bloom & Robbins, 2012; Upcraft, Gardner, Barefoot, et. al., 2005; Wyner, 2014; Tinto, 2012; Braxton, Doyle, et. al., 2014; Rosenbaum, Deil-Amen, & Person, 2006); on leadership development and institutional excellence (Barefoot et. al., 2005; Friedman, 2014; Bellman & Ryan, 2009; Wyner, 2014; Collins, 2011) and on minority populations (Swail, Redd, & Perna, 2003; Seidman, 2007; Strayhorn, 2012), the program featured readings, presentations, and reflections on these topics:

- Applying retention and student success framework to Student Affairs units
  - Connecting student development capacities (belonging, security, hope) to student success behaviors
  - Aligning unit efforts with capacities and student persistence behaviors
- Managing resources from a servant leadership perspective
  - Align resources with priorities, manage resources efficiently, and reallocate them as needed to meet emerging demands
  - Eliminate waste by refining resource consumption practices, using technology and resource sharing when appropriate
- Improving communication and responsiveness, giving the highest priority to responding to students’ needs
  - Use active listening and employ multiple communication channels to respond to students and to community members
  - Ensure that communications are accurate and coherent and that they convey a tone of collaboration and professionalism
- Measure unit productivity in contributing to Student Affairs and College goals
  - Develop objective assessment measures and tools, including a unit dashboard to communicate with peers and senior leadership
  - Monitor the measures and communicate results honestly and with an eye toward continuous improvement
- Hold yourselves and all staff members accountable for their contributions
  - Build a climate of responsibility for the student experience by clarifying expectations, exhibiting fairness and good judgment, and following through on promises and consequences
- Refine your supervisory skills to improve your unit’s quality and productivity
  - Build a climate of collaboration and support
  - Encourage staff professional development and capacity to reimagine and improve processes
- Recognize staff training and cross-training needs to ensure quality and student satisfaction
  - Communicate training needs with Student Affairs leadership to facilitate sharing and effective use of resources
  - Create opportunities and expectations for staff to share their expertise and training experiences
- Use data to make accurate predictions about the risks and rewards of proposed initiatives
o Use effective statistical reasoning to ask appropriate questions about student progress and satisfaction
o Clearly communicate the results of these studies and use the results to inform planning and unit effectiveness measures

As the leadership development program proceeded, units developed “how’s” in collaboration with other units. For example, multiple units had been vying for class time in the first-year seminar: the advising office, judicial affairs, the wellness center, the career center, and the TRIO program had been separately approaching classroom instructors to schedule presentations. When leaders identified a shared value of scaling resources by strategic collaboration, they reimagined the classroom visit by augmenting a shared presentation with online outreach and targeted communication. In another instance, leaders could reimagine large events on campus. The regular practice had been to use the gym for separate admissions, career fair, and student life events. When seen through the “how” of collaborating to share resources and to make a bigger impact on the student experience, those events were thematically linked around each academic pathway. Finally, the collaborating and innovating “how” approach even influenced hiring processes. When an assistant director level position was open, instead of rehiring for that position, the unit decided to hire a much lower level staff person who performed direct student services and to reclassify other positions to manage more complex tasks.

A continuous theme throughout the leadership development program was understanding how the student experience should inspire belonging, security, and hope in learners. Therefore, we used these themes to evaluate the “what’s”: what we did, what we measured, and what we produced. Table 2 shows the tool we developed to evaluate what we were doing with our time, energy, and funds and what we intended to realize from those investments.

<table>
<thead>
<tr>
<th>Table 2: Student Affairs Division goals and performance metrics</th>
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</thead>
<tbody>
<tr>
<td><strong>Increase each student’s sense of belonging (B).</strong></td>
</tr>
<tr>
<td>B1 - Increase in number of applications</td>
</tr>
<tr>
<td>B2 - Increase in application yield</td>
</tr>
<tr>
<td>B3 - Increase in semester over semester re-enrollment</td>
</tr>
<tr>
<td>B4 - Increase in student co-curricular engagement (participation in co-curricular activities)</td>
</tr>
<tr>
<td>B5 - Increase in student satisfaction with the student experience</td>
</tr>
<tr>
<td><strong>Increase each student’s sense of security (S).</strong></td>
</tr>
<tr>
<td>S1 - Improve the course completed/attempted ratio</td>
</tr>
<tr>
<td>S2 - Increase the number and % of students who make satisfactory academic progress</td>
</tr>
<tr>
<td>S3 - Increase in student satisfaction with the quality of student services</td>
</tr>
<tr>
<td><strong>Increase each student’s sense of hope (H).</strong></td>
</tr>
<tr>
<td>H1 - Students maintain enrollment intensity (FT stay FT; PT stay in continuous enrollment)</td>
</tr>
<tr>
<td>H2 - Students complete their programs of study</td>
</tr>
<tr>
<td>H3 - Students improve credential achievement (graduation) rates</td>
</tr>
<tr>
<td>H4 - Graduates improve rates of successful job placement or transfer</td>
</tr>
<tr>
<td><strong>Increase leadership capacities of deans, directors and staff (L).</strong></td>
</tr>
<tr>
<td>L1- Manage resources efficiently: maintain levels of service at reduced cost, increase levels of service at same cost, or increase levels of service at reduced cost</td>
</tr>
<tr>
<td>L2- Measure results: meet or exceed benchmark standards as reported in annual performance accountability report (PAR)</td>
</tr>
<tr>
<td>L3- Improve organizational culture: Increase in employee satisfaction with the quality of the workplace; decrease in student and community members’ complaints about responsiveness and service</td>
</tr>
</tbody>
</table>

FT=Full-time; PT=Part-time

Each unit compiled a list of regular activities engaged in over the academic year. Using this tool, they matched what they did to the goals. We combined those lists to identify activities across the division that had a clear match to the goals and to check for unnecessary duplication or gaps. When there was duplication, we looked to reimagine how activities could be combined or redesigned to be more efficient. Those activities that did not clearly contribute to students’ sense of belonging, security, or hope (or that were not necessary to meet compliance issues) were evaluated for the resources of time, energy, and good
will that they consumed. Through budget planning, we determined how those resources could be reinvested to close gaps, better serve more students, or to serve students better.

In his TED Talk, Simon Sinek (2009) declared, “…if you hire people just because they can do a job, they will work for your money. But if you hire people who believe what you believe, they will work for you with blood, sweat, and tears.” Our approach to leadership development provided opportunities to connect individual beliefs and passions to our vision for the student experience. However, to make the work sustainable, we needed to ease up on Sinek’s flair for hyperbole. That is, our community’s college had already been getting workers’ blood, sweat, and tears for some time, but, lacking leadership and coordination, much of that outpouring was feckless, and that level of effort could not be sustained. Hence, institutional effectiveness suffered. Better to inspire them to scale their efforts and share the burden with transformed collaborations – and to reinvest resources to support them. As Sinek argues, “Leaders hold a position of power or authority but those who lead inspire us, whether they are individuals or organizations, we follow those who lead not because we have to but because we want to. We follow those who lead, not for them but for ourselves.” In other words, followers aren’t inspired to serve a leader’s vision; rather, they have a vision and believe the leader can help them to reach it. Specific leadership tools, artfully deployed, is a means to inspire that confidence.

These basic management and leadership tools may improve internal systems to help an organization fulfill its mission, but at a community college, with diverse students who arrive with difficult challenges to their success, what is also needed is a student success framework that can lead the school to fulfill the community’s vision for its students.

Redesign: Fit/Fear/Focus

As a researcher and practitioner focused on college readiness, I developed the Fit-Fear-Focus model (Weber 2015) through work with urban high school students and adult learners to describe the decision framework for persistence and departure decisions in higher education, and, importantly to identify cohesive retention strategies institutions can adapt to respond to the students’ needs. The initial framework has been tested and refined in work at community colleges and universities. It is framed as a “call and response” spiritual: students call out what they need, and a successful institution will provide a response that students can use to support their success. In this way, Fit-Fear-Focus is both a way of understanding retention and assessing institutional student-readiness.

FIT
Student call (coming to understand personal values that matter): There are people like me here. Institutional response (in presenting targeted evidence): People like you do well here.

FEAR
Student call (after reflecting on academic ability as well as time and financial resources): I recognize my strengths, but fear my challenges will keep me from being successful. Institutional response (in presenting relevant evidence): Because we know you, we have the support resources to grow and celebrate your strengths and address your challenges.

FOCUS
Student call (as they learn to navigate processes and systems here): I believe that the value of the learning provides a good return on my investment of money, time, energy, and good will. Institutional response (in timely and consistent messages and activities): We respect your investments by eliminating unnecessary barriers to your progress, and we work hard to ensure that the credential is highly relevant and valued in the community and in the workplace.

This model reinforces students’ sense of belonging (fit), security (fear), and hope (focus), capacities associated with student success (Strayhorn, 2012). Students with a sense of belonging will take
risks and engage with other students. They will celebrate their transformations and generously share their experiences with newcomers to the learning environment. Students with a sense of security demonstrate resilience. They connect their lived experience with reflections on past successes, as well as times when they survived failure, and apply those perseverance habits to new tasks. With a sense of hope, students believe that their choice to pursue an education right here and right now will be worth the needed time, energy, and good will. They hope to be a role model for loved ones and to reap benefits as they apply their education to new challenges.

FIT

To strengthen students’ sense of belonging (fit), Student Affairs units analyzed our “what’s” to give attention to students’ career and academic goals and to their meaningful personal development. When making decisions about connecting themes and activities, we looked to finding ways to engage students in self-discovery and to connect to other students with similar interests, strengths and challenges.

One major undertaking was redesigning how the first-year advising office and the Career Center connected to learners. The Career Center was tasked with maintaining and moving forward on a dashboard to expand the opportunities for internships and job placements (see Table 3). Starting with a list of 50 local employers, Career Center staff were then charged with moving each “0” to a “1” by the end of the academic year. Similarly, we set targets to escalate each category.

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>No contact made with a local employer with a business connected to one of our pathways.</td>
<td>Actionable research completed to link both the academic preparation and the employability skills of our graduates to the qualities the employer seeks.</td>
<td>Communicated the information with the employer.</td>
<td>MOU for internships and job placements in process.</td>
<td>MOU signed.</td>
<td>Students are being placed at the site.</td>
</tr>
</tbody>
</table>

But that outward facing work needed a real corollary with internal processes. That is, we needed to connect this work, intended to provide opportunities for our successful students, to student development work that better prepares students to be successful, and to enrollment management work to celebrate that virtuous cycle, what Jim Collins (2005, p. 26) calls a “fly wheel”, and grow enrollments.

The innovation we implemented was engaging others in the Student Affairs division and in Academic Affairs in the actionable research and in adapting that information to better serve students. We focused on the “soft” skills that are highly valued by employers and created cross-training systems and collaborative programming to connect students’ interests to their development. To monitor the impact on students, we are developing systems to track student progress across the progressive model for student workforce readiness depicted in Table 4.

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
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<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>The student has not formed clear, actionable plans for personal management, academic completion, or career attainment.</td>
<td>The student is engaged in co-curricular activities to clarify academic and career goals that connect to an academic pathway.</td>
<td>The student has a personal management plan for attention, wellness, and financial management.</td>
<td>The student has developed academic success skills and strategies to access needed support and has a clearly articulated credential attainment plan.</td>
<td>The student has developed career literacy and employability skills and has a clearly articulated career/transfer attainment plan.</td>
<td>The student is a credential completer and a strong ambassador at the transfer institution or in the workplace.</td>
</tr>
</tbody>
</table>
Such a model for connecting the activities and resources across Student Affairs and academic coursework, and for addressing performance gaps in crucial populations (i.e., part-time, online, developmental students, etc.), will move us forward in achieving our enrollment management, college completion, and workforce readiness goals.

FEAR

To strengthen students’ sense of security (fear), we acknowledged that, regardless of prior educational experiences, a student’s sense of security is tied to the belief in the sufficiency of personal resources (knowledge, skills, abilities, time, energy, good will, social support, and financial support) to attain their goals and to overcome barriers to success. When threats to that security come from immediate or anticipated resource shortfalls, students need timely, accurate, responsive support and help to develop persistence strategies.

While the Division is engaged in some large events with speakers and workshops focused on financial literacy and wellness, perhaps the best example of rethinking what we do to strengthen students’ sense of security is the restorative justice work undertaken by the Judicial Affairs unit. Inspired to connect disciplinary actions associated with code of conduct violations to improving student success, the Director implemented changes to encourage students to meet their academic responsibilities, learn from mistakes, and share their experiences with others. First, when students are required to stay away from campus while awaiting a judicial hearing, a success advisor reaches out to coordinate communications with faculty and to help the student get needed work to keep up with studies. If there are tests, the advisor arranges to escort the student to the testing center or to take the test online when appropriate. In addition, the Judicial Affairs Director works closely with the Wellness Center Director to encourage student reflection and to practice conflict resolution. Finally, students are involved in restorative justice co-curricular programming to communicate standards and to lead discussions about developing resilience practices.

FOCUS

To strengthen students’ sense of hope (focus), we had to start with rethinking how we talk about our students. The college community had come to define itself by our students’ challenges: the percent of students in developmental studies, the number with food insecurity, the students in poverty. By training our eye on student difficulties and conforming our words and actions to our perceptions of their shortcomings, we were at risk of forgetting how sturdy they are. Almost by definition, a student who chooses to start college is driven by an abiding sense of hope. The kind of durable hope that is needed to complete a learning goal is rooted in past learning experiences and in received values.

This past experience impacts their perceptions of the cost of the present endeavor. Learners calculate how difficult something will be based on their past experiences in similar situations (e.g., high school or work-place training); then they learn about what kinds of growth and change will be needed to attain the goal: finally, they weigh the needed effort, expense and risk against the perceived value of completion. We can affect this calculation in several ways. Learning experiences should build their resources, so that the gap between what they have and what they need is narrow. We can engage in eliminating costly barriers along the way, and this smoothing the way again lowers the perceived costs and risks. And we can enhance the value of the end product by ensuring tight alignment between programs and experiences and their post-graduation endeavors. In truth, we need to do all three. Learning activities that connect learners to each other, to the institution, and to their future goals have the promise of supporting persistence and success behaviors and raising the value of the degree program for participants. What I have described here is what Jim Collins, in Good to Great (2001), would call a BHAG (Big Hairy Audacious Goal) (p. 7). As steps toward our BHAG, our Division used the “what” analysis described above to identify where we can find opportunities to better serve students.

Because of the falling indicators of student success, our institution was required to bring in a team of external evaluators to comment on areas of necessary improvement. The report included transcripts of interviews and surveys of employees, students, former students, and community members. Two critiques were that we were unresponsive to calls and emails and that community members experienced discourtesy.
when they interacted with front line staff. Both these instances represent unnecessary barriers to student success because they waste the essential resources of students’ time, energy, and good will. The Student Affairs leadership team rallied to tackle these issues, communicating the expectation that all calls and emails will be responded to within 24 hours and adding timeliness and accuracy of response to staff meetings and evaluations. As for courtesy, we realized that we needed to go beyond calls for enhancing customer service. Rather, what was needed was a plan to transform our offices into model work places that would celebrate effective communication, critical thinking, problem solving, technology use, and information literacy. These model workplaces would not only improve courtesy but would increase students’ perceptions of the value of learning these skills by showing how they make a workplace more productive and enjoyable. We are still in the planning stages for this revolution, but groundwork is described in more detail in the next section.

Reinvest

Throughout the earlier section, Jim Collins (2001, 2005, 2011) has been cited as a contributor to understanding organizational excellence. While his *Good to Great* (2001) is ubiquitous on leaders’ bookshelves, a lesser known Collins work is *Good to Great and the Social Sectors* (2005). In this slim monograph, Collins maintains that while the principles in the larger work apply to social sectors, there are five issues where social sector and business realities are essentially different:

- Defining “Great” – Calibrating success without business metrics
- Level 5 Leadership – Getting things done within a diffuse power structure
- First Who – Getting the right people on the bus
- The Hedgehog Concept – Rethinking the economic engine without a profit motive
- Turning the Flywheel – Building momentum by building the brand

All five of these apply to transforming the Student Affairs Division into a model workplace, but we started with success metrics and refiguring uses of power.

Business metrics of success center on money. As Collins (2005) explains, “In business, money is both an input (a resource for achieving greatness) and an output (a measure of greatness). In the social sectors, money is only an input, and not a measure of greatness” (p. 5). At a community college, the inputs include money (from tuition, from local and state government, from funders, from donors), but it also includes the time, talent, energies, good will, and aspirations of students and their families and of our faculty and staff. The outputs are also money, mostly in the form of regional economic gains from workforce development, and also the enhanced talent, energies, good will and aspirations of students, their families, their employers, and even their legislators.

There are a lot of moving parts when trying to assess the return on investments in terms of how specific activities impact both economic stability and growth and enhanced talent, energy and good will. This complexity exists even at the 30,000-foot level of students coming into an institution and then the number coming out with completed credentials and satisfying transfer or career accomplishments. But at a more granular level within an organization, it’s impossible to assign credit, critique, or causation for student learning and development outcomes. Still, for an organization to make informed decisions on a dogged path to greatness, success metrics are essential.

Returning to Table 2, Student Affairs Division Goals and Performance Metrics, we attempted to align quantitative and qualitative metrics with ineffable traits. The intent was to infer growth in the outputs of belonging, security, and hope by measuring associated student persistence behaviors. Collins (2005) argues,

It doesn’t really matter whether you can quantify your results. What matters is that you rigorously assemble evidence – quantitative or qualitative – to track your progress. If the evidence is primarily qualitative, think like a trial lawyer assembling the combined body of evidence. If the evidence is
primarily quantitative, then think of yourself as a laboratory scientist assembling and assessing the data (p. 7).

The two student affairs deans and I monitor and share information on the metrics and work diligently to help directors and coordinators understand, use, and communicate the information to continue to improve efforts. Our guide is Collins’ “Outputs of Greatness” (2005, p. 8):

- **To deliver superior performance.** In business, performance is defined by financial returns and achievement of corporate purpose. In the social sectors, performance is defined by results and efficiency in delivering on the social mission.

- **To make a distinctive impact.** The organization makes such a unique contribution to the communities it touches and does its work with such unadulterated excellence that if it were to disappear, it would leave a hole that could not be easily filled by any other institution on the planet.

- **To achieve lasting endurance.** The organization can deliver exceptional results over a long period of time, beyond any single leader, great idea, market cycle, or well-funded program. When hit with setbacks, it bounces back even stronger than before.

A quick example of the power of understanding inputs and outputs is in order. Prior to our leadership development work in Student Affairs, a regularly reported output was the number of post-cards sent to students or prospective students with reminders of procedural deadlines. Recently, we needed to communicate an upcoming deadline that impacted the financial aid office, and the staff member duly reported how many communications she had sent out electronically. The leader took the initiative to track the analytics on how many of the communications had been received and opened and how many students had followed through with contacting the office. Because the response rate was low, they followed up with call center outreach and text messages. Subsequent reports included the response rates and return on strategies to increase response.

With leaders ready for new levels of responsibility for communicating and for attending to measures of productivity and effectiveness, the culture in Student Affairs needed to broaden its concept of authority and power. The structure in place was top down, with concentrated executive power at the top and mid-level directors with little say, their talent spent largely on reporting and putting out small (figurative) fires. For a new leader to come in and “empower” them without changing what power meant within that cultural structure would have been a mistake. Frances Hesselbein, Executive Director of the Girl Scouts, said, “… you always have power, if you just know where to find it. There is the power of inclusion, and the power of language, and the power of shared interests and the power of coalition. Power is all around you to draw upon, but it is rarely raw, rarely visible.” (Hesselbein, as cited in Collins, 2005, p. 10). The directors needed to explore how power could be used to serve the community and the community’s college.

Our solution was a Student Engagement Workgroup, consisting only of Student Affairs directors and coordinators and their counterparts in academic affairs, marketing, and institutional research. Their initial charge was to create a cohesive, collaborative calendar of co-curricular activities that would reach more and more types of students and that would feature clear and manageable learning outcomes assessments that connect to building students’ sense of belonging, security, and hope. Within this group, leaders can demonstrate planning, resource management, communication, team work, advocacy, and analytics skills using their own standards for mutual accountability.

We have articulated a strategic planning goal focused on helping to transform all student services offices into model workplaces. We call this approach “serving as learning”. There, staff will not only be trained to employ high levels of competence in job-related knowledge, skills and abilities, but they will be able to articulate to students the skills they are using and how they developed and continue to improve them. In addition, staff will have the resources to develop, improve, and articulate a range of high value employability skills, including critical thinking, information literacy, problem-solving, numeracy, financial literacy, augmenting business processes and communication tasks with technology, and using data to inform decisions. Companion resources will be available for staff to share with students.

The model for “serving as learning” comes from a model I developed in a consulting capacity for a medium-sized community college in a rural area. We are using “serving as learning” processes, with
accompanying scripts for staff development and quality assurance and with online materials for sharing with students and for embedding in first-year experiences, to reinvest human effort across the first-year experience. The goal is to eventually shrink developmental placements by providing intentional teachable moments across pre-college and early college experiences.

**Retain: Bringing Belonging, Security and Hope Home**

The challenges at the institution have continued. In late spring, state legislation was passed to require the institution to restructure its Board of Trustees. Additional leadership changes at the executive levels have included the departures of the Vice President of Business and Continuing Education and the Interim Vice President of Institutional Advancement, Marketing, and Research.

As we executed our plans to build a student experience that creates a sense of belonging, security, and hope, we came to the realization that we had staff members who lacked those very attributes. The external evaluation team’s report, discussed above, quoted numerous employees who described feeling defeated, unsupported, unheard, and unappreciated. Turnover rates were high and vacant positions went unfilled for long stretches. The years of diminished institutional success had eroded the efficacy and good will of long-standing employees, and that downward spiral was similarly compromising our student services.

Clearly there is no quick fix to the effects of a long-standing downward spiral. However, the leadership team in Student Affairs reviewed those findings carefully and went to work. First, we evaluated all of the job descriptions to align levels of effort with the refined activities for each unit (their “what’s”). We looked for technology “hacks” to improve processes and assessed training needs to support staff in adapting technology solutions. We held town hall forums to communicate the “why’s” and “how’s” and my office instituted regular open office hours. Finally, we committed to either filling every vacancy or restructuring a vacancy to redistribute responsibilities (and adjust pay accordingly). Now, we have open searches that are coming to conclusion, and then we will be fully staffed. Another post on the good news front is that I have not had to resolve an employee complaint in more than three months, a marked change from my first three months.

But my introduction promised some hope on the student success front as well. We are going into the new academic year with fall enrollments (new and retained students) at 12% higher than this time (late spring) last year and we will work hard to retain every one of them over the difficult summer melt period. One strategy we are using is individualized outreach and personal connections over the summer as well as personalized hand-off of students from high school mentoring programs to our student success advisors.

Other measures of progress include an increase in the market share of part-time undergraduates of more than 3%, despite a shrinking market. In this year’s survey of student satisfaction from non-returning students, 68% indicated that they plan to return (year over year increase of 5%). Fall-to-fall retention is up: +1.3% for developmental students; +1% for college-ready students; +3% for Pell-eligible students. Course pass rate in the most-enrolled first-year courses is up by 8%. And the persister-rate (still enrolled or successful transfer) is up by 11%.

With an increasingly nimble and responsive structure and culture in Student Affairs, we have been able to expand agreements with community partners, realize new visibility for and broader attendance at campus activities, and devote greater attention to a communication plan to re-enroll current students and “come-backers” who left our school in good academic standing and did not transfer elsewhere. Thus, we intend to capture more yield on inquiries, applications, and early registration processes.

What is next for us is discovering our hedgehog. The hedgehog finds a way to survive despite the fox’s efforts at prey. Collins (2005) describes the “hedgehog concept” for the social sector as “rethinking the economic engine without a profit motive” (p. 8). That is, to thrive, an organization must determine what lies at the intersection of three concentric circles (p. 19):
• Circle 1: Passion – Understanding what your organization stands for (its core values) and why it exists (its mission or core purpose).
• Circle 2: Best at – Understanding what your organization can uniquely contribute to the people it touches, better than any other organization on the planet.
• Circle 3: Resource engine – Understanding what best drives your resource engine, broken into three parts: time, money, and brand.

Expanding leadership capacities is necessary but insufficient to bringing about deep changes in the Division’s culture and productivity. Yet results here will set the stage for growth and strength in other divisions at the school, in our community engaged partners, and in our city. As Collins (2005) argues, by focusing on your Hedgehog Concept, you build results. Those results, in turn, attract resources and commitment, which you use to build a strong organization. That strong organization then delivers even better results, which attracts greater resources and commitment, which builds a stronger organization, which enables even better results. People want to feel the excitement of being involved in something that just flat out works” (p. 24).

The work is clearly unfinished, but having a collaborative, mission-centered, leadership-focused approach to improvement helped us to improve productivity and morale, and these improvements, in turn may well improve success for students and staff. We are in the stage of building a stronger organization dedicated to a cohesive, focused, responsive student experience, and we trust that this renewed student experience will be the springboard for increasing student and institutional success.
References


Abstract: Increasing student retention and graduation rates is a top priority in higher education. Early identification of at-risk students for intervention programs or redirection into other degree paths improves retention and graduation rates. Likewise, given the increasing teacher shortage, identifying strong candidates for Teacher Certification programs and graduating prepared future teachers is crucial. The use of predictive analytics provides a promising method in the quest to increase student success at universities and colleges. Our current predictive analytic model utilizes a machine learning algorithm, extreme gradient boosted machine, to identify strong candidates for Teacher Certification programs as well as predicting graduation and program completion. The prediction model, built on historical data, is being applied as a retention and recruitment tool. A strategic graduation and retention action plan, based on the model, is in use by academic advisors and college administrators with current students identified by the model as at-risk for not graduating. This paper covers the current model and features, application and analysis with active students, the strategic graduation and retention action plan and its implementation and use by academic advisors and college administrators to assist at-risk students, and future directions.

Introduction

The current teacher shortage is not a new phenomenon in Oklahoma. In the 1940’s, Dodson (1948) took an in-depth look into the factors behind the teacher shortage in Oklahoma. Fast forward to 2017 and that same teacher shortage still exists in Oklahoma (Blatt, 2016; Denwalt, 2015). During the 2016-2017 academic school year Oklahoma faced a 1000 teacher shortfall (Englebright, 2015). The critical teacher shortage is not just in Oklahoma. In fact, it has grown into a crisis in surrounding states and across much of the U.S. (Sutcher, Darling-Hammond & Carver-Thomas, 2016). Current predictions show that if the current teacher supply trends continue, the annual teacher shortfall in the U.S. will reach 112,000 by 2018 (Camera, 2016).

Given the increasing teacher shortage, identifying strong candidates for recruitment into Teacher Certification programs and graduating prepared future teachers is crucial. There are many factors that go into the recruitment for, retention in, and successful completion of a university teacher education program. In general, increasing student retention and graduation rates is a top priority in higher education. Early identification of at-risk students for intervention programs or redirection into appropriate parallel degree paths can improve campus and college retention and graduation rates. The use of predictive analytics is a promising method in the quest to increase student success at the university and college level (Delen, 2011; Mah, 2016; Mat, Buniyamin, Arsad, & Kassim, 2013; Oztekin, 2016; Vandamme, Meskens
Likewise, the guidance, mentoring and information the student receives from their academic advisor and college personnel can be an important factor in increased retention and graduation rates (Lowe & Toney, 2000; Tinto, 2006; Young-Jones, Burt, Dixon & Hawthorne, 2013). In 2015, the Department of Education funded a 9-million-dollar grant for a study on the impact of analytics and effectiveness of academic advising or coaching on student retention (Department of Education Awards, 2015).

Background and Purpose

Oklahoma has a critical teacher shortage. The Oklahoma Board of Education is attempting to fill the void by emergency-certifying individuals holding a bachelor’s degree in any field (Englebright, 2015). Appallingly, these emergency-certified teachers lack the very higher education and professional training requirements required by state law to begin teaching (Denwalt, 2015; Englebright, 2015). There is a dire need to identify strong candidates for recruitment into Teacher Certification programs and to graduate prepared future teachers. Working with data scientists at the University of Oklahoma, a predictive analytic model was designed to aid in the recruitment, retention, and graduation of future educators. Our predictive analytic model utilizes a machine learning algorithm, extreme gradient boosted machine, to identify strong candidates for Teacher Certification programs as well as predicting graduation and program completion. The prediction model, built on historical data, is now being applied to current student populations as a retention and recruitment tool. A preliminary strategic graduation and retention action plan, based on the model, is in use by academic advisors and advising administrators.

Literature Review

Vare, Dewalt, and Dockery (2003) found that GPA, high school grades as well as verbal and math aptitude scores were strong predictors of teacher preparation program completion and graduation. Gershenfeld, Hood and Zhan (2016) listed first-semester GPA, gender (female), and composite ACT scores as predictors of success in college. Vandamme, Meskens and Superby (2007) also found GPA, especially first-semester GPA, to be strongly correlated with retention. Cabrera, Nora and Castaneda (1992) also found GPA to be strongly related to persistence and retention. Wolniak (2016) found GPA, ACT and gender to be strong predictors of four-year graduation rates. Wohlgemuth et al. (2006) noted that ACT, high school rank, gender, and financial aid (gifts and grants) were significant positive predictors of retention and graduation. Interestingly, Wohlgemuth et al. (2006) noted a strong correlation between years to degree and the type of financial aid a student received. Graduation rates of students receiving greater amounts of gift aid (grants and scholarships) and work study aid increased as compared to those receiving greater amounts of loan aid (Wohlgemuth et al., 2006, p. 470). Additionally, Wohlgemuth et al. (2006) found that the four-year graduation rates for specific colleges of study including Education, Design and Engineering were significantly lower than Liberal Arts and Sciences.

While there is a general consensus that GPAs and ACT/SAT composite scores are stable predictors of student success, other variables were found to differ in strength of relationship. For example, Cholewa and Ramaswami (2015) did not find a significant relationship between gender and success, but they did note that coaching or counseling sessions totaling as little as three-to four hours in the fall were strong predictors of continuing enrollment for the spring semester. Wolniak (2016) indicated that the frequency of meeting with academic advisors and use of early college interventions increased success. Nationwide, student satisfaction surveys conducted by Ruffalo Noel Levitz (2013) consistently found that academic advising was a top factor in a positive college experience for students.

According to Tinto (2006), the probability increases that students will thrive, persist, and complete degrees when they are in an academic environment with mentors who provide clear and
consistent information about the requirements and expectations of the institution and program. Targeted interventions by trained academic advisors were found useful in increasing the retention rates of at-risk populations and underrepresented populations (Young-Jones et al., 2013; Martinez, 2015). High impact practices such as coaching and mentoring by faculty and advisors increased student retention (Provencher & Kassel, 2017). Meléndez (2007) found that academic advising and coaching was especially useful when working with Hispanic student populations. At-risk student populations working with an academic coach displayed higher levels of self-efficacy and responsibility (Moore, 2015). This is important as there is an increasing need to grow the number of minority teachers due to the critical minority teacher shortage across the U. S. (Ingersoll & May, 2011).

Although brief, this literature review identified several strong predictors and predictor themes of student retention and graduation. The major themes include: Importance of academic advising, coaching/mentoring and high impact practices (Tinto, 2006; Ruffalo Noel Levitz, 2013; Lowe & Toney, 2000; Martinez, 2015; Mat et al., 2013; Moore, 2015; Provencher & Kassel, 2017; Meléndez, 2007; Young-Jones et al., 2013); Appropriate financial support in the form of aid, grants and scholarships (Cabrera et al., 1992; Dowd, 2004; DesJardins, Ahlburg, & McCall, 2002; Wohlgemuth et al., 2007); The relationship of grades and GPA to retention and graduation (Cabrera et al., 1992; Gershenfeld et al., 2016; Vandamme et al., 2007; Vare et al., 2003; Wohlgemuth et al., 2007); Exam scores specifically, ACT/SAT composite scores (Gershenfeld et al., 2016; Vandamme et al., 2007; Vare et al., 2003; Wohlgemuth et al., 2007; Wohlgemuth, 2016) and Gender (Gershenfeld et al., 2016; Wohlgemuth, 2016).

Methodology

Methodologically, this work has evolved over several years. We have more carefully defined the student population that we are interested in including (e.g., students enrolled in University College) and the variables used (e.g., we have included Oklahoma General Education Test (OGET) scores). In addition, we have used different statistical estimating techniques in an effort to more accurately estimate the likelihood a student will get a degree. The current estimator is a machine learning algorithm, extreme gradient boosted machine (Friedman, 2001). Extreme gradient boosted machine (XGBoost) is an ensemble algorithm that combines many weaker classification trees together into a single strong classifier. Using cross validation techniques, it was determined that about 8400 decision trees optimizes our ability to predict if a student will get a degree in the College of Education. Finally, in terms of accuracy, the cross validation indicates we are correctly classifying (i.e., degree/no degree) over 95% of the students.

Sample

The initial predictive model sample included all students who had declared Education as their major between Spring 2010 and Fall 2016. There was a total of 1070 students in the sample with 86.4% female and 13.6% male. Of the 1070 student in the sample, 826 received a degree while 244 did not receive a degree. Breaking down the sample along the lines of gender, 20% of females did not receive a degree in comparison to 40% of males who did not receive a degree. Generally speaking, males were much more likely to not graduate from the College of Education and complete the Teacher Preparation program. In addition, underrepresented populations were 10 to almost 20% more likely to not graduate (Table 1). Students in secondary education teaching areas (Math, Social Studies, Sciences and Language Arts) were more likely to not graduate and complete (Table 2). This is important to note as the majority of males were enrolled in secondary teaching areas.
Table 1: Self-reported Integrated Postsecondary Education Data System (IPEDS) categories

<table>
<thead>
<tr>
<th>IPEDS Categories</th>
<th>Total</th>
<th>No Degree</th>
<th>Degree</th>
<th>Percent not receiving a degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Indian or Alaska Native</td>
<td>46</td>
<td>17</td>
<td>29</td>
<td>37%</td>
</tr>
<tr>
<td>Multi Race</td>
<td>61</td>
<td>20</td>
<td>41</td>
<td>32.8%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>54</td>
<td>16</td>
<td>38</td>
<td>29.6%</td>
</tr>
<tr>
<td>Black or African American</td>
<td>28</td>
<td>8</td>
<td>20</td>
<td>28.6%</td>
</tr>
<tr>
<td>White</td>
<td>822</td>
<td>173</td>
<td>649</td>
<td>21%</td>
</tr>
<tr>
<td>Do not wish to report</td>
<td>44</td>
<td>6</td>
<td>38</td>
<td>13.6%</td>
</tr>
</tbody>
</table>

Table 2: Curriculum

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>Total</th>
<th>No Degree</th>
<th>Degree</th>
<th>Percent not receiving a degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education-Undecided</td>
<td>10</td>
<td>10</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>Mathematics Ed</td>
<td>42</td>
<td>15</td>
<td>27</td>
<td>35.7%</td>
</tr>
<tr>
<td>Social Studies Ed</td>
<td>97</td>
<td>30</td>
<td>67</td>
<td>30.9%</td>
</tr>
<tr>
<td>Science Ed</td>
<td>43</td>
<td>13</td>
<td>30</td>
<td>30.2%</td>
</tr>
<tr>
<td>Special Ed</td>
<td>64</td>
<td>18</td>
<td>46</td>
<td>28.1%</td>
</tr>
<tr>
<td>Language Arts Ed</td>
<td>96</td>
<td>21</td>
<td>75</td>
<td>21.9%</td>
</tr>
<tr>
<td>Early Childhood Ed</td>
<td>184</td>
<td>39</td>
<td>145</td>
<td>21.2%</td>
</tr>
<tr>
<td>Elementary Ed</td>
<td>502</td>
<td>78</td>
<td>424</td>
<td>15.5%</td>
</tr>
</tbody>
</table>

Also, important to note is the number of average credit hour enrollment and completion each semester. Students averaging 12-15 credit hours of enrollment each semester were more likely to graduate than those enrolling in less than 12 or more than 16. Finally, undergraduates with retention grade point averages (GPA) of 2.75 to 2.99 were 30% more likely to graduate than students with lower GPAs, while those with a 3.00 GPA or higher were 88.5% more likely to receive their degree than those with lower GPAs (Table 3).

Table 3: Retention undergraduate GPA

<table>
<thead>
<tr>
<th>GPA range</th>
<th>Total</th>
<th>No Degree</th>
<th>Degree</th>
<th>Percent not receiving a degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00-1.99</td>
<td>57</td>
<td>57</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>2.00-2.49</td>
<td>37</td>
<td>36</td>
<td>1</td>
<td>97.3%</td>
</tr>
<tr>
<td>2.5-2.74</td>
<td>31</td>
<td>29</td>
<td>2</td>
<td>93.5%</td>
</tr>
<tr>
<td>2.75-2.99</td>
<td>44</td>
<td>25</td>
<td>19</td>
<td>56.8%</td>
</tr>
<tr>
<td>3.00-3.49</td>
<td>392</td>
<td>45</td>
<td>347</td>
<td>11.5%</td>
</tr>
<tr>
<td>3.50-4.0</td>
<td>479</td>
<td>22</td>
<td>457</td>
<td>4.6%</td>
</tr>
</tbody>
</table>

**Current Prediction Model**

**Statistical Techniques**

The current predictive model utilized three statistical modeling techniques including Extreme Gradient Boosted Machine Algorithm, logistic regression, LASSO regression; and receiver operation characteristic (ROC) was used as the evaluation metric. Extreme Gradient Boosted Machine (XGB) uses an ensemble of decision trees and is a more optimized version of the Gradient Boosted Machine Algorithm. XGB, also known as a multiple imputation model, can be useful to impute missing data in both linear and logistic regression models (Milletich, 2016). Along with XGB, two types of regression techniques were used, logistic regression and LASSO regression. In cases where the response is one of two outcomes, logistic regression produces a single linear function using a logit transformation to help find the maximum likelihood of each case (Tabachnick & Fidell, 2007). LASSO regression is a linear regression method that applies an L1 penalty to control the size of the coefficients. Lasso will cause some of the coefficients to reach 0 which is a sort of continuous subset selection (Tibshirani, 1996). In a ROC curve the true positive rate (Sensitivity) is plotted as a function of the false positive rate (1 - Specificity) for a variety of cut-off points. Each point on the ROC curve represents a sensitivity/specificity pair corresponding to a particular decision threshold (Fawcett, 2006). The area under the ROC curve (AUC) is a measure of how well a parameter can distinguish between two diagnostic groups (No Degree/Degree).
Features

As indicated, the current prediction model was built on historical data. We initially started with 51 modeling features and 1 response variable (Table 4). The identifier “fe_” represents a feature we engineered, while “r_” is a feature that was transformed. Missing data were represented by “missing_” and also identifies features that are dummy coded.

Table 4: Response variable [1] and 51 modeling features [2-52]

<table>
<thead>
<tr>
<th>#</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&quot;OBTAINED DEGREE&quot;</td>
</tr>
<tr>
<td>2</td>
<td>&quot;GENDER CODE&quot;</td>
</tr>
<tr>
<td>3</td>
<td>&quot;IPEDS CATEGORY_DESC&quot;</td>
</tr>
<tr>
<td>4</td>
<td>&quot;OU RETN UG GPA&quot;</td>
</tr>
<tr>
<td>5</td>
<td>&quot;COMB RETN UG GPA&quot;</td>
</tr>
<tr>
<td>6</td>
<td>&quot;TERM CODE&quot;</td>
</tr>
<tr>
<td>7</td>
<td>&quot;TERM HOURS&quot;</td>
</tr>
<tr>
<td>8</td>
<td>&quot;HONORS IND&quot;</td>
</tr>
<tr>
<td>9</td>
<td>&quot;SCHOLAR IND&quot;</td>
</tr>
<tr>
<td>10</td>
<td>&quot;fe_mean_pell_dollars&quot;</td>
</tr>
<tr>
<td>11</td>
<td>&quot;fe mean loan dollars&quot;</td>
</tr>
<tr>
<td>12</td>
<td>&quot;fe_ewma10 mean loan dollars&quot;</td>
</tr>
<tr>
<td>13</td>
<td>&quot;fe mean scholarship dollars&quot;</td>
</tr>
<tr>
<td>14</td>
<td>&quot;fe mean tuition waiver dollar&quot;</td>
</tr>
<tr>
<td>15</td>
<td>&quot;fe mean grant sans pell dollars&quot;</td>
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<tr>
<td>16</td>
<td>&quot;fe_ewma mean tuition waiver dollars&quot;</td>
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<tr>
<td>17</td>
<td>&quot;fe mean unmet need&quot;</td>
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<td>18</td>
<td>&quot;fe female&quot;</td>
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<td>19</td>
<td>&quot;fe_ipeds white&quot;</td>
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<td>&quot;missing ou_term&quot;</td>
</tr>
<tr>
<td>52</td>
<td>&quot;missing_term_hours&quot;</td>
</tr>
</tbody>
</table>

Note. Response variable is labeled [1] and the 51 modeling features are numbered [2-52]

Findings of Current Predictive Model

The historical data were analyzed first using the three statistical modeling techniques of Extreme Gradient Boosted Machine Algorithm (Figure 1), logistic regression (Figure 2), Lasso regression (Figure 3), and the evaluation metric used was ROC. The significant model features are included with the figures of each of the three distinct modeling techniques. Next, (a) we compared their individual receiver operation characteristic (ROC) curves and area under these curve (AUC), (b) blended the predictions by summing them together and then dividing by the number of models (in this case 3), and (c) reevaluated the ROC/AUC. Through resampling we determined that the blended model performed better than any individual model (Figure 4). In looking at the results of the three distinct modeling techniques and the blended model, the AUC scores of 0.9895; 0.967; 0.9653; and 0.9844, respectively, can be interpreted as there is a threshold we can establish to precisely determine who will graduate and who will not (i.e., degree/no degree). Of the 51 features identified in the current prediction model, 24-15 are strong predictors in all three modeling techniques (Figures 1-4). While other features may have shown significance in one of the distinct models, they were not meaningful in all modeling techniques and therefore are not identified as significant features.
**Figure 1:** Extreme Gradient Boost of model sample

**Most Important Variables:**
1. "OU RETN UG_GPA"
2. "TERM_HOURS"
3. "mean_sum_hrs"
4. "r_CURRIC2 MAJOR_DESC"
5. "r_HS_CLASS_SIZE"
6. "r_TRANS RETN UG_GPA_HOURS"

**Figure 2:** Logistic regression of model sample

**Most Important Variables:**
1. "mean_sum_hrs"
2. "r_CURRIC2 MAJOR_DESCNONE"
3. "OU RETN UG_GPA"
4. "missing_act_sat_max"
5. "r_TRANS RETN UG_GPA_HOURS"
6. "r_ACT SAT_CONV_MAX"
7. "r_CURRIC2 MAJOR_DESCElementarySchool"
8. "COMB RETN UG_GPA"
9. "mean_zp.full"
10. "r_HS CLASS_SIZE"
The results of the prediction model, based on the historical data, show that some of the strongest indicators of student retention in the College of Education and ultimately graduation include university retention GPA and transfer retention GPA for transfer students, summer enrollment hours, average course enrollment in fall and spring, curriculum/major, and average unmet financial need. Additional predictors include high school class size/rank, the number of advising appointments, ACT/SAT composite, the
overall OGET score,\(^1\) and OGET subtest 2 score\(^2\) (communication skills).

The overall results highlight areas of consideration for admission into and successful completion of the Teacher Certification Program. In addition, the findings reinforce many current university targeted initiatives such as Think 15, increasing summer course offerings, importance of academic advising sessions, monitoring student enrollments, focused recruitment efforts, and targeting scholarship and grant resources toward reducing student unmet financial need.

**Application of Predictive Model with Active Students**

Once we felt the predictive model accurately distinguished success in terms of obtaining a degree or not, it was tested with our current student population. The test sample included those students who declared Education as a major in the spring 2017 term. The test sample includes a total of 510 active undergraduate education students. The scoring predictions of the initial test of the graduation and retention prediction model on the current student population indicated students fell into three distinct groups (Figure 5). These groups were identified as in danger of not receiving a degree, on the border between receiving a degree or no degree, and safe or predicted to graduate.

![Density of Score Predictions](image)

*Figure 5: Scoring predictions with current students (N=510)*

The results of the graduation and retention prediction model indicated that 77.45% of the students currently declared as Education majors will receive a degree, 15.69% could be in danger of not graduating, while 6.86% will not receive a degree (Table 5). This means that 22.55%, or up to 115 of current College of Education student population may not graduate. The implications of these findings for College Academic Advisors and Administrators are discussed next.

<table>
<thead>
<tr>
<th>Count</th>
<th>In Danger</th>
<th>Border</th>
<th>Safe</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td>80</td>
<td>395</td>
<td></td>
</tr>
</tbody>
</table>

*Note. \( \geq \) In danger < .4 < Border < .6 \( \leq \) Safe \( \leq 1 \)*

\(^1\) The OGET exam is the first of three required Teacher Certification Exams and identified as covering critical thinking and general education knowledge.

\(^2\) OGET subtest 2 covers communication skills.
Discussion

Given the critical need to increase the number of quality teachers for entry into the teaching field, the predictive model results will be used by advisors and administrators as a mechanism for actions and decisions that increase program retention and lead to graduation. We are currently using the results to identify students early who need a safety net or assistance to continue making progress toward a degree. The weight of the variables associated with each at-risk student helps us identify the immediate supports and services that will aid that student. For example, by identifying the students whose predicted success rate would increase with financial support, tutoring or other academic enrichment services, life or academic coaching, targeted advising sessions, or referrals to appropriate services for targeted interventions; or by providing timely information that assists students in the selection of an appropriate education major; or by matching student needs with available financial resources, we can increase the students’ chance for success. Another benefit of the predictive model is the identification of variables, that when combined, signal a student is moving toward a high-risk category. Some of the signal variables include average enrollment hours per term, ACT/SAT composite scores, IPEDS category, retention GPA, chosen curriculum, and unmet financial need. Targeted funding support that allows students to reduce the number of hours they work each week is one method that can be used to help at-risk students who have unmet financial need.

Retaining current students will help us increase graduation rates, but we will also need to increase the number of quality candidates entering teacher preparation programs if we are to meet the needs of the current teacher shortage. The prediction model can also be useful in identifying quality students for recruitment into the college and specific shortage teaching areas such as STEM (Science, Technology, Engineering, and Mathematics). In fact, the results and findings of the prediction model are already shaping and refining many of our recruiting strategies and identifying ways we can effectively utilize financial support. Because we know that some groups vital for the teaching field are at risk based on the prediction model, new recruiting efforts have been initiated that employ aggressive recruitment of identified candidates with scholarship funds to increase the number of underrepresented populations, males, and STEM applicants matriculating into the program. Once these students are at the university, the prediction model will help us identify what support and help we can offer so they can be successful.

The prediction model has also been helpful in identifying areas of greatest need for targeted funding requests from donors including the Debt-Free Teacher initiative and certification exam funding. Increasing retention and graduation rates provides accountability for donors and other stakeholders by allowing them to see how their donations directly benefit students. Targeted funding initiatives not only benefit students, but also help us plant seeds that foster the ideas of the importance of giving back. Many of our recent alums, who benefited from these targeted funding initiatives while students, are helping us create a community of giving alums. They know firsthand that even a small amount can make a big difference. The recent Thousands Strong fundraising campaign challenged alum to give a small gift to cover the costs of teacher certification tests and background checks for our graduating seniors. The initial funding goal of $3000.00 was doubled in a record time through alumni donations as small as $5.00.

As we continue to refine the retention and graduation predictive model, we also continue to refine and develop the action plan. It is important that we identify proper success and retention or support sources/services for student referrals. In addition, we continue to refine the process/protocol to support students with low predicted success rates (e.g., development of a decision tree model). There is a need to develop and identify progress assessments and benchmarks for both incoming and current students. Finally, we continue to refine the use of the predictive model for recruitment of quality future educators.

Conclusions and Future Research

In the future, we will continue to improve on our ability to predict the success of our students. Adding additional data sources is one way we will be able to improve predictions. For instance, Learning
Management System, card swipe data (e.g., lab usage, campus engagement), and survey responses will be incorporated. As we continue to refine the current model, we work to identify and test other pertinent variables that will address behaviors, dispositions, or affective processes indicative of successful teachers (social justice beliefs, beliefs about English as a Second Language (ESL) and students with disabilities, Career Inventories, etc.). The key will be incorporating only those data that improves our ability to accurately predict the success of our students. Finally, longitudinal studies that look at longevity in the field in relation to the prediction model and identified pertinent retention indicators (teacher certification exams Oklahoma Subject Area Test (OSAT) and Oklahoma Professional Teaching Exam (OPTE), impact on student learning, etc.) are important to truly assess the quality and impact of graduates from the teacher preparation program. According to Hendricks (2015), “teacher certification scores are a valid proxy for teacher ability” (p. 4) to impact on student learning and longevity in the classroom. This is important as we want to insure that teacher preparation programs graduate high quality and well-prepared teachers.
References


Department of Education awards $8.9 million to UIA schools the University Innovation Alliance receives "first in the world" grant to conduct four-year study to evaluate impact of analytics, coaching. 2015. States News Service. Retrieved from HighBeam Research: https://www.highbeam.com/doc/1G1-429656056.html


Retention and Student Success: A Study of First-Time, Full-Time, First-Generation Students at UNC Pembroke

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Abstract: According to 2015 U.S. News & World Report, the University of North Carolina at Pembroke ranked as the most diverse institution in the South. At UNC Pembroke, many first-generation students have faced unique challenges in retention and graduation. The purpose of this study was to find out what factors were significantly associated with first-generation students regarding their first-year retention and six-year graduation. A total of 3,151 first-time, full-time freshmen from cohort Fall 2008 to Fall 2010 were selected as the population; among them 1,393 (44.2%) were identified as first-generation students. The results indicated that academic performance related factors including high school GPA, fall term GPA, and difference between attempted and earned credit hours in first term had a significantly positive impact on both first-year retention and six-year graduation. In addition, non-performance related factors, such as students coming from rural areas in North Carolina were also positively associated with both first-year retention and six-year graduation. The factor of low family income had a negative impact on first-year retention and six-year graduation.

Introduction

American postsecondary institutions have become the most accessible and diverse in the world; however, significant differences were found between gender, race/ethnicity, and family income regarding retention and graduation (Gladieux & Swail, 1999; Ishitani, 2003). A recent study completed by the National Student Clearinghouse Research Center indicated that only half of the students (54.8%) who started in any type of college or university in Fall 2010 completed a degree or certificate within six years. When further examined by race and ethnicity, Black and Hispanic students had much lower graduation rates compared with Asian and White students (Shapiro et al., 2017).

In 2008, around 25% of the undergraduate student body was identified as first-generation students (Engle & Tinto, 2008). Over the years, the number of first-generation students attending post-secondary institutions has been increasing. Previous studies indicated that first-generation college students were different from their peers, particularly in persistence and degree completion. They have a long, indirect, and uncertain pathway towards their degree completion. Ishitani (2003) found that the risk of attrition for first-generation students in their first year of college was 71% higher than their non-first-generation peers. If counting first-generation and low income simultaneously, students who were first-generation and from low income family were nearly four times more likely to leave higher education after their first year (Engle, Bermeo, & O’Brien, 2006).

U.S. News & World Report ranked the University of North Carolina at Pembroke (UNCP) the top institution in the South for campus ethnic diversity (2015-16). Meanwhile, the institution has served a large number of first-generation students who were from low income family. For instance, 59% of our students were underrepresented minority students (including American Indian, Black, Hispanic and Two or More Races), and more than 33% of Freshmen were identified as first generation in Fall 2015. In addition, among the students who graduated in May 2015, 39% were identified as first generation. In the past five years, UNCP’s first-year retention rates and six-year graduation rates for first-time, full-time freshmen have stayed in the low quartile compared with other UNC institutions. This study examines what factors were significantly associated with first-generation students regarding their first-year
retention and six-year graduation. It aims to identify potential weaknesses and barriers in our programs and service areas and inform the institution to make improvements in the future.

**Literature Review**

First-generation students are those whose parents did not graduate from college (Choy, 2001; Ishitani, 2003). First-generation students have faced unique challenges in retention and graduation in colleges and universities. Many research studies indicate that first-generation students are more likely to be unprepared for college academically, financially, and socially (Barone, McMillion, Tym, & Webster, 2004). Recently, Education Advisory Board (EAB) released a study indicating that 90% of low-income, first-generation students, particularly underrepresented minority students, did not graduate on time within six years. In the past 20 years, the percentage of college students who were first-generation has increased almost 50% (Horwedel, 2008; NCES, 2010). The change of student population has forced institutions put first-generation students first and provide unique programs and services to serve this particular student body.

The National Center for Education Statistics (NCES) has used longitudinal data to complete several big projects examining first-generation students in terms of their demographic characteristics, aspirations to enter into post-secondary education, pre-college preparation, course taking patterns, retention and persistence, and so forth (Nunez & Cuccaro-Alamin, 1998; Chen, 2005; Balemian & Feng, 2013). These studies drew a comprehensive picture for first-generation students and found following differences compared with their peers: (1) first-generation students were more likely to be older, be married, and have dependents; (2) first-generation students more likely came from lower income families, lived at home, and worked while studying; (3) first-generation students were more likely to enroll in postsecondary education part-time; (4) first-generation students were more likely to take remedial classes; (5) first-generation students were more likely to require financial aid; (6) persistence and graduation rates for first-generation students were much lower than their peers at four-year institutions and two-year public institutions; and (7) even after controlling other factors including socioeconomic status, institution type, and attendance status, first-generation students still had a negative effect on persistence and attainment (Nunez & Cuccaro-Alamin, 1998; Chen, 2005).

First-generation students often have family and background characteristics that are associated with risk of attrition. Research on first-generation students generally falls into five broad categories: (1) college application and decision issues; (2) student characteristics and motivations to pursue higher education; (3) academic preparation and transition from high school to college; (4) college recruitment and enrollment; and (5) academic performance and attainment including GPA, retention, persistence, drop-out, and graduation (Bui, 2002; Hirudayaraj, 2011; Horwedel, 2008; Pascarella, Pierson, Wolniak, & Terenzini, 2004).

Many factors have been associated with first-generation students regarding retention and graduation. Research has identified several groups of factors contributing to student persistence and success including (1) student personal characteristics (gender, race/ethnicity, age); (2) high school performance and college entry exam (e.g., GPA, class rank, SAT/ACT testing scores); (3) socioeconomic status (SES) (e.g., low-income family, rural area, first-generation students); (4) first-term performance (term GPA, difference between attempted credit hours and earned credit hours, number of remedial courses, number of DWF courses, and course-taking patterns); (5) financial aid (e.g., applied to FAFSA, awarded scholarships and grants; work study, and amount of unmet needs); and (6) social and academic engagement in and outside of classroom (Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996). These factors contributed in different ways to retention, persistence, and degree completion when adding racial/ethnic groups, parental education levels, and family incomes (Chen, 2005; Choy, 2001; Herzog, 2006; Nunez & Cuccaro-Alamin, 1998; Reason, 2003; Thayer, 2000; Vaquera & Maestas, 2008-09).
Conceptual Framework

Undergraduate student retention, persistence, and success are a complicated process. Understanding students’ progress and pathway towards degree is essential. In reality, a variety of factors interact with each other and have impact on students’ academic progress and success at colleges and universities, particularly in their first year. Institutions can identify factors related to retention and persistence, collect data, build regression models, and apply the findings to guide their best practice. Figure 1 is a conceptual framework developed to guide this study.

As described above, when new high school graduates enroll for the first time at a postsecondary institution, their background characteristics and many other factors (either positive or negative) have impact on learning experience in higher education. On the students’ side, these factors may include (1) personal characteristics (e.g., gender, underrepresented minority status, traditional college student/adult learners); (2) family background (e.g., living in rural area/county, low-income family, first-generation, on campus vs commute); (3) high school performance and college entrance testing scores (e.g., high school GPA, class rank, SAT/ACT scores, AP/IB credits); (4) whether students are eligible to apply for financial aid (amount of loans, grants and scholarships); and (5) how well students performed in their first year (e.g., term GPA, difference between credit hours attempted and earned, major decision). In addition, colleges and universities have developed a variety of programs and activities to encourage students’ engagement in and outside of classroom. These programs strive to provide academic and non-academic support to promote their success (e.g., learning community). The focus of the study is to look at factors on the students’ side; in other words, the study will examine factors associated with students’ demographic information, high school performance, college performance, and financial aid. The purpose is to see what and how factors are associated with students’ first-year retention and six-year graduation.
Methodology

Population

The population used in this study included first-time, full-time freshmen who were identified as first-generation and started in Fall 2008, Fall 2009, and Fall 2010 at UNCP. A total of 3,151 full-time, first-time freshman students were included in the study; among them, 1,393 (44.2%) were identified as first-generation students.

A total of 128 students were excluded from the final model including: (1) international students \(N=15\) because they had different educational background and experience compared with American students; and (2) students \(N=113\) who did not have performance scores in their first term because they dropped off after census date. In addition, for a small number of students who missed high school GPA or other testing scores (e.g., SAT or ACT), a cohort median was calculated and replaced the missing values. Further, if a student only took the ACT test, ACT composite was converted to SAT combined scores based on the concordance table published by the College Board (2016).

Research Variables

In this study, a binary logistic model was employed to test and estimate the power of the major variables associated with first-year retention and six-year graduation including demographic, residency, county tier, high school performance, college performance in first term, financial aid, and other related factors (e.g., living on campus). In addition, the variables of first-year retention and six-year graduation were respectively served as the outcome variable in the binary regression model (see details in Table 1).

Table 1: List of dependent and independent variables

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Dependent Variable</th>
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<tbody>
<tr>
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<td>First-year Retention (Y/N)</td>
</tr>
<tr>
<td></td>
<td>Six-year Graduation (Y/N)</td>
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<td></td>
<td>County Tier</td>
</tr>
<tr>
<td></td>
<td>Underrepresented Minority (Y/N)</td>
</tr>
<tr>
<td></td>
<td>First Generation (Y/N)</td>
</tr>
<tr>
<td><strong>Performance</strong></td>
<td>High School GPA</td>
</tr>
<tr>
<td></td>
<td>SAT Reading Score</td>
</tr>
<tr>
<td></td>
<td>SAT Math Score</td>
</tr>
<tr>
<td></td>
<td>SAT Combined</td>
</tr>
<tr>
<td></td>
<td>Fall Term GPA (# or Grouped)</td>
</tr>
<tr>
<td></td>
<td>Fall Term DFWs (# or Y/N)</td>
</tr>
<tr>
<td></td>
<td>Difference in Fall Term Credit Hours</td>
</tr>
<tr>
<td></td>
<td>Fall Major Decision (Y/N)</td>
</tr>
<tr>
<td></td>
<td>Admission Type</td>
</tr>
<tr>
<td></td>
<td>Fall Remedial Flag (# or Y/N)</td>
</tr>
<tr>
<td><strong>Financial Aid</strong></td>
<td>FAFSA Application (Y/N)</td>
</tr>
<tr>
<td></td>
<td>Scholarship &amp; Grant (Y/N)</td>
</tr>
<tr>
<td></td>
<td>Low Income Family (Y/N)</td>
</tr>
<tr>
<td><strong>Interaction Variable</strong></td>
<td>First Generation*Low Income Family (Y/N)</td>
</tr>
</tbody>
</table>

The county tier variable was used for the first time in the retention and graduation study at UNC Pembroke since UNCP has served a large student population coming from rural areas in North Carolina. This is an important indicator highlighted in the five-year strategic plan matrix developed by the University of North Carolina (UNC) system. Four levels of county tiers (Tier 1, Tier 2, Tier 3, and Out-of-State) were grouped based on North Carolina County Tier Designations published by the North Carolina Department of Commerce (NCDC, 2016). Students from rural areas/regions were those who...
resided in Tier 1 or Tier 2 counties. The purpose was to identify whether there was any significant difference in terms of first-year retention and six-year graduation between first-generation students from rural areas and non-rural areas, after controlling for other variables in the logistic regression model.

**Logistic Regression Model**

The study was to explore how a variety of factors including demographic, academic performance, and financial had impact on first-year retention and six-year graduation for first-time, full-time (FTFT) freshmen who were first-generation students at UNC Pembroke. Three cohorts of FTFT freshmen were explored into a binary logistic regression model. Two variables -- first-year retention (Yes/No) and six-year graduation (Yes/No) served as outcome variables, respectively. Two analysis steps were followed:

- **Step 1.** This step served as a preliminary diagnosis of individual variables. Each individual variable was tested against two outcome variables, respectively. The purpose was to see whether an individual variable was a significant predictor for first-year retention and/or six-year graduation. If a variable was tested significantly, then this variable would be included in the binary logistic model.
- **Step 2.** Significant variables identified in Step 1 were applied to run a binary logistic regression for FTFT freshmen who were first-generation students. The purpose was to examine and estimate how each individual variable contributed to first-year retention and/or six-year graduation for first-generation students when controlling variations for other variables.

Two research questions were addressed: (1) what variables significantly contributed to first-year retention and six-year graduation; and (2) what is the predicting power of significant variables. Contributions of significant variables were measured in odd ratios.

**Limitations**

Studies have shown that factors associated with retention and student success differ among institutions; in other words, each type of institution may have their own influential factors on student retention, persistence, and success. Due to the level of diversity at UNC Pembroke—15% of students in the study were American Indian and 35% were African American—results in this study may not show similar effects at other institutions.

Secondly, only three cohorts from Fall 2008 to Fall 2010 were included in the study. Even though our student population and its characteristics have not changed very much since then, the level of impact on current student body may vary. In particular, because UNCP will embrace the NC Tuition Promise plan with extremely low in-state and out-of-state tuitions starting in Fall 2018, the student profile may change due to an increase of out-of-state students and international students in next five years.

Finally, first-generation students were identified using the FAFSA application. Students who did not apply for financial aid were coded as unknown, which might not reflect their true status.

**Results**

**Testing Individual Variables**

Tests of the statistical significance for each independent variable against first-year retention or six-year graduation were conducted. Tests were run to estimate whether each individual variable had a significant impact on the outcome variables of first-year retention or six-year graduation, respectively (see Table 2).

As a result, several variables were found to be significantly associated with first-year retention, six-year graduation, or both. As shown in Table 2, significant factors included (1) demographic factors,
such as being male, age of 19 and older, in-state residency, and came from county tier 1, tier 2, and tier 3; (2) performance based factors, including high school GPA, fall-term GPA, number of fall-term DFW (or flag), number of fall-remedial courses taking (or flag), and the difference between attempted and earned credit hours in first term. Secondly, factors which only significantly contributed to first-year retention were being African American, being underrepresented minority, and receiving scholarships and grants. Thirdly, factors solely related to six-year graduation were low-income family, and students who were first-generation and from low-income family. Finally, in many studies revealed in the literature review, variables such as SAT/ACT testing scores, living on campus, and financial aid application were most often significantly related to retention or graduation; but it was a surprise to learn that it was not the same case in this study.

Table 2: Tests for individual variables associated with first-yr retention and 6-yr graduation (N = 3151).

<table>
<thead>
<tr>
<th>Model</th>
<th>Reference</th>
<th>First-Year Retention</th>
<th>6-YR Graduation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Sig.</td>
</tr>
<tr>
<td>Age Group</td>
<td>&gt;=19</td>
<td>0.272**</td>
<td>0.005</td>
</tr>
<tr>
<td>Gender</td>
<td>Female</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td>-0.163*</td>
<td>0.037</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian or Alaska Native</td>
<td></td>
<td>0.239</td>
<td>0.054</td>
</tr>
<tr>
<td>Black or African American</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Underrepresented Minority (URM)</td>
<td>Yes</td>
<td>0.271**</td>
<td>0.001</td>
</tr>
<tr>
<td>Residency</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-state</td>
<td></td>
<td>0.832***</td>
<td>0.000</td>
</tr>
<tr>
<td>Out-of-state</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>County Ties</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tier 1</td>
<td></td>
<td>-0.705***</td>
<td>0.000</td>
</tr>
<tr>
<td>Tier 2</td>
<td></td>
<td>0.199*</td>
<td>0.026</td>
</tr>
<tr>
<td>Tier 3</td>
<td></td>
<td>0.254*</td>
<td>0.041</td>
</tr>
<tr>
<td>Fall_Term_GPA_Group</td>
<td>&lt; 2.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall_Term_GPA_Coded: A (&gt;=3.5)</td>
<td></td>
<td>1.711***</td>
<td>0.000</td>
</tr>
<tr>
<td>Fall_Term_GPA_Coded: B (&gt;=3.0 &amp; &lt;3.5)</td>
<td></td>
<td>1.827***</td>
<td>0.000</td>
</tr>
<tr>
<td>Fall_Term_GPA_Coded: C (&gt;=2.5 &amp; &lt;3.0)</td>
<td></td>
<td>1.682***</td>
<td>0.000</td>
</tr>
<tr>
<td>Fall_Term_GPA_Coded: D (&gt;=2.0 &amp; &lt;2.5)</td>
<td></td>
<td>1.347***</td>
<td>0.000</td>
</tr>
<tr>
<td>Fall_Term_DFW (Y/N)</td>
<td>No</td>
<td>-0.902***</td>
<td>0.000</td>
</tr>
<tr>
<td>Fall_Remedial_Flag (Y/N)</td>
<td>Yes</td>
<td>-0.212*</td>
<td>0.021</td>
</tr>
<tr>
<td>Fall_Major</td>
<td>Undecided</td>
<td>-0.201</td>
<td>0.064</td>
</tr>
<tr>
<td>Low Income Family</td>
<td>Yes</td>
<td>-0.177*</td>
<td>0.016</td>
</tr>
<tr>
<td>First Generation*Low Income Family</td>
<td>No</td>
<td>-0.189*</td>
<td>0.028</td>
</tr>
<tr>
<td>Scholarship &amp; Grant</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
<td>0.223*</td>
<td>0.012</td>
</tr>
<tr>
<td>HS GPA</td>
<td>Numeric</td>
<td>0.834***</td>
<td>0.000</td>
</tr>
<tr>
<td>Fall_Term_GPA</td>
<td>Numeric</td>
<td>0.961***</td>
<td>0.000</td>
</tr>
<tr>
<td>Diff_Credit Hours (#)</td>
<td>Numeric</td>
<td>-0.137***</td>
<td>0.000</td>
</tr>
<tr>
<td>Fall_Term_DFW (#)</td>
<td>Numeric</td>
<td>-0.489***</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Note. 1. Significant levels: *** P < 0.001, ** P < 0.01, * P < 0.5.
Based on the testing results of individual variables, only variables that significantly contributed to either first-year retention or six-year graduation were entered into the logistic regression model. Two variables, first-year retention and six-year graduation, served as the outcome variable, respectively. The summary results in Table 3 include FTFT freshmen who were identified as first-generation ($N=1,393$).

Table 3. Estimation of results for first-generation FTFT freshmen from Fall 2008 to Fall 2010 ($N=1393$).

<table>
<thead>
<tr>
<th></th>
<th>First-Year Retention</th>
<th></th>
<th>Six-Year Graduation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reference</td>
<td>$B$</td>
<td>Sig.</td>
</tr>
<tr>
<td>Age Group (Age&lt;19)</td>
<td>Age ≥ 19</td>
<td>0.415*</td>
<td>0.014</td>
</tr>
<tr>
<td>Gender</td>
<td>Male</td>
<td>0.083</td>
<td>0.544</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>0.343</td>
<td>0.125</td>
</tr>
<tr>
<td></td>
<td>American Indian or Alaska Native</td>
<td>0.905***</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Black or African American</td>
<td>0.180</td>
<td>0.573</td>
</tr>
<tr>
<td></td>
<td>Hispanic</td>
<td>1.070</td>
<td>0.115</td>
</tr>
<tr>
<td></td>
<td>Two or more races</td>
<td>0.853</td>
<td>0.441</td>
</tr>
<tr>
<td>County Tier</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Out-of-state</td>
<td>1.301***</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Tier 1</td>
<td>1.148**</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>Tier 2</td>
<td>0.931**</td>
<td>0.002</td>
</tr>
<tr>
<td>Fall Term GPA (Group)</td>
<td>$&lt;2.0$</td>
<td>1.565***</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Fall_Term_GPA_Coded(≥3.5)</td>
<td>1.566***</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Fall_Term_GPA_Coded(≥2.5 &amp; &lt;3.0)</td>
<td>1.612***</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Fall_Term_GPA_Coded(≥2.0 &amp; &lt;2.5)</td>
<td>1.034***</td>
<td>0.000</td>
</tr>
<tr>
<td>Fall Term DFW (Group)</td>
<td>No</td>
<td>0.384</td>
<td>0.079</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>0.236</td>
<td>0.176</td>
</tr>
<tr>
<td>Fall Remedial Flag</td>
<td>No</td>
<td>-0.132</td>
<td>0.464</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>-0.497**</td>
<td>0.004</td>
</tr>
<tr>
<td>Fall Major</td>
<td>Undecided</td>
<td>0.462*</td>
<td>0.016</td>
</tr>
<tr>
<td></td>
<td>Decided</td>
<td>0.534**</td>
<td>0.001</td>
</tr>
<tr>
<td>Low Income Family</td>
<td>No</td>
<td>-0.069**</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scholarship &amp; Grant</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>High School GPA</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diff Credit Hours (¢)</td>
<td>-0.069**</td>
<td>0.003</td>
</tr>
</tbody>
</table>

Note. Significant levels: *** $P < 0.001$, ** $P < 0.01$, * $P < 0.5$.

Logistic Regression Model for FTFT Freshmen Who Were First Generation

Generally, $B$ in a logistic regression model represents estimated log-odds units or coefficient in the model; Sig. outputs $p$-value that tests whether a coefficient is 0 or not under Chi-square test. In the study, a $p$-value that is less than or equal to 0.05 indicates that the corresponding coefficient is statistically
significant associated with the dependent variable. \(\text{Exp}(B)\) represents the odds ratio for an independent variable estimating its contribution to the model. It is the exponentiation of \(B\).

**Model Diagnosis**

To assess whether the binary logistics model employed in this study has captured the relationships between the outcome variables (e.g., first-year retention and six-year graduation) and the independent variables, the key goodness-of-fit statistics of the logistics models was reported and assessed using the Hosmer and Lemeshow’s goodness-of-fit statistics. The Hosmer and Lemeshow (2000) statistic is assumed to follow a Chi-square distribution. The null hypothesis is that if a \(p\)-value from the Chi-square distribution is greater than 0.05, then one can not reject the null hypothesis and the model thus fits the data well enough at a 5% significance level.

As first-year retention acts as the dependent variable in the binary logistics model, the \(p\)-value produced from the Hosmer and Lemeshow Chi-square test for goodness-of-fit turned out to be 0.424, which was much greater than 0.05. This indicated that the regression model was a good fit to the data. The \(p\)-value of the Hosmer and Lemeshow Chi-square test was 0.991 when the six-year graduation served as the outcome variable in the model, leading to a non-rejection of the null hypothesis. As a result, it was concluded that the logistics model captured the relationship well between the six-year graduation and independent variables.

**Model Analysis**

Table 3 summarized the estimation results from the logistic model for first-generation students \((N=1,393)\). As observed, performance related variables including fall term GPA and high school GPA, as well as non-performance related variables, such as low income family, county tier 1 and county tier 2 were significant predictors for both first-year retention and six-year graduation; among them, low-income family had a negative impact on first-year retention and six-year graduation for first-generation students. Since the UNC system defined county tier 1 and county tier 2 as rural areas in North Carolina, it concluded that first-generation students from rural areas were more likely to retain after one year and graduate within six-year graduation at UNCP.

In addition, variations existed in predicting power of other variables. Results pointed out that the non-performance related variables, such as receiving scholarships & grants, age (19 and older), and county tier 3 only had positive impact on first-year retention, but not on six-year graduation. The similar pattern was observed in regards to performance related variables including the difference of credit hours students attempted and earned in first fall term; however, since the odd ratio was smaller than one, it indicated that the more credit hours students failed to pass in their first term, the less likely they would be to come back in the second fall term.

Further, when testing whether each individual variable was respectively associated with the outcome variables of first-year retention and six-year graduation (Table 2), independent variables, such as gender (male), fall term DFW flag, and fall remedial flag showed significant but had negative effect on both first-year retention and six-year graduation. However, after controlling variation for other variables in the binary logistic model, these three variables (e.g., male, fall term DFW flag, & fall remedial flag) no longer functioned as significant predictors for first-generation students regarding their first-year retention and six-year graduation.

Finally, as mentioned before, since contribution of significance variables were measured by odd ratio, performance related variables, such as fall term GPA grouped by four levels became best predictors to measure student retention and success; in particular, for first-generation students with first-term GPA 3.0 and above.
Conclusions

First-generation students were less likely to persist and attain a degree than their peers, even when controlling for the variation of other variables. First-year retention and six-year graduation can be considered as students’ short-term and long-term academic goals. The NCES study showed that student background/demographic information (e.g., age, gender, race/ethnicity, and first-generation status,) and enrollment factors all had effect on the likelihood of persistence and attainment (Nunez & Cuccaro-Alamin, 1998). This study examined factors associated with first-year retention and six-year graduation for first-generation students who started as a FTFT freshman at UNC Pembroke between Fall 2008 to Fall 2010. Below listed some key findings drawn from this study after controlling the variations of other variables.

First, as expected, students’ academic performance in high school and first fall term in college were key predictors for student success, both for first-year retention and six-year graduation. The results showed that first fall-term GPA and high school GPA had large, positive effects on both first-year retention and six-year graduation. The difference between students’ attempted and earned credit hours in their first fall term also had a positive impact on first-year retention; however, it did not contribute to students’ long-term goal—six-year graduation. It concluded that the fewer credit hours students failed in their first fall term, the higher the possibility they would come back in the second fall.

Secondly, county tier designations were used by the North Carolina Department of Commerce to determine the economic activities of each county; county tier 1 and tier 2 were identified as rural areas in North Carolina. UNCP is a regional university serving many students from rural areas in southeast, North Carolina. It was expected that students enrolled from such areas would have economic disadvantages which would have a negative impact on their persistence and success. It was interesting to see that, when testing each individual variable (Table 2), first-generation students who were from county tier 1 had a negative impact on first-year retention and six-year graduation; however, after controlling variations for other variables in the binary logistic model, the variable of county tier 1 turned out to be a positive predictor on first-year retention and six-year graduation. In addition, students from county tier 3 only had positive impact on first-year retention, but not on six-year graduation. Further study should be done to examine whether this factor was somehow related to the high transfer rate when students were in their junior or senior year.

Thirdly, after controlling the variation of other variables, the variable of low-income family showed a negative impact on both first-year retention and six-year graduation for first-generation students. The study showed that students who received scholarships and grants had a positive impact on first-year retention, but not on six-year graduation. Further study should examine whether the dollar amount of loan, or other types of financial aid variables (e.g., work study on campus) matter to students’ persistence and success.

Finally, this study showed that SAT/ACT scores, living on campus in the first fall term, number of remedial course taking flag, number of DFW grades flag, major decision in the first fall term, being under-represented minority students, and being male students had no significant effect on first-year retention and six-year graduation for first-generation students after controlling variation for other variables in the model.

In sum, for majority of FTFT freshmen, the first term is a critical transforming time period from high school to college environment, particularly for first-generation students. It is clear that performance is the key for student success. Institutions should re-examine their curriculum, build learning community for different type of students, and provide authentic advising to first-generation students to support their success. The key is to improve their academic performance in first fall term, particularly their term GPA and course completion rate.
References


Retention Is Up 10-Percentage Points:
The Secrets to Success . . . Without Money

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Abstract: Washburn University, a publically funded open admissions university in Topeka, Kansas, exhibits how a commitment to good data analytics and evidence-based student success practices can improve retention without a significant financial investment. With less than a $100,000 investment, first-time, full-time retention increased 10-percentage points in just five years. The authors discuss calculated risks, grounded in research and data analytics, taken to re-allocate portions of a university's undergraduate libraries budget to create a student success unit and develop new initiatives to improve retention and on-time graduation. This essay highlights three initiatives that aided in this retention success story: the creation of the Center for Student Success and Retention (CSSR), linking first-year student success initiatives to the University Student Learning Outcome (USLO) of Information Literacy and Technology, and a strong partnership with Institutional Research. These three elements formed the backbone of a replicable model that allowed Washburn University to focus its resources in ways that maximized their impact on student success.

Introduction

Washburn University, a publically funded open admissions university in Topeka, Kansas, the capital city of Kansas, is a municipal institution affiliated with the Kansas Board of Regents (KBOR). Like all KBOR institutions, Washburn faced the challenge of increasing its retention and on-time graduation rates 10-percentage points in 10-years, with the adoption of Foresight 2020 (Kansas Board of Regents [KBOR], 2010) which declared:

- By 2020 or before, Kansas will achieve a 10-percentage point increase in first-to-second year retention rates across the higher education system.
- By 2020 or before, Kansas will achieve a 10-percentage point increase in the six-year graduation rate for public universities and three-year graduation rate for community and technical colleges.

Of particular importance to Washburn are the KBOR universities: Emporia State University, Fort Hays State University, Kansas State University, Pittsburg State University, Wichita State University, and the University of Kansas. The timing of Foresight 2020 was, at best, auspicious due to the impact of the global financial collapse of 2008. Further affecting Washburn’s ability to respond was declining enrollment and a series of state-level of decisions to provide segments of the population significant tax cuts (Gleckman, 2014).

Washburn University, therefore, faced a ten-year system wide push to raise the retention rates of its first-time full-time students without the availability of a significant infusion of funds. After a period of institutional reorganization and with new investments of only $70,000, Washburn stood alone among...
Kansas universities having raised its retention rate from 62 to 72% in only five years (KBOR, 2017). This essay highlights three initiatives that aided in this retention success story: the creation of the Center for Student Success and Retention (CSSR); linking first-year student success initiatives to the University Student Learning Outcome (USLO) of Information Literacy and Technology; and, a strong partnership with Institutional Research. These three elements formed the backbone of a replicable model that allowed Washburn University to focus its resources in ways that maximized their impact on student success.

A Brief History of Retention Initiatives at Washburn University

Beginning in 1978, the Washburn University faculty recognized that as an open admissions institution simply admitting students and giving them a chance to experience postsecondary education was insufficient. The Washburn faculty recognized that holistic steps to better address the success of incoming students were needed. However, agreeing upon what actions needed to occur was elusive. From 1978 through the early 1990s, various plans to improve the retention rates of first-year students emerged but consensus and adoption of one did not occur.

Eventually, in the 1990s, a developmental education model of promoting student success did take root. Its focus upon the 10 to 30% of admitted first-year students who required developmental or remedial supports was similar to that of other regional institutions in its use of a study skills seminar (IS110), remedial Mathematics (MA103 & 104), and developmental English (EN100). None of the four courses counted toward required graduation credit and limited data meant their efficacy was largely unmeasurable. What developed was the position all we can do is give them (first-year students) a chance, the rest is up to them. In 2009, another in the long line of committees and task forces formed to examine retention at Washburn chose to reject this position and recommend a holistic approach to programming for all first-year students to promote their success. Shaping this decision was the scholarship of Joe Cuseo (2010) and Vincent Tinto (2012). The work of this committee coalesced with Foresight 2020 and declining enrollment to produce the necessary enthusiasm among the faculty to take responsibility for the success of first-year students.

Creation of the Center for Student Success and Retention

Any significant attempt to improve first-year student success, particularly when defined by retention rates, requires a holistic approach. Creating an environment that allows this to occur requires an examination of organizational structure and, as appropriate, its change. The Center for Undergraduate Studies and Programs (CUSP) that existed at Washburn University was an orphan office, which at various points in its history was independent, belonged to the College of Arts & Sciences, and was again independent. CUSP housed developmental and honors programming, and undeclared academic advising. It had a budget, but no clear mandate to positively affect retention rates at Washburn.

The Dean of Nursing and University Libraries received from the Vice-President for Academic Affairs the report of the 2009-10 Retention Committee, with instructions to lay out its potential implementation. Their primary charge was to consider how the institution could implement a required three-credit hour First-Year Experience (FYE) seminar for all first-year students. They immediately recognized this meant addressing organizational structure, and looked toward CUSP as a significant part of the puzzle. The seemingly obvious choice would return CUSP to the College of Arts & Sciences because of its historic role in overseeing the general education curriculum required of all students.

Two immediate issues arose: (1) Faculty from outside the College of Arts & Sciences raised concerns about undeclared students being steered away from their programs; (2) CUSP and its programming had no connection to a USLO, thus raising the question of how to assess its impact. The solution, after significant reflection and consultation, was to establish a University College type model.
Overstating the importance of organizational structure is not possible. Broadly speaking, creating
the Center for Student Success and Retention (CSSR) at Washburn University sought to address faculty
concerns regarding the neutrality toward prospective programs in academic advising and to ensure
assessment of its activities using the USLO: Information Literacy and Technology. More precisely, the
creation of the CSSR occurred to drive campus conversations and initiatives connected to increasing
student success as measured by retention and on-time graduation rates. At Washburn, attempting to
accomplish these goals separate from the academic enterprise has been difficult historically, so the
University College type model with a commitment that its programming would meet a USLO was the
structure adopted. Attaching the CSSR to the University Libraries was both politically expedient because
of said Unit’s historic neutrality in all matters, while again, ensuring a clear commitment to the USLO of
Information Literacy and Technology, which at Washburn is rooted in the Association of College &
Research Libraries Framework for Information Literacy for Higher Education.

At the point of its creation, the CSSR received $70,000 of new funding and the charge of
launching the University’s new three-credit hour FYE seminar, WU101: The Washburn Experience. The
course is a graded university graduation requirement. Students are required to obtain a minimum grade of
C, as they are in the required English and Mathematics courses, to receive graduation credit for WU101.
The initial organizational chart of the newly formed University Libraries and CSSR, in fall 2012, was
relatively simple:

Conceptually, with the Associate Dean of Libraries overseeing daily library operations, the Associate
Dean of the CSSR was free to lead institutional efforts to improve academic advising and launch WU101.

The beauty of this structure was its simplicity. It was not, however, capable of promoting a holistic
campus-wide commitment to student success because of its focus that was too narrow. Initially, at least,
efforts to create an FYE seminar clouded out conversations regarding a broader campus effort to improve
student success.

No shortage of literature exists expounding upon the importance of organizational structure. At
Washburn, the following books had wide currency: Jim Collins, Good to Great: Why Some Companies
Make the Leap and Others Don’t (2001); John Roberts, The Modern Firm: Organizational Design for
Performance and Growth (2004); and Edwin A. Locke, Handbook of Principles of Organizational
Behavior: Indispensable Knowledge for Evidence Based Management (2009). Immediately clear to the
leadership of Washburn’s University Libraries and the CSSR, was how creating a holistic student success environment required a flexible organizational structure that allowed, particularly, team members to play multiple roles at different times. The 2002 book by Ron Ashkenas, *The Boundaryless Organization: Breaking the Chains of Organizational Structure* was, therefore, important in helping to guide the local conversation. The organizational chart of the University Libraries and the CSSR at Washburn University in spring 2017, reflect both the growth in the Unit’s responsibilities and an ever increasing emphasis in flexibility that sees people playing the role required at a particular moment in time in order to ensure the development and maintenance of the institution’s student success focused culture. See Appendix 1.

The spring 2017 organizational chart achieves the required flexibility, and does so without significant investments in new funds. In addition to the $70,000 of funding Washburn University invested in the creation of the CSSR, the University Libraries, transferred $79,768 to the CSSR in fiscal years 2014 and 2015 to support personnel needs therein. During the fiscal years 2014, 2015 and 2016, the University Libraries absorbed the entirety of Unit required budget rescissions of $171,836, in order to protect initiatives in the CSSR.

These difficult fiscal decisions rooted in the need to protect the CSSR saw it reach a budget high of $795,037 in fiscal year 2017. The corresponding increase in retention of first-time full-time first-year students is an impressive 10-percentage points, from 62 (Fall 2010 cohort) to 72% (Fall 2015 cohort). Compared to other open admissions institutions, which offer Bachelor’s and Master’s degrees, Washburn University has steadily increased the gap in its retention rate and that of these peer institutions to 12% with the fall 2014 cohort (Handley, 2016).

<table>
<thead>
<tr>
<th>Fall Cohort</th>
<th>Open Admissions Institutions Offering Bachelor’s &amp; Master’s</th>
<th>Washburn University</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>66.3%</td>
<td>62.2%</td>
</tr>
<tr>
<td>2011</td>
<td>56.5%</td>
<td>66.7%</td>
</tr>
<tr>
<td>2012</td>
<td>55.4%</td>
<td>64.5%</td>
</tr>
<tr>
<td>2013</td>
<td>58.5%</td>
<td>65.5%</td>
</tr>
<tr>
<td>2014</td>
<td>56.7%</td>
<td>68.4%</td>
</tr>
<tr>
<td><strong>5-Year Average</strong></td>
<td><strong>58.7%</strong></td>
<td><strong>65.5%</strong></td>
</tr>
</tbody>
</table>

*Figure 3: ACT first- to second-year retention rates of first-time, full-time freshmen for public institutions offering bachelor’s and master’s degrees compared with Washburn University first-time, full-time freshmen (Handley, 2016)*

**Connecting to a University Student Learning Outcome**

A flexible and responsive organizational structure creates a focused environment, and, in the case of Washburn University, establishes a Unit that drives university conversations about student success and, particularly, the retention of first-year students. A second important decision taken to promote student success in an environment without massive infusions of new financial resources is how to help faculty and students appreciate the academic importance of retention initiatives. Retention as a singular goal is, with good reason, unacceptable to faculty. At an open access university there is no option to increase admissions standards to ensure the admission of only retainable students, so the fear becomes pursuing retention equals a lowering of academic standards (i.e., grade inflation).

When creating the CSSR, Washburn University leaders chose to root all of its activities in the USLO of Information Literacy and Technology. This decision allowed the implementation of the newly formed required FYE seminar, WU101, and all associated programming and activities of the expanding CSSR. Immediately, this assured the University Librarians of the central role they needed to play to launch and sustain Washburn’s push for increased student success. Creating the CSSR in a University College model and attaching it to the institution’s modest library operation was, for the librarians and many faculty members, a substantial concern. The immediate question of financing arose, particularly how an underfunded library meets its mission to support the scholarly community at Washburn, while
taking on new responsibilities directly connected to improving retention and on-time graduation. The solution was Information Literacy and Technology.

Aligning the programming and assessment thereof with a USLO ensured the grounding of initiatives in a faculty-embraced model, which librarians oversee to ensure the maintenance of academic rigor. It further allowed the librarians to help craft a curriculum that aligned with the ACRL (Association of College and Research Libraries) Framework for Information Literacy for Higher Education. Not confining use of the USLO to only WU101, but extending it to assess all programs and activities connected to the CSSR meant faculty saw the new Unit as improving and not undermining academic achievement.

In an environment with limited new funds, comprehensive use of the USLO added an important element to strategic planning in the University Libraries and the CSSR. In the pursuit of increased student success, the search for the right mix of initiatives to increase retention is constant. There is an accepted understanding that distinct students require thoughtful interventions, which can differ between cohorts. Therefore, tweaking the organizational chart occurs continually. This allows for the rapid replacement, when necessary, of those programs and activities not demonstrating positive results in the assessment process.

To ensure students gain the understanding of information literacy necessary for the newly developed USLO, the WU101 course continually assesses student learning through the traditional assessment cycle. In many cases, assessment confirms students learn the requisite information literacy skills (focusing upon their ability to identify, locate, evaluate and effectively use information); in some cases, however, it appears students are not meeting the previously established thresholds of learning. As an example, based on student perception feedback supplied in course evaluations, it became apparent students’ understanding of the academic integrity elements of information literacy was not well established.

A revision to the curriculum occurred in 2014-15, to place a clear emphasis of the importance of academic integrity to the university experience. The CSSR curriculum committee determined to introduce a new lecture taught by a professor of ethics in each section and developed a required five-question reflection for the class session following this presentation. Assessment of the reflection showed initial understanding of specific concepts related to academic integrity. Results of the course evaluation questions continued, nevertheless, to show students perceived confusion with the topic. Supplemental application based topics related to academic integrity were incorporated into the first-year workshop series, which students attend as part of the broader FYE programming. These adjustments to the academic integrity discussion reflect the value of the assessment cycle to continued improvement of student learning. Initial assessment indicates instances of plagiarism and academic dishonesty are decreasing. In the 2017-18 academic year, significant research will occur to establish accurately the level of said decrease.

With no substantial injection of new funding, the CSSR was unable simply to hire its way to success. Placing the CSSR into the organizational structure of the University Libraries meant it was immediately located in a Unit where interdisciplinary thinking is the norm. Seeking common ground and assistance from the established Units at Washburn University was the only available pathway to increase retention. These units include College of Arts of Sciences, School of Applied Studies, School of Business, and School of Nursing. The institution’s rapid retention growth demonstrates the validity and power of regularly assessing the initiatives of the CSSR, thus allowing faculty to embrace the growth of a holistic campus culture that seeks retention gains via increases in student achievement.

Linking retention activities to the USLO of Information Literacy and Technology ensured, at Washburn University, their ongoing academic assessment. Measuring learning through assessment caused Washburn’s faculty to embrace the CSSR and its initiatives. In this model, retention became an outgrowth of student academic achievement. Pursuing a growth in retention became, in both conversation and practice, less a goal unto itself but the natural result of improved student learning. Remaining true to the institution’s historic mission of open access, improving student achievement, and increasing retention was
not only manageable due to the decision to tie the activities and programming of the CSSR to a USLO, but in retrospect, the singular correct decision.

**Partners in Success: The CSSR and Institutional Research**

A crucial reality when seeking to raise retention without money is the need to make difficult decisions. Investments of limited resources, both personnel and dollars, need to occur regularly. To make wise decisions, the leadership of the Washburn University Libraries and the CSSR recognized that improving student success meant collaborating with Institutional Research.

The use of data analytics to improve retention and on-time graduation is a topic of great interest in both the literature and practice of higher education. For example, see the work of Sara de Freitas, et al. (2015) and Darrell M. West (2012). During the creation of the CSSR, a crucial decision was to hire a data analyst at the unit level. Said decision was not without controversy because it was the first time a unit sought to hire such a position and, probably more importantly, it caused significant consternation among those persons working on the front lines of student success programming. Like many institutions, Washburn’s Office of Institutional Research was largely a reporting operation so the hiring of a unit level employee to focus upon analytics was a definite overturning of precedent. The need for additional staff to teach, advise and program was overwhelmingly obvious. However, the decision to hire a data analyst was a recognition that this reality was permanent and the need to better deploy resources was crucial.

Shortly after the Director of Student Evaluation and Retention joined the CSSR team in 2013, the University recognized its need to invest in better analytics. Institutional Research was revamped, its personnel expanded and its name changed to the Office of Strategic Analysis and Reporting (SAR). The University, in addition, allocated funding for the building of a larger and significantly more robust data warehouse and set of access tools.

Building analytics capacity took two years, and remains ongoing, but immediately the CSSR saw benefits because its new Director of Student Evaluation and Retention added value to the organization in three ways: Consistency in assessment activities; asking better questions of SAR; and, identifying trends and intervention opportunities.

Ensuring consistency in assessment activities meant securely attaching the Unit’s initiatives to the appropriate USLO, which, in turn, meant student learning remained central to the life of the CSSR and assuring that retention was an outcome of, and not a substitute for, student achievement. Asking better questions of SAR meant the office charged with institutional research rapidly embraced the holistic vision of student success propagated by the CSSR. Indeed, asking better questions saved everyone involved time and energy and allowed a thriving partnership to develop based around the concept of institutional researchers identifying trends and the CSSR seeking to bend and/or break trend lines. Together SAR and the CSSR developed a shared understanding of using data to create intervention opportunities.

At the Unit level, targeted interventions and good assessment allowed the CSSR to move beyond hoping that an initiative was successful and toward knowing. The reality is targeted interventions cost significantly less to launch because they take less personnel. Washburn’s CSSR operates with a mindset of fail quickly and cheaply. It is able to do so because of the continual flow of data that it receives, which allows it to identify intervention points early in the academic life of both individual students and entire cohorts.

For example, good data analytics allowed the CSSR to target commuter students as needing increased attention on their retention. Recognizing this is probably true at all urban institutions, the CSSR and SAR recognized the zip code of 66604 as one of several that was particularly problematic for purposes of retention. This zip code is immediately adjacent to the northern boundary line of the Washburn campus, so not anyone’s traditional definition of a commuter student traversing several miles to campus. Immediately, the CSSR polled students from 66604 and discovered more than any others they did not perceive the campus as welcoming. These students were seeking to schedule all of their classes before lunch so they could depart campus, eat, and head off to work. When quizzed further, the 66604
students suggested the University wanted students from outside of the city more than them because of the need to fill beds in the residence halls.

The perception of the 66604 students was incorrect, but rather than challenging it, the University Libraries and CSSR created workshops beginning at noon that addressed life as a commuter student. Using food and topical conversations, targeted invitations went to 66604 students. The comfort level of said students with campus, particularly the main University Library, increased and so too did their retention rates.

<table>
<thead>
<tr>
<th>Permanent Zip Code</th>
<th>Fall-Fall First-Year Student Retention Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2011 Cohort</td>
</tr>
<tr>
<td>66604</td>
<td>50.00%</td>
</tr>
<tr>
<td>Other</td>
<td>65.03%</td>
</tr>
</tbody>
</table>

*Figure 4: Fall-fall first-year student retention rate. Date provided by Washburn University strategic analysis and reporting*

As part of retention initiatives focused on student permanent zip codes, following New Student Orientation (NSO) examination of the course schedules of 66604 students occurs because, despite their physical proximity to campus, these students’ ability to arrive on time for 8:00 am classes is poor. Investigations suggest they continually simply believe they can depart home with only minutes to spare and make it to class on time, but upon recognizing their tardiness are some of the most likely to skip class. During NSO, Academic Advisors continually ask students about their capacity to get up, get going, and attend class, and students will eventually tell the truth, thus giving Advisors the opportunity to redirect to better-timed courses. Increasing attendance of 66604 students preceded their increased retention.

Collaboration with SAR allowed the CSSR to target 66604 students rather than expend resources on all commuter students. This example exemplifies the Washburn University CSSR model of using good data analytics to overcome a lack of finances. Little fiscal investment occurred to improve the retention rates of 66604 students, thus making failure an option. Increasing their retention rates required collaboration with SAR, and played an important role in increasing institutional retention rates of first-time full-time first-year students by 10-percentage points.

**Conclusion**

At Washburn University, raising the retention rates of first-time full-time students 10-percentage points in five years, 2011 to 2016, occurred without the significant investment of new funds because of three fundamental decisions: the creation of the Center for Student Success and Retention, connecting student success initiatives to the USLO of Information Literacy and Technology, and ensuring a strong partnership with Institutional Research for the backbone of a replicable model to increase retention.

Developing a holistic approach to student achievement and obtaining campus support for said model is important, but as the experience of Washburn University clearly demonstrates, achievable. The temptation to believe significant investments of funds are required to obtain this environment is real, but in the ongoing fiscal austerity that public higher education, in particular, continues to experience, the reality is new monies are not probable. Thus, retention is increasingly important to the fiscal health of institutions and, due to the national completion agenda, their reputations. As universities seek solutions to increasing retention rates, the number of vendors, consultants, and others offering to sell university’s the secret sauce increases. However, the secret to success in retention without money it turns out, as demonstrated at Washburn University, is not so secret but dependent upon empowered leaders making sound decisions.
References


Seasonality and Student Success: Integrating “Just in Time” Outreach Into Operations on Your Campus

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Abstract: Since 2011, the University of South Alabama has very intentionally focused on improving student success and access. Our efforts yielded an 8% increase in retention from year one to year two and a 5% increase in four-year graduation rates. Most recently, over 92% of our fall 2016 cohort returned for spring 2017. Our efforts focus on four areas: structure, policies, initiatives, and practices. This paper focuses on two areas of our retention and completion efforts: initiatives and practices. As the culture of student success and access slowly permeates campus, we are being more deliberate about what we do, when we do it, and who we ask to do it. We are currently digging deep to target students at meaningful time points. In this session, attendees will learn about outreach campaigns conducted during the 2016-17 academic year. These include learning community enrollment, freshman attendance, course registration, course progress, high hours outreach, and probation advising. In each case, we focus on time-sensitive activities and specific student groups. We also work to incorporate these activities into our operations so that we balance our workload and address student need when it is most immediate.

Introduction

Moving the needle on student success requires concerted effort on a variety of fronts. The University of South Alabama focuses work in four distinct areas: policy, structure, practice, and initiatives. Leadership, including administrators, advisors, and faculty review policies with attention to student persistence. Recent additions to policy include a major declaration requirement. Structures are also aligned with students in mind. For example, the First Year Advising Center is located in the Academic Services building, which includes tutoring services and the Writing Center. This paper focuses on the remaining two areas: practice and initiatives.

Practices are operations, or the way units do business. This includes what units do as well as when they do it. Initiatives are programs or interventions designed to improve student outcomes. Their timing is important as well. This paper focuses on seasonality in operations, and describes practices and initiatives as they map to a “student success calendar.”

Background

The literature on student success is broad. A decade ago Tinto (2006) called for more research into student persistence, including involvement of faculty in the process, and for increasing attention to shifting demographics which means a better understanding of success for low-income and underrepresented minority students. His early work led to a host of practices designed to improve academic and social integration, and, through that, increase student success. Learning communities, undergraduate research, study abroad, first year experience courses, and other high impact practices are common features of university student success menus. Attention to integrative factors also focuses on building relationships, particularly those that improve progress towards degree. Academic advising is a common support structure that capitalizes on relationships that could be aligned in service of students outside of their classroom experiences.
Expanded definitions and conceptualizations of student success push far beyond the bounds of persistence and graduation. Engagement with learning, including academic skills and competencies, and post college success (Kenzie, 2012; Kuh, Kinzie, Buckley, Bridges, & Hayek, 2007; Braxton, 2008) are advanced in the literature. Practice organizations, including Complete College America, incorporate these outcomes as they promote not just completion, but quality of education and return on the educational investment.

Aligning institutional structure, policy, and practices, with student success is needed (McNair, Albertine, Cooper, McDonald, & Major, 2016). While researchers and practitioners document needs and outcomes, institutions still persist in functioning in ways that benefit those working at the institution—not those attending it. A careful “success” audit of institutional structure, policy, and practices is likely a worthy undertaking. Reviewing the ecosystem as the student experiences it may help faculty, staff, and administration design institutions to structure success.

This also dovetails with recent work in behavioral economics and nudging. Nudging, based in behavioral economics, generally focuses on steering people to making good decisions (Thaler & Sunstein, 2009; Denley, 2014; Castleman & Page, 2015). As we work to improve student outcomes, we can also adopt policies that require particular good decisions and practices that make good decisions much more likely.

Student persistence will depend on institutions becoming student focused, looking to demographic trends and considering all student groups—low income, minority, and first generation. Policy and practices need to align, and those charged with student success need to incorporate a range of tools in their arsenal. In the case of this paper, processes and operations frequently call for taking the perspective of the student, and considering “what do I need to do right now?”. Then, we poke the student to take a particular action at a specific time.

The Student Success Calendar

As the population of college going students shift, the need for engaging students through a variety of means will continue and likely increase. Student success is a year round effort and can be conceptualized as a calendar process, with actions taking place based on deadlines or time periods that are meaningful for students. Consider this example: students are placed on academic probation at the close of each semester (fall/spring). Immediately following fall term, students have several weeks to a month of time away from classes. Likewise, after spring term many students begin their summer employment and other non-academic activities. Students may not attend to a well-intentioned probation advising hold until they are ready to register for classes, and at that point they may wait for an advising appointment. Most importantly, they will have progressed through six weeks of a semester without additional conversation about their probation status. A proactive approach that prioritizes student success might include an advising meeting and schedule review, along with academic planning for the semester, before or during the first week of classes. This paper describes that new practice, and three initiatives and two changes in operations implemented to improve student outcomes; importantly, it shares when and why they are scheduled during particular points in the semester. The work is foregrounded in student success and helping students make good decisions at particular times.

Initiatives

Developing good academic habits early is important for student success (Tinto, 2006; Chickering & Gamson, 1999). Good habits learned early in an academic career provide students with a set of skills to support their work over the next four years. Not surprisingly, the initiatives described in this paper target first-year students. The strategy includes deliberate contacts or engagement over the course of the
academic year. Academic, and to a degree social, engagement is first activated through shared learning experience in freshman learning communities.

Learning Communities

Increasing first-year students’ academic engagement, and translating that into persistence, is critical for student success. In this case, learning communities include two academic courses, one of which is a first-year experience course appropriate for the students’ major. First-year experience courses are themselves a high impact practice (AAC&U, 2008); we integrate them with another required course in a learning community, another high impact practice (Taylor, Moore, MacGregor, & Lindblad, 2003; Kuh 2008; Visher, Schneider, Wathington, & Collado, 2010). This student success “double whammy” is an important piece of our retention programming. In addition to improving engagement, these courses provide students with additional time and space to practice college appropriate thinking and learning.

When taught well, the first-year experience course should be seeded with metacognitive writing that prods students to think about their experience and underscores good academic hygiene. During faculty development, resources and assignments are shared and directly linked to particular points in the semester. For example, in the second week of class students are given a structured reflection on their experience during their first week; when first tests are returned (generally about week 4 or 5) students complete an assignment that may ask them to list their scores and respond to their grades. Faculty are now beginning to incorporate exam wrappers at this point. With the first-year experience course structured to prepare students to think and then respond to various crucial time points during the semester, it is an important part of the freshman learning community. Since 2011, when learning communities were implemented in pilots across campus, first-year students in communities have returned for their second fall term in higher rates than students who are not in learning communities (Office of Institutional Research, 2015).

In 2010, there were 1,654 first-time, full-time, freshmen and 65% returned for their second year. As seen in Table 1, beginning with the University of South Alabama’s first learning community cohort in 2011, students who enrolled in these joint courses had much higher persistence than those not joining a community. Over time, the retention gap between the two groups has ranged between 5 and 10%. Because of this sustained success, all entering freshman (with the exception of Honors students, who constitute their own community) are expected to enroll in learning communities.

Enrollment into the courses remained a challenge, in part because it is limited to a specific time frame. Different methods were used to improve that process, to varying degrees of success. In summer of 2015, the institution hired eight professional first-year advisors. At the same time, we began reviewing on-boarding communication that starts well before students attend orientation. Currently this consists of an information packet mailed to the home of all students registered for orientation. It includes information on advising and learning communities, as well as an invitation to call or come in to meet to discuss learning community options. In addition, new students complete a short form that includes some interest areas as well as any credit they anticipate bringing to college.

First-year advisors review student information and pre-enroll students in selected learning communities prior to registration, which occurs during new student orientation. During registration for fall 2016, these well-trained advisors were instrumental in enrolling 75% of the entering cohort into freshman learning communities. Fall to spring retention for this group was 93%, the cohort rate was 92.1% and 91% of students who were not enrolled in learning communities returned for spring semester.
Construction of learning communities takes place during the winter. From December to February, our Learning Community Coordinator works with advisors, department chairs, and associate deans of various colleges to agree on the specific combinations of courses that meet degree requirements and fit our enrollment profiles and past performance. These courses are then linked in our Student Information System (Banner) and reserved for learning community students. This entire process must take place well before fall courses are viewable by students during spring registration.

Figure 1 illustrates the importance of learning community enrollment for different student populations. Learning community (LC) students are compared to non-learning community (NLC) students. In addition, the chart breaks out retention for students of color (SOC) and for those who received Pell grants (Pell). While this chart does not break down those two populations by learning community enrollment, the trends make it pretty clear that enrollment in learning communities benefits these two groups of students. Given our institutional mission and demographic trends, we will continue to develop and enroll learning communities with attention to various student groups. This intervention supports all students, and appears to be effective in reducing our achievement gap in first-year retention for students of color and those receiving Pell aid.

![Figure 1: Trends from 2010 through 2015 in student retention by group](image)

**Attendance**

Roughly three quarters of the entering 2016 freshman class began their first week of fall in a freshman learning community. The cohort experience in classes starts to improve engagement, and the structured first-year experience course provides a building block for just-in-time metacognition and good academic practice. In addition to seeding the first-year experience course, the institution piloted an attendance initiative. The approach is modeled after programs operated at the University of Mississippi.
and Mississippi State University. Our initiative included faculty leading first-year experience courses as well as those teaching sections of English composition. Attendance recording begins in week two of the term, following the census date. Submission of attendance is due the Monday following the reporting week. Faculty in both courses submitted attendance for four consecutive weeks. Between 75 and 80% of faculty teaching these courses reported absences.

Roughly 2,006 students were enrolled in these courses. Students living in Housing who missed a class were visited by their Resident Assistant. Those living off campus were contacted by peers who staff the peer tutoring center. Students who missed a second class or more were contacted by a graduate assistant serving as an academic coach.

Happily, the majority of students did not miss any first-year or English composition classes during the reporting period. Just over 20% of students missed only one course during the reporting period; taken together, nearly 90% of students missed one or no classes in one of these courses during the first five weeks of term.

However, about 10% missed multiple classes in these two courses; and likely missed multiple classes in other courses as well. Figure 2 shows the distribution of absences.

![Figure 2: Number of students missing between 0 and 4 or more classes (weeks 2-5 of fall 2016 semester)](image)

Just over half of students who received an intervention lived in Housing. Of the students receiving an intervention, again over half had no further absences during the first five weeks of term. Regardless of the intervention received, students who returned to class had midterm and final GPAs nearly a point higher (over 0.8) than those who did not return to class during the intervention.

**Progress Reports**

Early alerts in 100-200 level courses were required since 2011. However, when mid-term grade reporting was implemented due to changes in financial aid policy, academic alerts submitted between weeks 4 and 6 were no longer required. Early alerts were submitted in the student information system, and the functionality was clunky. Between 2011-2015, between 70 and 75% of faculty required to submit alerts for designated courses did so.

New technology allows for faculty feedback on any student during any point in the term. It also allows for a very targeted focus on early alerts. Rather than requiring alerts for all 100-200 level courses, specific courses may be selected. In January 2017, we piloted early term progress reporting with a small group of classes, many known to be challenging and largely taught by student friendly faculty. In this intervention, faculty provide feedback on students who are doing poorly in the specific course. Once
feedback is received, the tutoring unit reaches out directly to those students to offer assistance in the course.

By week ten of these courses, students had multiple graded assignments, a progress report, and a mid-term grade. In addition to providing many opportunities for communication about tutoring and other academic success resources, it also provides the student and advisor a series of data points to use when considering course progress, withdrawal, and major planning.

Students may respond to progress reports in several ways. They may improve their performance without attending tutoring, with the simple “shot over the bow” providing sufficient motivation. Or, they may make tutoring appointments to take additional action to improve their grade. Finally, they may change nothing.

During our progress report pilot, 920 electronic progress reports were sent to 624 students. Of this group, 434 reports were marked with the student currently earning a B or lower in a given course. Professors had wide latitude in their reporting: some sent alerts to indicate students were doing well in their course, others elected to alert when students were at a B early in a demanding course, and of course others only alerted students who were currently failing.

Following progress reports, the Assistant Director for Student Academic Success sent emails to all students who were enrolled in one of 43 courses that were served by our university tutoring center. The email indicated that it was in response to the progress report, and then invited the student to attend free tutoring, specifically “I strongly encourage you to try our services at least 2-3 times before Spring Break to improve your academic success so you can ‘pass your class’ with the grade you want. All of our services are drop-in tutoring sessions or group study sessions, so you can stop in at your convenience. If you have any questions or would like to arrange a meeting with an academic coach, please let me know.” The message then contained tutoring information for the alerted class. In response to this email, 14 students had 24 total tutoring visits during spring term.

Table 2 includes final grades for students in the progress report pilot. The top line, “No Grade” includes students who received a “nothing to worry about” alert. When we implemented early alerting at our institution, faculty wanted an option for letting students know they are doing just fine. “No Grade” represents that group of pilot students.

<table>
<thead>
<tr>
<th>P/R“Grade”</th>
<th>Final Grades</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>No Grade</td>
<td>169</td>
<td>138</td>
</tr>
<tr>
<td>B</td>
<td>23</td>
<td>91</td>
</tr>
<tr>
<td>C</td>
<td>3</td>
<td>38</td>
</tr>
<tr>
<td>D</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>F</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>200</td>
<td>283</td>
</tr>
</tbody>
</table>

Note: F* is a failure wherein a student does not officially withdraw, but fails to attend or participate in class activities; no grade points are awarded. U* stands for unsatisfactory for the same conditions as F*.

Most students in the targeted classes receive positive progress reports. However, roughly 433 students received a progress report with a grade of B or lower. Approximately 69% of those alerted students earned a final grade of A/B/C in the course. About 31% were not successful in the course. There is a ten percent difference in both figures for the students with positive alerts. Interestingly, about half the students alerted with a D “grade” earned a passing grade in the course. A bit more than one third of those alerted with an F “grade” passed the class. It is likely that some of the students receiving alerts responded positively and improved their performance without seeking tutoring. However, the outreach will continue to drive tutoring and study sessions for alerted students.
Practices

In addition to specific programs that target students at intentional times in their academic experience, the University of South Alabama has also deliberately changed or adjusted our practices at particular times of the academic year. The practices themselves, and the timing of them, are designed to improve student persistence as well as degree completion.

High Hours

Degree completion is important for students, institutions, and our economy. Graduation rates at this institution are lower than desired and improving student outcomes will improve the university’s profile. In fall 2015 and winter 2016, a new practice was introduced to the academic deans. Using existing technology, academic deans were given lists of students with over 120 earned hours (that which is required to graduate) and institutional grade point averages above 2.0. This list included only students who had not yet applied for graduation from the institution. Academic deans addressed the list of students in the manner most appropriate for their units’ operations.

Roughly 316 students were identified through this outreach. About 40% of this group moved to pending graduation, and should have completed their degrees by December 2016. Several interesting items emerged from this process. First, many students with high hours and a sufficient GPA were not part of a freshman cohort- they were transfer students. In fact, the transfer student graduation rate was higher than the native student graduation rate. While recent research shows that students who transfer to a four-year institution after earning an associates degree have high rates of completion (National Student Clearinghouse Research Center, 2012), the finding was not “conventional wisdom” in most academic areas at our institution. This data point served as a productive communication opener as the institution embarked on pathway collaboration with local community colleges.

Using lessons learned from winter 2016, in winter 2017 the academic deans were again provided with lists of high hours students. This time, the lists included students with over 90 earned credit hours and a 2.0 grade point average. To deliberately address cohort graduation rates, lists included students by freshman cohort. The focus was restricted to students who entered as freshmen or those returning to the institution between 2009-2012. Forty percent of possible students in the 2009, 2010, and 2011 cohorts, and 42% of possible students in the 2012 cohort applied for graduation in the coming terms. The total number of students ranged from 16 (2011 cohort) to 41 (2012 cohort). While these numbers may seem low, every student who completes their degree is important and this practice improves timely graduation.

In the coming year, academic deans will be encouraged to integrate this practice into their workflow during a strategic time period in their unit. It will depend both on registration periods as well as advisor availability.

Probation Advising

Since 2012, the institution has paid increasing attention to students who are placed on academic probation at the end of their first fall semester. Institutional data show that students who are on probation at the end of their first academic year are highly unlikely to graduate. Attending to students in this position, and changing their academic behaviors quickly, is now an objective of the Student Academic Success unit.

To this end, several practices have been initialized between the end of the first term and the conclusion of the second. First, all freshmen who are placed on academic probation receive a letter to their home address over winter break. In addition to informing students of their academic status, the letter contains a variety of resources for academic improvement, including a workshop offered at the start of spring term. During 2012, students who attended the workshop posted a .5 point increase in their institutional GPA at the close of spring semester.

In addition to offering the workshop, individual coaching meetings, and invitations to tutoring, the First-Year Advising unit ran advising campaigns targeting freshmen on probation at the start of spring semester. These campaigns included a meeting with the academic advisor. Advisors used one or both of
two artifacts designed to focus reflection on changes necessary for academic improvement. During Spring 2017, academic advisors met with 90% of freshman students who were placed on probation at the end of fall term. A smaller subset of students had multiple meetings with their academic advisor and one meeting included developing an action plan.

Table 3. Outcomes for students on academic probation, by contact type, Spring 2017

<table>
<thead>
<tr>
<th>Total on Probation</th>
<th>Meeting</th>
<th>Meeting and Plan (2 total meetings)</th>
<th>No Meeting</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=434</td>
<td>389 (90%)</td>
<td>62 (14%)</td>
<td>45 (10%)</td>
</tr>
<tr>
<td>Average Fall 2016 GPA</td>
<td>1.23</td>
<td>1.28</td>
<td>1.12</td>
</tr>
<tr>
<td>Average Spring 2017 GPA</td>
<td>1.38</td>
<td>1.62</td>
<td>.96</td>
</tr>
<tr>
<td>Average change in GPA</td>
<td>.15</td>
<td>.34</td>
<td>-.17</td>
</tr>
<tr>
<td>Percent who increased GPA</td>
<td>56%</td>
<td>77%</td>
<td>17%</td>
</tr>
<tr>
<td>Percent who decreased GPA</td>
<td>37%</td>
<td>21%</td>
<td>61%</td>
</tr>
<tr>
<td>No change</td>
<td>7%</td>
<td>2%</td>
<td>22%</td>
</tr>
</tbody>
</table>

Table 3 documents outcomes for the probation outreach. The groups of students who met with an academic advisor increased their spring GPA; not surprisingly, the students who did not respond to the meeting invitation had a further drop in spring GPA. Consistent with literature on the frequency of advising (Schwebel, Walburn, Klyce, & Jerrolds, 2012; Abernathy & Engelland, 2001), students who had at least two total meetings had twice the GPA increase compared to students with only one meeting. Based on these positive outcomes, and in response to an anticipated change in probation policy, advisors and the professional who leads academic resources are collaborating on a series of probation conversations for spring 2018. A letter to the student will announce the programming, and the semester will begin with a workshop for all students on probation. Advising meetings will follow, students will be encouraged to make two meetings with the same advisor, and one meeting will include an interactive planning session.

Course Registration

A key practice instituted after registration time-tickets open is a review of course registrations. As discussed above, the first year of college is an important time for students to develop good academic practices. Academic advising is one of those practices, and then course registration. Ideally, students meet with their academic advisor before registration period opens. During the freshman year, advising meetings include discussions of institutional software for student success (SSC Campus, Degree Works, South Scheduler), major fit and career exploration, and then course progress. Students are expected to discuss their course plans with their advisor, and be prepared to register when their time-ticket opens.

Five years ago, many students delayed course registration for spring until during the winter break, and then delayed registration for fall until during summer break. There are several problems with this practice. First, should students have questions, their academic advisors may or may not be easily available for conversations. Second, such delayed enrollment makes course staffing challenging. Finally, “late” registration does not fit with our model of academic planning that includes full-time enrollment per term as well as schedule planning for several semesters out.

Each semester, targeting freshman cohorts, advisors review course registration for the following term. Students who are not registered are contacted by email and then by phone. Each week, the list of non-registered students is reviewed and students are again contacted. During the fall semester, advisors work through this pool up to the close of spring registration and the semester census deadline. This outreach was performed in fall 2016, and in spring 2017 the cohort retention was 2% higher than our last institutional record. During spring and summer, advisors continue to reach out to students. Summer communication includes open-ended scripted calls designed to gather information on student satisfaction as well as assist with registration. Academic advisors are currently making personal calls to all freshmen on their caseload who are not registered for fall 2017 courses. Freshman cohort registration lists run
Conclusions

This paper focuses on aligning our success actions just in time with student needs. We work to structure our operations so that we touch students at specific times. From the start of term in learning communities and first-year experience classes, through probation advising and course registration, efforts concentrate on teaching entering students good academic behavior. Incorporating a high hours practice shifts a focus to on-time graduation among administration, staff, and faculty. While we assume students would eagerly apply for graduation, in many cases deadlines pass and events distract. The open communication and “deadline” extension are good for students and they improve institutional graduation rates.

Currently, the Student Academic Success team who led this hard work is developing a unit calendar that will include these and other initiatives and processes. The calendar is intended to be reviewed annually and available to any unit on campus. It will integrate with planning and assessment efforts and provide documentation for any team member sharing this work in various settings.

The ideas shared in this paper represent a small effort to align what we do with student needs. All too often our operations take place because “this is how we have always done this/made this decision/managed this process.” In other cases, it is about siloed units struggling for representation and a place at the table. In neither situation are students at the center of our practices. If we are serious about improving student outcomes, our institutions should begin to align themselves with the students we serve.

In addition, the initiatives and practices in this paper involve faculty through first-year experience courses and learning communities, and progress and attendance reporting. However, this work does not venture far into that “final frontier.” Faculty spend more time with students than any outside staff or administrative leader on campus. Student learning, engagement with their learning, plays an important role in their success. Students alone are not responsible for learning; faculty play a critical role. Additional research, particularly in the Scholarship of Teaching and Learning, should focus on faculty efforts that improve student learning, and lead to gains in persistence and other important metrics.

Acknowledgements

This paper would not be possible without the collective efforts and very hard work of a great Student Academic Success team. The First Year Advising Center, under the direction of Catherine Preston; JagSuccess, our academic resource center, led by Christy Lock; and our learning communities coordinated by Tina Hancock are completely aligned and instrumental in moving ahead our work with students. Matt Kridel, our graduate student and academic coach, supports us in a variety of endeavors, including attendance initiatives, probation outreach and scholarship earn-back. The initiatives and practices described in this paper would not exist without their efforts.
References

Serving the Underserved: The Impact of a Learning Community on Historically Underrepresented Populations in Higher Education

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Abstract: In 2013, the Leadership, Development, Reflection, and Service (LDRS) Initiative learning community was created to increase retention of low-income students, students of color, and first-generation students at a small liberal arts college in the Midwest. Initial results were promising. While retention of students from these historically underrepresented populations at the University was 64% in 2012, retention at the beginning of the fall semester of 2015 for students who participated in the program was 73%. Given the dramatic increase in retention, a phenomenological study was completed in fall of 2015 to determine participants’ perceived impact of the components of the program on retention. The study found that the essential component of the program was relationships students were able to build with peers, staff, and faculty, and that each element of the program was impactful in providing opportunity to develop these relationships. Since this study, the program has supported two more classes of incoming freshmen and witnessed its first graduates. Four-year graduation rates for the students in the program are 8% higher than previous rates of students from these populations, and 25% higher than previous five-year graduation rates for the same population.

Background of the Study

There is ample literature focusing on the barriers to success for students from historically underrepresented populations. Additionally, efforts to improve retention of these and all populations of students at institutions of higher education have been documented for years. This study, part of this author’s dissertation completed in May of 2016, focused on the impact of one type of retention strategy, the learning community, on historically underrepresented populations at one institution of higher education.

In 2013, the small liberal arts university in the Midwest enrolled 182 first-time freshmen. Eighty-two of the 182 were low-income while 47 were first-generation. In addition, 77 of the 182 students were students of color (Von Arx, 2014). Although enrollment of low-income students, students of color, and first-generation students at the university has grown over the years, retention and graduation rates have been lower than those of students who do not meet these descriptors. Retention is defined as enrollment in the fall of the students’ freshman year through fall of their sophomore year at the same institution. In 2010, the overall undergraduate retention rate of the traditional bachelor’s degree-seeking freshmen class at the institution was 63%. The undergraduate retention rate for incoming low-income students, students of color, and first-generation students was only 45.5%, 50.0%, and 25.6%, respectively (Von Arx, 2014). In 2013, to address these disparities, the University implemented its first learning community, the Leadership, Development, Reflection, and Service (LDRS) Initiative.

The LDRS Initiative began as a living learning community funded by the Great Lakes Higher Education Guaranty Corporation. The goal was to increase retention and graduation rates by addressing the specific academic and social needs of low-income students, students of color, and first-generation students at the institution, beginning in their first semester as college freshmen. The LDRS program included multiple components intended to support students in their transition to college including academic, financial, and relational supports. Resident students lived on the same two floors in the same residence hall. They attended two courses together, were assigned a staff or faculty mentor, and met
weekly to share a meal (lunch) as a large group and discuss topics of direct concern such as financial aid and billing, study strategies and time management tips, and how to register for classes the following semester. Additionally, they were eligible to earn a book voucher to pay for some of their book fees the following semester if they met the set grade point average requirement, and were invited to a number of on and off campus social events (event admission fees were waived).

During the fall of 2013, 28 students who elected to participate in the program following intentional outreach from program directors, were enrolled in the LDRS Initiative learning community. Eighty-nine percent were low-income, 86% were students of color, and 54% were first-generation college students (Lansing, 2014). In its first year, the program exceeded persistence and retention rate expectations and surpassed the overall undergraduate retention rate. The persistence rate after the fall semester was 100% (which means 100% of the LDRS students returned to Stritch in Spring of 2014) while the retention rate (the percent of students who returned the following year) overall for the program in its inaugural year was 82.1%. Conversely, the overall retention rate for students at the University who were eligible but did not enroll in the program was 66.7% (Taft, 2016). Figure 1 provides comparative retention data for 2013 LDRS Initiative participants and non-participants who were eligible for the program but opted out, including a break down by low income (PELL), first generation (FG), and students of color (SOC) (Taft, 2016). Clearly, the LDRS Initiative participants in the inaugural year of the program retained at a higher level than those who were eligible for the program but opted out.

Due to the success of the program, the LDRS Initiative was expanded in the fall of 2014 to include a commuter component for a total of 40 new freshmen (20 residents and 20 commuters) while still providing services to the inaugural 2013 cohort who were then in their sophomore year. The persistence rate of the fall 2014 cohort (including the inaugural cohort who were then sophomores) was 83% while the retention rate was 73%. At the same time, the retention rate for the non-LDRS Initiative students who were eligible for the program but did not participate was 64%. Figure 2 provides comparative retention data for 2014 LDRS Initiative participants and non-participants who were eligible for the program but opted out (Taft, 2016).

![Figure 1: First-year retention comparison for fall 2013 participants](image)
The learning community program at this university was meeting the needs of low-income students, students of color, and first-generation students in a way that was improving the retention of the participants. As funding for the program was becoming less reliable, it was essential to determine what components of the learning community were most effective in retaining students from these populations to ensure appropriate resources continued to be provided.

Literature Review

Without a bachelor’s degree, low-income students, students of color, and first-generation students in higher education will continue to struggle to reach financial stability in a way their peers will not, as lower levels of educational attainment are linked to higher unemployment rates and lower earnings (Baum & Ma, 2007; Cunningham, Cooper, Leegwater, & Smith, 2012; Kena et al., 2015). The good news is that access to institutions of higher education for these historically underrepresented populations has improved in the last quarter century. According to Engle and Tinto (2008), “There are currently more than 4.5 million low-income, first-generation students enrolled in postsecondary institutions – approximately 24% of the overall undergraduate population” (p. 8). In addition, the percentage of college students of color has been increasing. From 1976 to 2011, the percentage of Hispanic, Black, Asian/Pacific Islander, and American Indian/Alaska Native students rose 10%, 5%, 4%, and 0.2%, respectively (Aud et al., 2013).

Unfortunately, although access to institutions of higher education has increased for historically underrepresented populations, low-income students, students of color, and first-generation students complete college at especially low rates (Engle & Tinto, 2008; Kena et al., 2015; Offenstein, Moore, & Shulock, 2010). In fact, students from all three populations are more likely to leave higher education after the first year than their peers (Engle & Tinto, 2008; Greenwald, 2012; Pascarella, Pierson, Wolniak, & Terenzini, 2004). In order to address this fact, a clear understanding of the barriers each of these populations face on their path to degree attainment is essential.

Barriers to Success for Historically Underrepresented Populations

Low-income status is defined as having a household annual income below $25,000 and/or Pell grant eligible (Engle & Tinto, 2008, Tinto, 2012). Across the U.S., college enrollment rates remain comparatively lower for low-income students. In fact, between 1990 and 2013, 80% of students from
high-income families enrolled in college immediately after earning their high school diploma, compared to only 49% of students from low-income families (Kena et al., 2015). More importantly, according to Tinto (2012), high-income students are nearly three times more likely than low-income students to earn a four-year degree. There may be a number of reasons for this. First of all, according to ACT (2013), students from low-income households are less likely to meet college readiness benchmarks than their more financially stable peers, which negatively translates into their college experience. Additionally, as Welback, Diamond, Mayer, and Richburg-Hayes (2014) indicate, high levels of unmet need may negatively impact students’ prospects of staying enrolled in and completing college. Clearly strategies to impact academic and financial needs may be effective in improving the retention rates of low-income students as they continue to face barriers in their path to college success.

Similarly, students of color continue to face multiple barriers to college success. Between 1990 and 2013, Hispanic student enrollment in an undergraduate degree program nearly quadrupled and Black student enrollment in an undergraduate degree more than doubled. Unfortunately, the discrepancy between degree attainment of White and Black students grew from 13% to 18%, while the discrepancy between White and Hispanic students increased from 18% to 26% (Kena et al., 2015). As explained previously, low levels of educational attainment lead to future income disparities.

Additionally, empirical research on this population often focuses on the overall experience and satisfaction of students of color in higher education as a means to determine barriers to success and opportunity for programming and/or intervention opportunities that may improve experiences and thus increase retention. For example, Rankin and Reason (2005) found that “students of color experience harassment, defined as any offensive, hostile, or intimidating behavior that interferes with learning, at higher rates than White students” (p. 43) while attending institutions of higher education. Additionally, overall, the pressure felt by students who feel their academic performance is being judged has lead to lower performance and decreased satisfaction with college (Fischer, 2010). Clearly, students of color experience college very differently than white students do and that has profound effect on retention.

Similarly, first-generation students face barriers to college success that their peers do not. First-generation college students are those whose parents did not attend a post secondary educational institution or earn a bachelor’s degree (Cunningham et al., 2012; Engle, Bermeo, & O’Brien, 2006; Engle & Tinto, 2008; Pascarella et al., 2004; Stebleton & Soria, 2012). These students tend to be at a distinct disadvantage compared to their peers with respect to general knowledge about post-secondary education costs and the application process, as well as level of family income and support and academic preparedness (Pascarella et al., 2004; Tym, McMillion, Barone, & Webster, 2005). The consequences of these disadvantages include difficulty in acclimating themselves to college once they enroll.

Mehta, Newbold, and O’Rourke (2011) investigated the status of first-generation students before enrollment and while enrolled at institutions of higher education. They found that first-generation students enter college less prepared and have greater time demands and financial commitments than their peers. They also come from families with lower incomes, work more hours, rely on grants and student loans to fund their education, and are less involved on-campus. Additional barriers for first-generation students include lower self-esteem and feelings of support and low faculty expectations (Darling & Smith, 2007). Thus, the disadvantage for first-generation students exists leading up to, and upon entering postsecondary education and beyond. The impact of all of these barriers includes lower first semester and first year grades and a likelihood to leave college without a degree (Chen & Caroll, 2005; Darling & Smith, 2007; Jean, 2010; Pascarella et al., 2004).

Students from all three of these historically underserved populations face multiple barriers in their path through college including family/work obligations, limited financial resources, and academic preparation concerns (Cunningham et al., 2012; Darling & Smith, 2007; Greenwald, 2012; Pascarella et al., 2004). Institutions of higher education must take all of these factors into account when determining retention strategies in order to increase student success and ultimately improve graduation rates of these students.
The Learning Community Model

One potential retention strategy that has proven to be successful in colleges across the country is the learning community. Learning communities are intentional communities designed to link course work with a peer support network (Tinto, 2012). Tinto and Goodsell (1993) describe the three common features of a learning community including the students being enrolled in several courses together (usually around a specific theme), an experience that links to course content, and the encouragement and enabling of students to form a community of learners that supports both academic and social needs. Although there are many models of learning communities, according to Lenning and Ebbers (1999) one of the four successful models is the student-type learning community designed for targeted groups such as academically underprepared students, historically underrepresented students, honors students, students with disabilities, and students with similar academic interests. Generally, research shows that students who participate in learning communities experience a deep sense of belonging, have strong social connections, understand linkages across courses, and participate in the academic and social life of the college at greater rates than students who do not participate in learning communities (Lichenstein, 2005, Pike, Kuh, & McCormick, 2011).

Methodology

The qualitative phenomenological research approach that this study utilized focused on capturing and studying the complexity of phenomena that occur in natural settings (Leedy & Ormrod, 2010). Its inductive style of questioning and observation allowed the researcher to use open-ended questions and probes to build from specific details to general themes (Creswell, 2009; Guest, Namey, & Mitchell, 2013). In utilizing a number of characteristics of qualitative research as outlined by Creswell (2009), this study effectively captured the student experience. For example, the researcher was the lone data collector and data was collected in the natural setting of the participants’ experience. This allowed for face-to-face interaction between the researcher and participants so the researcher not only gathered verbal responses to capture the participant experience, but also could observe participant behavior. Additionally, the use of inductive data analysis allowed the researcher to focus on learning the meaning the participants held about their experience, which shaped the patterns and themes that emerged from the process. This emergent approach and method of research is appropriate for this study as it allows the researcher to gain insight into the participants’ experiences as they perceive it; thus, the researcher is able to draw out the perceived impact of the LDRS Initiative without being prescriptive or biased.

Sample

The population being studied was comprised of LDRS Initiative participants in the 2013-2014 and the 2014-2015 cohorts. Participants were first-time full-time freshmen beginning their fall semester. As was required by the LDRS Initiative and the grantor, each participant was a member of at least one of the following populations: low-income, student of color, and/or first-generation. The sample was purposeful as it consisted of students who participated in the program in the 2014-2015 academic year as either a freshman or sophomore and returned to the university in the fall semester of the 2015-2016 school-year. Multiple and diverse perspectives were ensured through stratification. One focus group was conducted for each of the three populations served by the program: inaugural cohort (all residents); year two cohort residents; and year two cohort commuters, ensuring the sample was a true reflection of the population of the study.

Data Collection

Three focus groups were conducted in the fall of 2015. Groups of 10 to 12 students were invited to each session via an email invitation with a goal of four or more participants at each focus group session. A total of 20 students participated in the focus groups with no less than four and no more than six students in each group. According to Guest et al. (2013), focus groups are typically conducted with
homogeneous groups, so each focus group was limited to participants from one of the cohorts of the program (2013-residents, 2014-residents-2014-commuters) so that students from the 2013 cohort were not intermingled with the students from the 2014 cohort. The reason for this is twofold: 1) splitting the focus groups by cohort allowed the researcher to determine if differences of perception existed between students from different years as well as the experience of residents versus commuter students; and 2) in the pilot focus group that included students from both the 2013 and 2014 cohorts, it was clear that the relationship between students from 2013 and 2014 cohorts was uncomfortable and awkward at times. In order to create a safe space where students felt comfortable being open and honest, it was important to keep the cohorts separated for initial data collection.

An additional focus group of students who attended the university during their freshman year and were eligible to participate in the LDRS Initiative but opted out was also conducted. This allows for research similar to quasi-experimental research so the researcher is able to examine similarities and differences between the experience of LDRS Initiative participants and non-LDRS Initiative students who also represent historically underrepresented populations. The unique aspect of quasi-experiments is that they do not use random assignment (Cook & Campbell, 1979; Creswell, 2009). In this case, an intact group of non-participants that met the eligibility requirements of the LDRS Initiative was available to the researcher to use as a control group.

Following the initial data collection and analysis, validating member checking via a questionnaire was facilitated to the LDRS Initiative focus group participants. This allowed for validation of the main theme as well as the opportunity to gain further insight into the impact of each of the elements of the LDRS Initiative. Ten of the 15 LDRS Initiative students who participated in the focus groups completed the validating member checking questionnaire.

Results

This study set out to identify the perceived impact of the components of the LDRS Initiative at the small liberal arts university in the Midwest on participant retention. The analysis of focus group data indicates that relationships built through program elements were the most significant component of the program. This conclusion was made evident throughout each of the focus group interviews as evidenced by the responses to each of the questions in the interview.

Cause of Initial Enrollment

According to responses from the first interview question, “Why did you come to Stritch?”, students initially chose to attend the University for varied reasons, but the most common, shared influence on their decision was financial, followed by the small size of the school. As Table 1 illustrates, the researcher categorized a number of terms into the themes of affordability, size, family, and private. These were the most common terms the students used in describing why they chose to attend the University as new freshmen. Shown in the table are the terms the students used, the codes the researcher assigned to the categories of terms, the number of times the terms within each category were mentioned in response to this question, and the number of individuals who mentioned the category across all LDRS Initiative participant focus groups.
Clearly affordability and the size of the institution were influences on the students’ choice to attend the University. Similar to the LDRS Initiative participant focus groups, the control group cited affordability as the main reason they chose to attend the University initially as well. According to focus group data analysis, once the students arrived at the University, the community they became a part of, particularly the relationships they were able to build, overshadowed affordability as significant to their decision to remain at the University.

Cause of Retention

Given the national trends in retention of historically underrepresented populations in higher education, retention rates of members of the LDRS Initiative (as documented previously in Figures 1 and 2) are astounding. To better understand the success of the program, it is insightful to examine what they perceive as the reason they returned to the University for a second and third academic year. As Table 2 demonstrates, when students were asked “Why did you return to Stritch this year?” (after completing their freshmen and sophomore years), 11 of the 15 students interviewed noted the impact of one or more relationships that were built throughout their time at the University.

The impact of relationships is not a new phenomenon. Astin and Panos (1967) investigated the impact of environment variables on student retention and found student interpersonal relationships to be significantly related to college completion. Additionally, Frazier and Eighmy (2012) found that learning communities can enhance student satisfaction, but communities with more interactions between faculty/staff have higher levels of satisfaction. Thus, the forming of relationships between students and faculty and staff are essential to the success of a learning community and thus student retention.

As one of the focus groups participants states, “I really enjoyed my experience here…I met all the staff who were like really nice. I met really great friends that I feel like are going to be lifelong friends so I didn’t even think about changing schools. It didn’t even cross my mind” (Dania, personal interview, 2015). Additionally, Maria states, “LDRS is definitely one of the reasons why I came back because they are such as open community and you always know you have your support system within it” (Maria, personal interview, 2015). Clearly the relationships program participants made with faculty, staff, and peers were impactful in the students’ decision to return to the institution.

The results of the control focus group indicate that the impact of relationships with faculty, staff, and peers is unique to LDRS Initiative participants, at least the depth of the connection to the community. When asked why they returned to the University, the students in the control group did not mention community in any way. No themes actually emerged in this area. In fact, Joe states, “The thing I really don’t care for about this place is I went to a private high school and there was definitely a strong communal bond there. Here, I lived on campus freshmen year first semester. I worked pretty often and I

<table>
<thead>
<tr>
<th>Student Terms</th>
<th>Codes</th>
<th>Times Mentioned</th>
<th># Individuals mentioned (N=15)</th>
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<tr>
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<td>2</td>
</tr>
<tr>
<td>Religious+private</td>
<td>Private</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>
hardly met anyone” (Joe, personal interview, 2015). This is clearly a very different experience than that of the LDRS Initiative participants.

Summary of Learning Community Participation

When LDRS Initiative participants were asked, “What does it mean to be a part of the LDRS Initiative?”, again, 11 of the 15 students mentioned a term related to relationships. Additionally, as Table 3 demonstrates, terms related to a level of comfort were mentioned eight times by six of the 15 students and confidence was mentioned four times by four of the 15 students.

Table 3: Meaning of LDRS codes from dissertation research

<table>
<thead>
<tr>
<th>Student Terms</th>
<th>Codes</th>
<th>Times Mentioned</th>
<th># Individuals mentioned (N=15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>People+community+team+teammates+friends+staff+family+faculty+advisors+group</td>
<td>Relationships</td>
<td>29</td>
<td>11</td>
</tr>
<tr>
<td>Helpful+Comforting</td>
<td>Comfort</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Confidence+Advantage</td>
<td>Confidence</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Again, the opportunity to build relationships with peers and staff was quite significant in student reflections about the LDRS Initiative. As Sam states, “For me being part of the LDRS program is kinda like being a part of a family. You never feel like you are alone. You are a step ahead from the general public and I find that comforting” (Sam, personal interview, 2015).

Research also supports the impact of relationships for historically underrepresented populations. Engle and Tinto (2008) note the importance of programming for low-income students and first-generation students in particular that “scales down” the college experience. This is done by providing personalized attention from staff and opportunities to connect with peers who have similar backgrounds and experiences as they do. In this case, the LDRS program provided those opportunities.

Perceived Impact

Again, when students were asked “What would your first year (or first two years) of college at Stritch have been like if you were not a part of the LDRS program?” the most common response related to relationships. As Table 4 shows, 11 of the 15 students mentioned people, friends, or advisors in their response.

Table 4: Codes from dissertation research of experience without LDRS program

<table>
<thead>
<tr>
<th>Student Terms</th>
<th>Codes</th>
<th>Times Mentioned</th>
<th># Individuals mentioned (N=15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>People+friends+advisor</td>
<td>Relationships</td>
<td>18</td>
<td>11</td>
</tr>
<tr>
<td>Help+resources</td>
<td>Helpful</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Voucher+scholarship</td>
<td>Affordability</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

As Sam stated, “I think without LDRS I would have felt excluded because…I’m a commuter [and] it’s kinda like for me just go to class and after class go straight home and there’s nothing really in between but because of LDRS I made some friends so college has become more enjoyable and I like that” (Sam, 2015, personal interview). Thus the most important aspect of the LDRS Initiative that students would miss if they were not a part of it is the opportunity to build those relationships.

Most Impactful Component

Finally, the researcher asked the focus group members the following: “What element of the LDRS Initiative did you feel was most impactful?” Again, relationships rose to the top. As Table 5 demonstrates, 11 of the 15 students again mentioned relationships they were able to make as a member of the LDRS Initiative learning community when discussing impactful components. Tanya stated, “I think the biggest thing was really just the community. You really feel like okay, I’m going in there and I actually have some people that I really know like not going in there like I don’t know anyone” (Tanya,
personal interview, 2015). And Jane adds, “…the staff they really knew what they were talking about and their background really helped for them to relate to us and we felt comfortable asking them for help” (Jane, personal interview, 2015).

Table 5: Impactful element codes from dissertation research on LDRS

<table>
<thead>
<tr>
<th>Student Terms</th>
<th>Codes</th>
<th>Times Mentioned</th>
<th># Individuals mentioned (N=15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community+people+mentors+staff+students</td>
<td>Relationships</td>
<td>25</td>
<td>11</td>
</tr>
<tr>
<td>Helped+comfortable</td>
<td>Helpful</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Retreats+dinners+events+speakers</td>
<td>Experiences</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

Eight of the students mentioned specific experiences, some of which enabled relationship building to occur. For example, as Kit stated, “…the retreats because…I guess you got to interact with people like a lot more because you were there for like a couple days. Jack and I became better friends along with other people” (Kit, personal interview, 2015). Similarly, Sam mentioned early registration. She stated, “Another thing is early registration…there was somebody to run us through everything. That was really important too” (Sam, personal interview, 2015). And finally, Sophia discussed the Hispanic women networking events she was invited to. “I really like that only cuz you got to meet a ton of people, so it was really helpful” (Sophia, personal interview, 2015). It appears that even when the students were off campus, building relationships was highly valued.

Validity and a Deeper Dive

Upon discovering the perceived impact of relationships on the members of the LDRS Initiative, it was important for the researcher to not only assure that perception of the focus group participants was accurately assessed, but to dive a little deeper into what elements of the program truly led to the positive relationships that were built. Thus, the author facilitated a validating member checking questionnaire to determine which elements facilitated the building of significant relationships. Ten of the 15 students who participated in the focus groups completed the questionnaire. Initially, students were asked if the relationships they built as part of the LDRS Initiative impacted their experience at the University. All ten students responded positively.

Students were then asked how those relationships were built. They were instructed to rate each of the elements of the LDRS Initiative on a scale of one to five, five being the most impactful. Table 6 outlines provides the results of the questionnaire.

Table 6: Impact of LDRS initiative elements from dissertation research

<table>
<thead>
<tr>
<th>LDRS Initiative Elements</th>
<th>Average Likert Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support from faculty</td>
<td>4.9</td>
</tr>
<tr>
<td>LDRS Coordinator</td>
<td>4.8</td>
</tr>
<tr>
<td>Service experience</td>
<td>4.8</td>
</tr>
<tr>
<td>Leadership experiences</td>
<td>4.7</td>
</tr>
<tr>
<td>Weekly community meetings</td>
<td>4.7</td>
</tr>
<tr>
<td>Retreats</td>
<td>4.5</td>
</tr>
<tr>
<td>Shared courses</td>
<td>4.5</td>
</tr>
<tr>
<td>Speaker series</td>
<td>4.3</td>
</tr>
<tr>
<td>Support from staff</td>
<td>4.3</td>
</tr>
<tr>
<td>Early Orientation</td>
<td>4.2</td>
</tr>
<tr>
<td>Special events off campus</td>
<td>4.2</td>
</tr>
<tr>
<td>Special events on campus</td>
<td>3.9</td>
</tr>
<tr>
<td>Multi-cultural advising</td>
<td>3.5</td>
</tr>
<tr>
<td>Mentor program</td>
<td>3.2</td>
</tr>
</tbody>
</table>
The average score for all of the elements was 4.3. The highest scoring items were the LDRS Coordinator (4.8), support from faculty (4.9), and services experience/opportunities (4.8) highlighting the importance of the relationships students were able to build with University employees who work to support their success as well as the opportunity for them to pay it forward and serve others. Additionally, weekly community meetings and leadership experiences rounded off the top five most impactful elements for the LDRS Initiative.

Conclusion

The results of this study provide insightful information regarding the LDRS Initiative Learning Community at this small liberal arts university in the Midwest and its ability to support historically underrepresented populations in higher education. There are two main conclusions the researcher accepts. One is the importance of providing purposeful and intrusive opportunities for these students to interact with each other and with faculty/staff in order to build a level of comfort at the institution. There are a number of ways this can be done, but the research indicates that multiple methods are needed for effective relationship building. These methods are what truly comprise the learning community. As research shows, for a learning community to be successful, its facilitation is key. Tinto (2012) asserts, “many learning communities end up being little more than co-registration programs in which faculty are only tangentially involved” (p. 86). Thus, the second conclusion determined by this study is that although the students all agreed that the relationships they were able to build through the program were impactful, an institution cannot facilitate a successful learning community that encourages this relationship building without investing in a full program. This is evidenced by the results of the questionnaire. Although some components rated higher than others, no single component was unneeded or not significant in some way. Dedication to a multi layered learning community is essential to retain students from historically underrepresented populations.

Additionally, following this research study, two new freshmen cohorts enrolled in the LDRS Initiative in 2015 and 2016. The fall to fall retention rate for the 2015 cohort was 80%, six percent higher than eligible non-participants. Fall to fall retention for the 2016 cohort is not yet available, but their fall to spring persistence rate was 95%, four percent higher than eligible non-participants. Finally, the program celebrated its first graduates in May 2017. While the four-year graduation rate for low-income students, students of color, and first-generation students at the institution was 21% in 2016, in 2017, 29% of the 2013 LDRS cohort graduated from the institution within four years. The projected five-year graduation rate for the 2013 LDRS cohort is 50% (the six-year graduation rate was 39% for this population in 2016). Clearly, the program has had a lasting effect on retention and graduation of students from these historically underrepresented populations.
References


Shifting the Campus Culture: Moving From Transactional Academic Advising to Transformational Holistic Student Success Coaching

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Abstract: In recent years there has been a movement in higher education to shift the role and responsibilities of academic advisors (McClellan and Moser, 2011). Gone are the days of a singular focus of serving as course schedulers. Advisors are now being asked to serve as academic experts, life coaches, career counselors, and so much more. But how does a campus go about shifting the culture of advising on their campus? Attempting to shift the organizational culture can feel like an insurmountable task. This paper, grounded in the theory of organizational change, as written about by Kotter (1996), highlights how one public, regional campus successfully shifted their campus culture from a transactional academic advising approach to a transformational holistic student success coaching model. As a result of this change, the number of advising appointments grew 100%, student satisfaction improved significantly, and the number of students who visited other campus support services doubled. All these efforts were made with the overarching goal of reversing a five-year slide in first-to-second year retention rates. The result? The campus successfully stopped the slide in student persistence, reversed the trend, and ended up with a 5% bump in retention rates.

Introduction and Background

The research is quite clear: academic advisors play a very important role in retaining and graduating students (Drake, 2011; Nutt, 2003; Metzner, 1989; Tinto, 1987). With this knowledge and understanding, administrators on many college and university campuses are now calling on these advisors to do even more; to do much more than help students schedule their courses. But, how do campuses go about shifting the culture of a group of staff that are not collectively always open to change? How do administrators help their advisors shift from a culture of transactional academic advising to a transformational holistic student success coaching model?

Prior to the 2015 cohort, our campus experienced five successive years of declining or stagnant retention rates. Therefore, it was clear that it was time to make some changes in order to turn things around. After a review of the literature, it was determined that working with our academic advisors would be an ideal place to start. The first task? Shifting the culture of advising from a model of course scheduling to holistic student success coaching. This paper will review the literature on advising, coaching, and organizational change, will discuss the theoretical perspective that was used to guide our efforts, and will conclude with an overview of how we shifted the advising organization and changed the culture on our campus. As a result of this change, the number of advising appointments grew 100%, student satisfaction improved significantly, and the number of students who visited other campus support services doubled. And most importantly, the campus successfully stopped the slide in declining persistence rates, reversed the trend, and ended up with a 5% bump in retention rates.

Literature Review

This section provides a review of the literature on the history of academic advising, advising as coaching model, organizational change theory, and organizational culture. Each of these topics are
essential to understanding how to shift the culture of academic advising on our campuses. In preparing a review of the literature, the authors examined journals, books, web-based materials, and other sources to ensure that each topic was thoroughly explored. The following is an abbreviated review of the literature pertinent to this paper.

History of Academic Advising

The concept of academic advising, while not necessarily known by this name, has been an integral part of higher education for centuries. In the early colonial colleges presidents would fulfill the role of advising students regarding their courses, extracurricular activities, and spiritual lives. In the mid to late 1800’s, the first formal advising models began to emerge on college campuses as faculty were officially assigned students to advise in regards to course sequencing. Around the turn of the twentieth century, Harvard created a special counseling group called The Board of Freshmen Advisors to advise first-year students (Cook, 2001; Gillispie, 2003).

As the number of academic majors increased and the curricula became more complex in the early 1900’s, colleges and universities found it harder and harder for faculty to “inform themselves in all matters pertaining to complicated problems of educational and vocational advisement . . .” (Doermann, 1926, p. 83). Colleges were also beginning to find it harder for the average faculty member to find enough time to effectively advise students when this task was added to a full teaching load. As a result, some colleges and universities began hiring staff members to focus on student counseling matters to relieve faculty members of this duty. However, on many campuses, faculty continued with counseling students, and in some cases, continue to do so even up until today.

Two other significant events, namely the GI Bill and the Civil Rights Bill, also played a major role in the need for more academic advising on campuses. These two important pieces of legislation opened the doors of higher education for populations of students who historically did not always have access. These first-generation, low-income, underrepresented, re-entry, disabled, and international students required more individualized attention and support, giving rise to a larger need for academic advising (Cook, 2001).

The Academic Advising profession formally took root in 1979 with the creation of the National Academic Advising Association (NACADA) and continues to evolve. Today NACADA defines Academic Advising as, “situations in which an institutional representative gives insight or direction to a college student about an academic, social, or personal matter. The nature of this direction might be to inform, suggest, counsel, discipline, coach, mentor, or even teach” (Kuhn, 2008, p. 3).

Advising as Coaching Model

There has been much written on coaching in the past decade or two. But, most researchers agree that the process of coaching essentially includes the following stages, “Relationship building, assessment, feedback, planning, implementation, and evaluation and follow-up” (Cocivera & Cronshaw, 2004; Kampa-Kokesch & Anderson, 2001; Stern, 2004). Coaching also assumes regular interaction between the advisor and the student.

While advising and coaching have many similarities, the research does make some distinctions. McClellan and Moser (2011) describe a coaching process that not only encompasses advising and course scheduling, but also includes the care of the whole student. This practice-oriented model begins with (1) preparation for the advising session, and proceeds with (2) welcoming the student, (3) building rapport, (4) exploring and clarifying the student needs, (5) advising the students, (6) wrapping up the session, and (7) following up. McClellan and Moser then go on to further explain that step five, advising the students, entails an additional five-stage ‘ADVISE’ as coaching process: (A) Active listening, (D) Determining the desire, dream, or problem, (V) eValuating what has been done so far, (I) Identifying options, (S) Selecting options, and (E) Engaging in and evaluating the plan.

At the risk of oversimplifying this concept, the reality is that moving from a course scheduling model to a holistic student success coaching model simply entails getting to know the students on a more personal level and showing them we care about their success. By simply asking about (and following up
on) personal matters, levels of social integration, financial challenges, etc. we begin to move beyond the role of an advisor to that of a coach.

The question, however, is how does one go about shifting the organization and culture of advising to become more holistic? To better understand how to do this, it is important to understand organizational change and organizational culture.

Organizational Change

Organizational change is constant and is typically driven by any combination of the following factors: crisis in the organization, strong leadership, or environmental or market forces (Chaffee, 1984; Kezar, 2001). Change, for many, can be a very emotional event and it is not uncommon for members of an organization to be resistant to change.

Organizational change theory comes out of the field of organizational development and has been influenced by other disciplines such as anthropology, social psychology, sociology, education, and philosophy. Over time, the discussions around change theory focused on organizations as living entities (Fullan, 1999; Weick & Quinn, 1999).

One of the first theories on organizational change was Kurt Lewin’s change theory (1947). Lewin’s model of change is the classic three step model of (1) unfreeze the current state; (2) move toward the new state; and (3) refreeze the new state. His research was the foundation for organizational change for a number of years and can still be seen in most change theories.

Similarly, Fullan researched organizational change for several decades and stated that substantive change is both time-consuming and energy-intensive. He wrote that “the total time frame from initiation to institutionalization is lengthy, and even moderately complex changes take from three to five years, while major restructuring efforts take five to ten years” (1991, p. 49).

For purposes of this paper, we will focus on Kotter’s (1996) organizational change theory from his book, Leading Change. We will discuss his theory in much more detail later in the paper.

Organizational Culture

For the past several decades, scholars have been researching and examining organizational culture (Schein, 2004; Kuh & Whitt, 1998; Chaffee & Tierney, 1988; Ouchi & Wilkins, 1985), doing their best to define this complex phenomenon. Although each definition differs slightly, each has a similar flavor. Pascale and Athos (1981) define culture as the glue that holds an organization together. Schein (2004) explains culture as:

a pattern of shared basic assumptions that a group learned as it solved its problems of external adaptation and integration, that has worked well enough to be considered valid and therefore to be taught to new members as the correct way to perceive, think, and feel in relation to those problems. (p. 17)

Kuh and Whitt (1998) define culture as:

persistent patterns of norms, values, practices, beliefs, and assumptions that shape the behavior of individuals and groups in a college or university and provide a frame of reference within which to interpret the meaning of events and actions on and off the campus. (p. IV)

Finally, Deal and Kennedy (1982) plainly define culture as “the way we do things around here” (p. 4).

Both Lewin (1947) and Schein (2004) have found that culture is a powerful force that influences everything within the institution. In an article that Schein (1996) wrote, he drew a powerful analogy about culture and change. He wrote that an individual would not build a bridge without understanding structural mechanics or perform a heart transplant without practice, yet many in management positions take on major change initiatives without understanding organizational change strategies and their institution’s culture. “By understanding culture, leadership can help set the stage for change, thereby improving the quality of experience and performance of the current change initiative” (King, 2001). Therefore, it is important that administrators who are trying to create change understand organizational culture. “One could argue that
the only thing of real importance that leaders do is to create and manage culture, and that the unique talent of leaders is their ability to understand and work with culture” (Schein, 2004, p. 11).

A review of the literature on organizational culture seems to highlight that many leaders do not spend enough time managing the culture of their organizations. It appears as though many leaders simply go through the motions of managing or leading their organization without ever giving much thought to the underlying cultural practices.

**Theoretical Perspective**

As the authors began the monumental task of shifting the advising culture on our campus, we leaned heavily on John Kotter’s (1996) change theory which suggests that organizational change is an eight-step process. Therefore, it is prudent for the reader to understand his theory in more detail.

John Kotter published his theory about organizational change in his book, *Leading Change* (1996). His theory suggests that if organizations want to effectively achieve change, they can follow an eight step process. Those steps are: (1) establishing a sense of urgency, (2) creating a guiding coalition, (3) developing a vision and strategy, (4) communicating the change vision, (5) empowering broad-based action, (6) generating short-term wins, (7) consolidating gains and producing more change, and (8) anchoring new approaches in the culture. Each will be discussed in more detail below.

The first step in Kotter’s organizational change theory is *establishing a sense of urgency*. It is important for organizations to examine who they are and what expectations are held by those they serve. It is also vital for organizations to understand their competition, the environment within which they operate, and how they can turn crisis into opportunities. It is so important to instill within an organization the understanding that if it stands still, they will lose their competitive advantage.

Establishing a need for change is an important step in the change process (Kotter, 1996). Cameron and Quinn (1999) call this step, “creating readiness” (p. 88). There must be a sense of urgency within the organization that change is needed. If the leader is able to create this sense of urgency, then the participants within the organization are typically able and willing to give extra effort. If urgency is not established, it becomes easy for complacency to creep in, which will ultimately kill all momentum toward change. Complacency can be caused by past success, no visible crisis, low performance standards, or insufficient feedback (Kotter, 1996). Once complacency has set in, it can be nearly impossible to drive people from their comfort zones.

Without a clearly articulated purpose for change, nothing is ever going to happen. Individuals and organizations always seem to be striving for a homeostatic state, a place where they are comfortable. Many people will even admit that they do not like change and do not do well with it. Therefore, it is vital that leaders establish a need for change and educate their followers on why the need exists.

Step two of Kotter’s organizational change theory is *creating a guiding coalition*. This is the process of organizing a group of individuals who have enough respect, power, and leadership to lead the change. These are the people that the rest of the members of the organization will follow as the change is implemented.

Coalition building is very much a part of leadership and change and can be used to garner support for a cause, gain resources, or increase power (Cameron & Quinn, 1999; Kotter, 1996). Effective leaders will be able to achieve their institutional goals if they are able to balance the demands and interests of their varied stakeholders and build strong coalitions. Successful changes happen when many people are committed to the change. Getting people to buy-in is often a challenging task as the demands of the stakeholders are often in conflict. “A good leader is one who has been able to balance the conflicting demands” of the major campus constituencies (Birnbaum, 1992, p. 57).

Unfortunately, many leaders create committees or task forces to achieve buy-in, thinking they are forming coalitions. However, these rarely work and hardly ever influence real change. Committees and task forces are often slow, political, and frustrating. Most of the work is done by a small dedicated portion of the committee and rarely are key decision makers even a part of the task force, so eventually the groups
fade away over time (Kotter, 1996). Building strong coalitions is different. It is the process of finding the right people who can help push through changes. It is a mechanism for leaders to build a stronger power base.

Step three of Kotter’s organizational change theory is developing a vision and a strategy. It is crucial that the vision be shared among all the participants, and the leader must be the one to get others to buy into the vision for change and outline a strategy for how the organization will get there. Getting people to buy into the vision for change is one of the most important strategies for creating change. “Without vision, there can be no direction, no improvement” (Fisher & Tack, 1988, p. 103).

A proper vision helps direct, align, and inspire others. It helps guide the decision making process, avoid conflict, and ultimately save time. Effective leaders are able to communicate their visions in just a few minutes and should be able to create a reaction of interest and understanding. Appropriate visions should rally people together and inspire change (Kotter, 1996).

Step four of Kotter’s organizational change theory is communicating the change vision. This step is certainly related to the step three but with the focus being on effective communication. In fact, Kotter (1996) states that a leader cannot over-communicate the vision enough and that every communication resource and method must be used. Most importantly, the behavior and action of the leader and the coalition must match the message. The members of an organization have a strong need to understand the purpose of the change before they will buy into it and support the effort. Finally, the vision must be “lived” by those at the top. If leaders do not “walk the talk” or “practice what they preach,” the chances are good that the proposed change will not go anywhere. The decisions made at the top must be consistent with the communications.

Communication is clearly an important skill in creating change. All members of the organization must be reminded consistently of the need for change as well as the vision for the new direction. If people do not see progress along the way, the motivation will diminish and ultimately the change will not occur. Therefore, it is vital that leaders point out and communicate short-term wins along the way. It is also important for leaders not to declare victory too soon (Kotter, 1996).

Step five of Kotter’s organizational change theory is empowering broad-based action. In order for change to occur within the organization, the leader must make sure to remove every possible obstacle, such as members of the organization who disagree with the proposed changes or organizational structures that might need to be modified. Once this has occurred, the leader must create an environment where participants feel comfortable implementing new ideas, taking risks, and working toward the change. In order to effectively create change within an organization, it is important to empower colleagues to move forward with the changes (Kotter, 1996). It is also important to “identify the opinion leaders. Involve those affected by the changes. Listen to their perspectives and help them feel understood, valued, and engaged” (Cameron & Quinn, 1999, p. 86).

A common mistake leaders make when trying to create change is that they fail to confront obstacles, allowing small roadblocks to get in the way of the new vision. The result of failing to overcome these obstacles is de-motivation. Members of the organization will always feel disempowered when they do not see their leaders doing everything they can to make sure that the organization is moving forward with the changes prescribed by the new vision.

Step six of Kotter’s organizational change theory is generating short-term wins. This step is vital to the change process so that participants within the organization can sense that progress is being made. It is the responsibility of the leader to make everyone aware of these short-term wins and to recognize the people who were responsible for the progress. Even though it may take several years for the change to occur, it is important to focus on the short-term successes. Cameron and Quinn (1999) suggest that leaders need to make sure they “find something easy to change, change it, and celebrate it publicly. Then, find a second thing that is easy to change, change it, and publicize it. Small successful steps create momentum in the desired direction and inhibit resistance” (p. 86).

Step seven of Kotter’s organizational change theory is consolidating gains and producing more change. This is the natural outcome of recognizing the short-term wins. As members of the organization
recognize progress with the change plan, they will continue to work toward additional change to help with the overall implementation of the transformation.

Creating change in higher education is a complex process. Change needs to be seen and understood as a process, not an event (Bennis, 1969). Unfortunately at this point no research has been able to discover shortcuts for creating and carrying out a successful change process.

Everyone involved with strategic change on a college and university campus must give a significant amount of time and effort to the process. They must do their homework and be committed to the process. They must take on the harder and more time-consuming projects in order to assure that the process will succeed. (Rowley & Sherman, 2001, p. 274)

Step eight of Kotter’s organizational change theory is anchoring new approaches in the culture. This final step in the process is vital to the lasting success of the change. If the change is not anchored into the culture, then it will just revert back to the way it was previously.

To anchor the changes into the culture, leaders need to demonstrate how the changes have improved the organization. Leaders need to make sure to point out the changes within the culture to the people within their organization. Often they are unable to make these connections and see the real changes themselves. In addition, it is important for leaders to make sure that the changes last through the next generation of leaders. Kotter (1996) warns that one bad hiring decision can reverse a whole decade of good work.

Putting Theory to Practice

The authors of this paper were hired near the same time at the same institution in 2015 and were explicitly tasked by the president to reverse a five-year slide in the first-to-second year retention rates. Upon our arrival on campus, we encountered a culture where student affairs staff (and related academic affairs colleagues) were working hard, were trying to implement High Impact Practices (Kuh, 2008) and other best practices outlined in the literature, and also felt overwhelmed and over-worked. The campus “Executive Retention Team” (ERT) had many great ideas but very little institutional support and no designated leader with available time and bandwidth to drive their ideas forward. As a result, the campus was not enjoying the results we had hoped for.

Around the same time we arrived on campus, our academic advising model moved from a decentralized, shared model to a centralized, self-contained model (Pardee, 2004). More full-time professional academic advisors were hired to relieve faculty of their advising duties and all advisors began reporting to a central Director of Academic Advising. The advising unit also moved organizationally from reporting to the Dean of the University College to reporting to the Vice President for Student Affairs, who was assigned by the President to be the chief retention officer on campus.

We knew from the literature that academic advising, if done right, would be key to our ability to begin moving the needle on retention. We spent hours meeting with our advising team, both one-on-one and in groups, to learn everything we could about our advising model on campus. In meetings with advisors we were told they were busy all day long and were meeting with lots of students. Advisors reported that they enjoyed their jobs and liked working with their students. Their current scheduling approach was to wait for students to come to them. If they weren’t meeting with students, they filled their time catching up on email, working on other projects, attending meetings, or connecting with colleagues. Their caseloads averaged around 1:700, but only students with less than 30 earned credits were required to meet with advisors prior to registering for the next semester.

When we asked advisors what a typical meeting with a student consisted of, we learned that the focus of their meetings was to help students figure out which courses they needed for the next semester or which classes they would need to take if they changed to a new major. We learned that very little time was spent getting to know students on an individual level.

As we began to capture data and assess the work of our advisors we learned that advisors were meeting with an average of 3.4 students per day. Assuming 30 minute appointments, our advisors (on
average) were spending approximately two hours a day in advising meetings with students. We also learned that students were not seeking help at the rate we had hoped. Still, things seemed to be going okay, but we also knew there had to be a way for advisors to have a greater influence in the lives of our students. It was time to shift the advising model from a transactional advising model to a transformational holistic student success coaching relationship.

So, using Kotter’s (1996) organizational change model, we set out to partner with advisors to shift the culture of advising and achieve our institutional goals. Just as Kotter warned, this shift in culture proved to be quite challenging. Below is a description of how we put Kotter’s theory to practice.

**Campus advising model**

According to Kotter, step one is to *establish a sense of urgency*. To do this, we brought all the academic advisors together for an important daylong meeting to introduce the shift in advising models from course scheduling to holistic student success coaching. This daylong meeting was used to create a sense of urgency around the presidential edict to move the needle on retention. During this meeting we shared lots of research on the power and influence that student success coaching can have on student success. In fact, we symbolically changed the title of their positions from “Academic Advisor” to “Student Success Coach” (SSC) to further cement the shift in approach. We also established a set of goals, metrics, and expectations (see Appendix A) and made it clear that SSCs were required to meet or exceed these measures. While we had no desire or hope of terminating any SSCs from their positions, they all left the meeting with a very clear understanding of what was expected of them and a strong sense of urgency that we collectively had to do our part to stop the retention slide and begin to reverse the trend.

Step two from Kotter’s model suggests that we *create a guiding coalition*. Knowing that not all SSCs would be equally excited about the proposed changes and new expectations, we identified a few SSCs who are seen as leaders and influencers among their colleagues and introduced our proposed model to this small group prior to the big kick-off meeting. This smaller coalition received the changes very well and were excited about the shift in approach. Knowing we now had allies in place, it made things much easier as we spent the day (and succeeding months) outlining the changes we wanted to see with all the SSCs. This coalition was very helpful in the kick-off meeting and especially in private conversations around the office, where they spoke in favor of the new changes and brought reason and sound judgement to the greater team.

Step three of Kotter’s theory called for *developing a vision and strategy*. The vision, was simply this: increase retention and graduation rates. The strategy of how we achieve the vision, however, was not as easy. But, after much reading, talking, and assessment, we knew we were only going to achieve our vision by implementing our strategy to move our advising model from a class scheduling approach to a more holistic, relational, and comprehensive approach. We attempted, as best we could, to include the guiding coalition described above in conversations related to building our vision.

Step four in Kotter’s theory highlights the importance of *communicating the change vision*. In addition to our daylong kick-off meeting, we regularly attended Advising Team Meetings for several months to answer questions, re-communicate the vision, and train on strategies for accomplishing the goals and expectations. We also sent many emails, met in small groups, and had countless personal meetings with SSCs to address concerns and provide support. Even now, a couple years removed from the original kick-off meeting, we are still re-communicating the vision and reinforcing the benefits of the new advising culture.

Step five in Kotter’s model calls for *empowering broad-based action*. As we implemented this stage in the change process, we did our best to remove obstacles that got in the way of culture adoption. One large obstacle came in the form of a couple SSCs who disagreed with the proposed changes. In response, we candidly addressed the group and let all the SSCs know that we didn’t expect this change would be for everyone and offered to support people in their job search if they felt like a change in jobs may be appropriate. We had a couple advisors take us up on the offer and it worked out great for both the SSC and our organization. We also tried to remove barriers in the environment by eliminating other “duties as assigned” so they could focus on the core task at hand and empowered the SSCs to tackle their
work creatively and gave them permission to take risks. It was fun to see all the unique ways the SSCs went about influencing the lives of their students.

Step six in Kotter’s theory highlights the importance of generating short-term wins in order to keep moving toward the desired organizational change. In order to keep progressing with our shift from course scheduling to holistic student success coaching, we looked for every opportunity to celebrate short-term wins. For example, we created scorecards for our SSCs where we tracked their progress on the key metrics for success. Rather than waiting for annual retention numbers to be reported, we regularly updated the SSCs on how they were tracking with their number of visits per day, hours of coaching each day, etc. We also celebrated along the way with lunches, dessert socials, and very public comments at campus meetings and emails to the President’s Cabinet. We found that recognizing short-term wins went a long way in keeping morale up and the team motivated about the direction we were heading as a campus.

Step seven is consolidating gains and producing more change. As a result of the cumulated short-term wins, we finally began to see the shift in culture. It took more than a year, but eventually, the SSCs began to see significant progress, which motivated them to keep working toward more change. The culture of the advising office continued to improve and the number of challenges began to subside. It was clear that we were finally starting to arrive at our desired vision.

Step eight of Kotter’s organizational change theory is anchoring new approaches in the culture. This is the step that we are still working on, and probably will be for many more years. The most exciting recent development was a request from the SSCs to revisit their goals, metrics, and expectations to again “raise the bar.” This time, however, they didn’t want “the administration” to dictate the details, but instead, wanted to develop goals that they feel will best help us achieve our retention goals.

Results

Now that we are almost two years removed from the shift in advising models, we are pleased with the positive results that have occurred on campus. Our SSCs are now quick to explain their new role to faculty, staff, and students, which always includes a description of their holistic approach to helping students succeed. They fully understand that they still must help students register for the right courses, but they now know a lot more about the students in their cohort and regularly reach out to them to follow-up on things they discussed in their meetings.

As a result of the shift in advising, we also saw the culture change trickle into other areas on campus, such as our multicultural center, veteran’s center, career services, and non-traditional student services. The staff members in these areas adopted the same holistic approach and have seen a significant increase in the number of students visiting their offices. Most recently, we were asked to facilitate a session at our Dean’s Council retreat where we introduced this model to the academic leaders on our campus. They left the retreat eager to go back to their colleges with an invitation to their faculty to be more holistic in their interactions with students.

Here is a short sampling of statistics that outline the impact this shift in advising culture had on the broader campus community:
- Increased the average number of students our SSCs met with on a daily basis by 166%.
- Decreased the percentage of students not showing up to their appointments from 19.77% to 14.76%.
- Increased the in-person contact our SSCs had with their students by 45.7%.
- Increased the number of all students (freshmen, sophomores, juniors, and seniors) who came back the following year by 5.03% in 2015 and 6.08% in 2016. (Prior to shifting the advising model, we saw a -2.37% decrease in 2014, a -2.88% decrease in 2013, and -4.0% decrease in 2012).
- Had a 100% increase in the number of multicultural students seeking one-on-one appointments.
- Had a 160% increase in the number of veteran students going to our Veteran’s Center to seek support services.
In the end, the metric that we were most concerned with improving was our first-to-second year retention rate. In our most recent reporting cycle, we not only stopped the attrition slide, but also reversed the trend and ended up with a 5% bump in retention rates to a historic institutional high.

Conclusion

Our campus attributes much of our recent successes to the shift in advising model on campus, and deservedly so. While it took considerable time and effort to move through Kotter’s (1996) eight step process to change the culture of the organization, in the end, the outcomes have been extremely positive. Our SSCs have adjusted their methods, are much more holistic in their approach, and now fully understand their role in helping our campus retain and graduate more students.
References


Appendix A

Student Success Coach (SSC)
Goals, Metrics, and Expectations

By College/Cohort:
1. Percentage of students who meet with SSC each semester (or ACES, as appropriate)
   a. Make meaningful connection with 100% of undergraduate students (SSCs and ACES; via phone, in person, e-mail, etc.)
2. Percentage of students retained at SUU (fall to fall)
   a. Long term overall goal: 85% retention for freshmen to sophomore
   b. Intermediate goals:
      i. 72% retention freshmen to sophomore (currently at 65%)
      ii. 57% retention sophomore to junior (currently at 50%)
3. Percentage of students graduated within 6 years
   a. Long term overall goal: 65% graduation
   b. Intermediate goal: 55% graduation (currently at 50%)
4. Percentage of students registered at deadline (Monday before Thanksgiving for spring registration and Study Day in April for fall registration)
   a. 80% of students registered by deadline

By Advisor:
1. Meet with a minimum of 7 students per day (average) over the course of the semester.
2. Spend an average of 5+ hours per day coaching students over the course of the semester.
Abstract: A scholarship program designed to enhance opportunities for retaining undergraduate nursing students from disadvantaged backgrounds and to diversify the professional nursing workforce was implemented in a college of nursing. The program, entitled Project OPEN (Opportunities for Entry into Nursing), was funded by a $2.1 million grant from the U.S. Department of Health and Human Services/Health Resources and Services Administration during 2012-2016. Project OPEN aimed to increase the recruitment, retention, and graduation rates of disadvantaged students, including underrepresented minorities. The overall goal of the program was to retain and graduate 68 nursing students; however, 78 students graduated. This goal was exceeded through implementing a multifaceted strategy, focused on evaluating and eliminating intrapersonal, interpersonal, and system-level barriers, while strengthening supports across these three areas. The Project OPEN scholarship program holds students accountable for their learning, while offering the resources needed for academic and personal success. Through this enrichment program, students were provided with academic, social, and financial support, thus facilitating retention. Students emerged from the program with decreased student loan debt, passage of the National Council Licensure Exam (NCLEX), and employment as a professional nurse.

Introduction

The importance of retaining disadvantaged students in nursing programs has been documented for at least 40 years (Aiken, 1976). While some progress has been made toward diversifying the workforce, much work remains. The United States’ changing demographic composition further underscores and necessitates the preparation of nurses from disadvantaged backgrounds. While the benefits of diversifying the nursing workforce have been touted (Institute of Medicine [IOM], 2010), there remains a dearth of nurses from disadvantaged backgrounds and baccalaureate nursing programs continue to grapple with effective strategies for retaining this student demographic. Research suggests that nursing programs experiencing some level of success with retaining and graduating students from disadvantaged backgrounds must address numerous barriers to obtaining a baccalaureate nursing degree, including social determinants (Condon et al., 2013). The purpose of this paper is to provide details regarding one such program, Project OPEN (Opportunities for Entry into Nursing), and describe strategies for retaining disadvantaged nursing students as they matriculate through a baccalaureate nursing degree program in the southeastern United States.
Background

Nursing is one of the occupations with the largest projected number of job openings due to growth and replacement needs over the next five to seven years (Bureau of Labor Statistics 2013; Bureau of Labor Statistics, 2015). More specifically, there is a need to graduate 1.1 million new registered nurses by 2022 to prevent a nursing shortage (American Nurses Association [ANA], 2014). To satisfy this demand nursing programs are charged with preparing a large cadre of nursing professionals equipped to address the nation’s public health challenges.

Literature Review

Nurses from educationally and economically disadvantaged backgrounds are critical to achieving Healthy People 2020’s goal of health equity (United States Department of Health and Human Services, 2014). Yet, a tremendous disparity in the composition of the nursing workforce remains. For example, disadvantaged groups, particularly minorities, comprise approximately 17% of the nursing population, but 37% of the United States population (Loftin, Newman, Dumas, Gilden, & Bond, 2012). Nurses from disadvantaged backgrounds uniquely understand issues germane to some of the most vulnerable populations (Zuzelo, 2005). Those nurses desire to work with such populations to provide quality healthcare and reduce health disparities (Smedley, Stith, & Nelson, 2003b). Additionally, provider concordance has been shown to improve health outcomes, particularly among minorities (Smedley et al., 2003b). Moreover, a career in nursing has the potential to socially and economically catapult disadvantaged students, their families, and communities-at-large (Zuzelo, 2005). Unfortunately, an amalgam of individual and systemic barriers exist which have inhibited diversification of the nursing workforce.

Individual and systemic barriers often impede the success of disadvantaged nursing students. Leading barriers include insufficient funding sources, inadequate academic preparation, lack of emotional/moral support, isolation and loneliness, discrimination, lack of advising and academic support, lack of mentoring, limited opportunities for professional socialization, an over-reliance on standardized testing in the admissions process, unsupportive institutional cultures, and leadership without a demonstrated commitment to diversity (Sullivan, 2004; Loftin et al., 2012; Zuzelo, 2005). These barriers exert a particularly deleterious effect on economically and/or educationally disadvantaged students who, for example, may be first-generation college students trying to navigate an increasingly complicated higher education environment. These students are more likely to not completely grasp the challenges of nursing schools (Gilchrist & Rector, 2007), have graduated from failing schools, or lack the financial supports to help with the cost of a college education.

It is well-documented that the cost of baccalaureate nursing programs is often a deterrent to the enrollment of disadvantaged students and a leading reason that students drop out of college once enrolled (Gilchrist & Rector, 2007). This barrier results in a mixture of financial insecurity and a distracting need to work to earn money to pay tuition, contribute to family income, and meet routine living expenses. Due to the rigors of nursing programs, students working full-time often experience academic difficulties in an attempt to balance the two competing roles of student and employee. Additionally, these students often borrow money through student loan programs when federal aid such as Pell Grants do not cover the total cost of attendance. The addition of student loans imposes a financial obligation that must be repaid in coming years. Therein lies a double burden for disadvantaged students...current poverty and being saddled with long-term debt. Therefore, the availability of adequate financial assistance continues to be a recommended component for initiatives aimed at recruiting and retaining these students.

In addition to the distraction of financial concerns, students from disadvantaged backgrounds tend to be less prepared academically than more advantaged peers. These students are more likely than their contemporaries to attend racially and economically segregated, poorly funded schools that provide few
advanced placement or college preparatory classes, have fewer credentialed teachers, and unfortunately possess a climate of low expectations (Smedley, Stith, & Nelson, 2003a; Zuzelo, 2005). Evidence also suggests that standardized testing is biased towards the more affluent (Zuzelo, 2005). As such, using standardized test scores and grade point averages in admissions processes often favor nursing students with means (Gilchrist & Rector, 2007). Additionally, disparities exist in the types of educational opportunities available to low-income students compared to higher income students (Zuzelo, 2005). Interpersonal factors such as peer influences, social pressures/norms, as well as family, academic, and social support have been shown to impact academic performance and life choices, thereby affecting one’s ability to compete educationally. Mentoring, or the lack thereof, has also been deemed an important determinant. Institutional commitment to diversity and campus climate have been cited a system-level factors that affect student retention and ultimately, diversity in the nursing workforce (Gilchrist & Rector, 2007). More specifically, systematic structures, such as admissions policies, are in place that oftentimes stymies admission of disadvantaged students into baccalaureate nursing programs. Without entry into these programs, it is impossible to increase representation in the nursing workforce. To enhance retention, Project OPEN actively addressed many of the aforementioned impediments using proven strategies to bolster retention (Murray, Pole, Ciarlo, & Holmes, 2016).

**Methodology**

Project OPEN is a scholarship and academic support program for students who are educationally, environmentally, and/or economically disadvantaged, and have declared nursing as their major. Health Resources and Services Administration (Health Resources and Services Administration [HRSA], 2015) defines educationally/environmentally disadvantaged as individuals who reside in an area where there are deficiencies in acquiring the intellectual foundation to be successful in health care related programs. Economically disadvantaged is defined as individuals whose financial status is below the low-income based threshold as defined by the Federal Register (HRSA, 2016). Students were selected based on financial need, cognitive, and non-cognitive indicators. In addition to financial assistance, the 2012-2016 Project OPEN Scholarship Program offered academic, social, and personal initiatives and supports to increase the probability of success for students. These initiatives are categorized as intrapersonal, interpersonal, and system-level support strategies that were implemented to promote retention. The strategies included: financial support, student submission of monthly progress reports, large group study sessions, faculty and peer mentorship, access to campus support resources, and administrative support. These mandatory strategies have been shown to foster professional and intellectual growth while enhancing progression and retention (Murray et al., 2016). Demographic data of the participants will be provided in the results section.

**Intrapersonal**

*Financial Support*

As previously discussed, financial barriers can prevent enrollment and completion in a nursing program. Researchers suggest a student’s social economic status is the most reliable predictor of higher education achievement (Zuzelo, 2005). Therefore, Project OPEN students enrolled with a full-time course load received scholarships that covered nine to 15 hours of tuition and fees. Students who were not enrolled in the nursing program were classified as pre-nursing (college freshman and sophomores) students. These students received a nine credit hour tuition and fee scholarship. Students enrolled in the nursing program (college juniors and seniors) received a 15 credit hour tuition and fee scholarship. Once students are admitted into the nursing program, they must balance academic and work-related responsibilities. To offset the cost of living and the rigor of the nursing program course load, these students were awarded more financial assistance. Students have also received funding for books, uniforms, housing, and reasonable living expenses. Scholarships were funded by the Scholarship for
Disadvantaged Students grant, which is sponsored by the Health Resources and Services Administration (HRSA).

**Progress Report**

Students were required to meet with their course professors to complete the required academic progress report four times per semester. The progress report form included the student’s attendance record, participation in class, homework completion, clinical completion (if applicable), and exam/quiz grades. After the form was completed, each student was required to schedule an appointment to meet with their faculty mentor to discuss their academic performance. The mentor reviewed the contents of the report with the student in a one-on-one meeting. Students having a test average of 75 or below in their coursework were required to collaborate with his/her faculty mentor to develop a plan for academic success. The plan consisted of identifying and scheduling a weekly meeting with an academic tutor. Students were also required to meet with their peer mentor. The academic tutor and peer mentor were often the same individual.

**Interpersonal**

*Large Group Study Sessions*

Melillo, Dowling, Abdallah, Findeisen, and Knight (2013) described group study sessions as imperative to student retention. Large and small group study sessions were implemented to increase the students’ probability for academic success. The large group sessions have included a dosage review (every meeting), pharmacology review, cardiac review, National Council Licensure Exam (NCLEX)-review, study skills, financial management, time management, making the transition from pre-nursing to nursing, anatomy and medical terminology review, and comprehensive exit exam review (e.g., Health Education Systems Incorporated [HESI]). The comprehensive exam, administered at the end of the program, was used to prepare students for their post-graduation NCLEX exam. A successful outcome from the implementation of group study sessions was the students’ scores attained on the comprehensive exam. Over the grant period, there was only one student who did not reach the benchmark score on the comprehensive exam. Before the implementation of Project OPEN, students struggled to make the benchmark score and required multiple attempts on the exam to reach the desired competency level.

Each session began with a large group meeting of 60-80 students in one location. After announcements and a question and answer session, students were broken up into small groups. In a small group format, students were divided into cohorts (e.g., pre-nursing, nursing first semester, nursing second semester, etc.). Faculty were able to address the specific needs of each cohort in the small group setting. Students applying to the nursing program attended one-hour sessions two days a week, to prepare for the entrance exam. The entrance exam prep study sessions were often held in conjunction with the large group study sessions.

**Faculty Mentorship**

Faculty mentorship is an important factor for student retention (Igbo et al., 2011). Faculty mentors met once a month to discuss student progress and to prepare for monthly large group student study sessions. During the faculty mentor meetings, trends for weak subject areas amongst students were identified. These content areas were addressed in the monthly large group student study sessions. Mentoring and positive reinforcement were strategies that faculty used for all students. Mentoring (formal and informal) was integrated in all retention components. Monthly academic advisement with a faculty mentor was a critical component for student retention. This component alerted the faculty mentor to academic performance issues and promoted early intervention to address student deficits. Faculty members remained committed to continuous involvement in all program activities, thus augmenting the faculty-student relationships.

Faculty members mentored students by providing academic and social support through one-on-one monthly or bi-monthly meetings with each student. Students also met with their instructors to discuss and complete the monthly academic progress report discussed previously.
**Peer Mentorship**

According to Zuzelo (2005), students from disadvantaged backgrounds often find it difficult to approach faculty with concerns regarding course or clinical content but will often voice academic concerns and challenges to other students before informing a faculty member. A peer mentorship program is essential in promoting early identification of challenges. Junior/senior students mentored freshman/sophomore students. Mentors and mentees were encouraged to make contact with each other at least once a month, outside of scheduled monthly meetings, throughout the semester for academic and social support. Students were encouraged to engage in an interactive relationship with their peer mentor by using various modes of communication to contact their peer. These modes consisted of, but were not limited to, social media, email, and cell phone. Peer mentors/mentees were paired using an academic self-assessment form which included questions regarding strengths, academic areas of improvement, and goals for the academic year. The peer mentorship was designed to foster trust, encouragement, and openness in a positive social environment. This relationship was appraised bimonthly using an effectiveness form. Faculty mentors used the form to evaluate the frequency of contact, ease of contact, and rapport between the mentor and mentee. Students were also encouraged to participate in the Student Nurses Association (SNA), which provided networking and socializing opportunities amongst peers.

**System Level**

*Access to Campus Support Resources*

Students were made aware of retention supports offered on campus (e.g. the University Success Center, Career Center, and Writing Center) through continuous email communications, the website, course offerings, classroom presentations, and word of mouth by faculty, staff, and designated student mentors. Project OPEN and nursing faculty also connected students with other critical resources, including the campus library, academic departments, student engagement, health services, residence life, and student counseling. Students were encouraged to utilize these resources and were referred when appropriate. To prepare for job market entry, Project OPEN students completed at least one mock interview and were required to submit their resumes for review to the university’s Career Center.

*Administrative Support*

Institutional buy-in was an essential component for program success and sustainability. Nursing administration displayed a concerted effort to ensure student success. In addition to access to campus support resources, the university provided at least twelve hours of release time per semester for Project OPEN administrators to fulfill duties associated with the scholarship program. Additionally, the university funded labor and fringe costs for Project OPEN’s administrative assistant, and covered other costs of supplies and travel to conferences for scholarship students and faculty mentors. Over the life of the grant, the university provided approximately $300,000 in financial support and $53,000/year in monetary support and an additional $20,000/year in-kind.

**Results**

This study used a mixed method approach. Quantitative and qualitative data were derived from Project OPEN applications and student records. Quantitative data were analyzed using Microsoft Excel 2016. The university’s Institutional Review Board approved this study. Results are presented below. Specific demographic indicators including race/ethnicity, gender, age, first-generation college student, and single parent status were used to identify the disadvantaged status of Project OPEN participants (Table 1). During the 2012-2016 grant period, 100% of Project OPEN scholarship recipients were economically disadvantaged based on a comparison of the applicant's Estimated Family Contribution (EFC) to the cost of attendance.
Table 1. Participant demographic data

<table>
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<tr>
<th>Race/Ethnicity</th>
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<th>%</th>
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<tbody>
<tr>
<td>Hispanic</td>
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<table>
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<td>30-39</td>
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<tr>
<td>50-59</td>
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<td>1.2</td>
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<td>54.8</td>
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<td>No</td>
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<td>Yes</td>
<td>28</td>
<td>16.7</td>
</tr>
<tr>
<td>No</td>
<td>140</td>
<td>83.3</td>
</tr>
</tbody>
</table>

| Total Participants | 168 |

Table 2 displays retention and graduation data. To determine the retention rate, the number of students who changed their major, transferred institutions, or were dismissed from the nursing program was subtracted from the total number of scholarship recipients awarded during the academic year. In Year 1, 64 students were admitted into the Project OPEN with 89% of students retained in the program. The retention rate in the following year increased to 92.6%. The increase in retention can be attributed to the ongoing evaluation of the application process, solidification of peer and faculty mentors, and further tailoring academic resources to students’ needs. Specifically, students completed a survey disclosing content areas that required remediation. Students listed dosage, cardiac, and NCLEX review as priority content areas. This information was added to the instructional plan for the monthly group meetings. In Year 3, the retention rate was maintained at 92%. During the final year of the Project OPEN award period, the retention rate increased to 98.7%. By the final year of the grant period, barriers were minimized and students, with the support of nursing faculty, were able to successfully graduate from the nursing program. The overall retention rate of 93.2% demonstrated that Project OPEN has a 6.8% attrition rate.
Table 2. *Retention and graduation data*

<table>
<thead>
<tr>
<th>Year</th>
<th>No. Students Participating in Project OPEN Each Year</th>
<th>No. of Students Dismissed Each Year</th>
<th>Retention Rate</th>
<th>No. of Project OPEN Graduates Each Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-2013</td>
<td>64</td>
<td>7</td>
<td>89.1%</td>
<td>18</td>
</tr>
<tr>
<td>2013-2014</td>
<td>68</td>
<td>5</td>
<td>92.6%</td>
<td>17</td>
</tr>
<tr>
<td>2014-2015</td>
<td>79</td>
<td>6</td>
<td>92.4%</td>
<td>22</td>
</tr>
<tr>
<td>2015-2016</td>
<td>79</td>
<td>1</td>
<td>98.7%</td>
<td>21</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>290</strong>*</td>
<td><strong>19</strong></td>
<td><strong>93.2%</strong></td>
<td><strong>78</strong></td>
</tr>
</tbody>
</table>

*Some students were awarded the scholarship multiple years because they met the yearly program requirements and therefore, were renewed the subsequent year. Overall, 290 scholarships were awarded (new and returning students). However, 168 unique students participated in Project OPEN.

Project OPEN’s original goal was to graduate 68 students from disadvantaged backgrounds. This goal was surpassed, with 78 students graduating from the nursing program by the end of the grant period (Table 2).

Qualitative data indicate that being part of Project OPEN affords students the opportunity to reduce multiple intrapersonal, interpersonal, and system level barriers. For example, reduction of the financial barrier allows them to focus their attention on academic success in the nursing program. Student experiences further substantiate that Project OPEN does more than provide financial assistance by furnishing the resources and program strategies needed to be successful. Qualitative data demonstrate retention of students is based on developing a committed connection with students and supporting them until their goals are met (Table 3).

Table 3. *Qualitative participant feedback*

<table>
<thead>
<tr>
<th>Quote</th>
</tr>
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<tbody>
<tr>
<td>&quot;Since this scholarship, my commitment and motivation for achieving academic success has changed. The reason why this has changed is because I no longer want it just myself. I have a new cultivated desire to want academic success for everyone else around me. The mentoring program has given me light into what I want to do for the rest of my life. I want to educate the future.&quot;</td>
</tr>
</tbody>
</table>
| "Before receiving this scholarship, a major goal for me was maintaining a 3.5 and above grade point average. I now see that a 4.0 is very possible."
| "Prior to this semester, the only financial option for my education was exhausting full student loan amounts along with federal grants. By receiving this scholarship, I have been able to cut my expected student loan debt by close to eight thousand dollars just this spring 2013 semester alone."
| "This semester has definitely restored my excitement in school and my thirst for knowledge. I had become so discouraged due to my lack of focus and positive results in my classes coupled with my financial situation, that I did not know if I wanted to return to school next semester."
| "Because the scholarship has provided me with everything I will need throughout the semester, I was able to quit my job."
| "It is because of you all that I am where I am today. You never give up on your students, and you're always willing to lend a helping hand. You are all rock star nurses in my opinion! So I just wanted to say thank you for all that you have done. You will seriously never know the impact you made in my life."

**Conclusion**

According to Zuzelo (2005), it is imperative for nursing programs to be responsive to the needs of disadvantaged students. Similarly, Gilchrist and Rector (2007) lament that nursing programs should maintain a commitment to supporting students throughout their higher education experience. The degree
to which universities support and commit are often reflected in retention rates. As such, Project OPEN’s data indicate that retention efforts were successful—boasting a retention rate of 93.2%. This retention rate is on the higher end of the retention range compared to similar projects, where retention/graduation rates range from >70%-98.6% (Condon et al., 2013). Additionally, research suggests that attrition rates for minority students range from 15%-85% (Gilchrist & Rector, 2007; Condon et al., 2013). Data were not analyzed according to race/ethnicity; however, future publications should compare retention rates of minority students versus non-minority students.

Project OPEN students were all economically disadvantaged. Most were first-generation college students. Approximately 35% were over the age of 35. These students are among those considered at high-risk for not completing nursing programs and historically among those considered at higher risk for not completing college (Murtaugh, Burns, & Schuster, 1999). There also may have been other non-cognitive factors contributing to student success. For example, Zuzelo (2005) discusses characteristics that disadvantaged students possess that advantaged students may not possess. Many disadvantaged students have overcome challenges (that others may consider insurmountable) to enroll in a nursing program. The intrapersonal, interpersonal, and system-level supports provided via Project OPEN propelled these students toward success. They are tenacious, survivors, persistent, able to progress with oftentimes nil support, and perhaps better problem solvers. Additionally, these students often have “street smarts” that assist them in navigating an otherwise intimidating environment. While multiple studies highlight deficits of students from disadvantaged backgrounds, more studies should seek to elucidate the characteristics of this group that help them persist and graduate (Smedley et al., 2003b; Gilchrist & Rector, 2007; Condon et al., 2013; Zuzelo, 2005). The success of this program was acknowledged when in 2016 HRSA awarded a new grant which provided the means to continue the OPEN program through 2020. Similar strategies can successfully be implemented at other institutions if administrative support, financial resources, and personnel are available to assist with planning, implementing, and evaluating a retention based program.
References


The Affordability Task Force: Making Campus Change Happen Through Data and Advocacy

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Abstract: Retention and completion are significantly impacted by affordability; institutions can bolster affordability through their practices. In light of national data and best practices research, the presenters will describe the work of Rowan University's Affordability Task Force, comprised of faculty, staff, and students, who have engaged in campus study and the development and promotion of affordability-related programs and services. Now in its second year, the Task Force has engaged in multiple studies of affordability-related programs, services, and student experiences on campus; launched a campus food pantry and resource center; implemented programming for National Financial Literacy Month and other financial literacy educational programs; surveyed faculty regarding the role of affordability in selection of course materials and developed informational guides based on campus best practices; held professional development sessions for faculty and staff and open forums for students; and used numerous strategies to raise awareness among students and employees regarding available resources. This session will describe the Task Force's collection and use of data to create specific deliverables and effective advocacy to impact campus affordability. Discussion will address strategies at participants' institutions to improve their campus mindset and programs that boost affordability.

Introduction

Creating access to a college education for more of the population is of its highest importance yet. As argued by Complete College America (2014) and the Lumina Foundation (2017), college creates life-changing opportunities for individuals but is also essential for boosting economic health in our communities and nation. However, the ability for many individuals to afford a college education has been a longstanding problem with no positive end in sight. In fact, with possible changes to Pell funding and other federal and state changes in financial aid policy and practice (Fain, 2017; Mitchell & Leachman, 2015; Pew Charitable Trusts, 2015), affordability may become even more of a problem in the future. Higher education itself is threatened by the affordability problem; as both public and private institutions suffer from declining enrollments, their affordability is becoming even more of an impediment to recruiting and retaining students (Bozick & DeLuca, 2011; “The Future of Universities,” 2014). Thus, it is imperative that individual institutions identify and implement strategies to boost affordability for students, to the benefit of students, the institution, and the communities it serves.

Creative solutions to address affordability are seen emerging from some institutions. Certainly, controlling the direct costs of tuition, fees, housing, and meals are essential components of promoting affordability, and focus on these is a key responsibility of senior leadership at an institution. At Rowan University, the President has committed to never raising undergraduate tuition and fees above the rate of inflation (Serpico, 2016). This has helped to control our institution’s costs of these items. However, best
practices from some institutions have shown that efforts by faculty, staff, administrators, and students can also be impactful on other types of college-related costs.

College costs go far beyond what is covered in the direct costs of an institution. As outlined by the Lumina Foundation in their important work, “Beyond Financial Aid: How Colleges can Strengthen the Financial Stability of Low-income Students and Improve Student Outcomes,” affordability covers every cost a college student incurs by virtue of being a college student – including food, course materials, health care, transportation, child care, clothing, etc. (Chaplot, Cooper, Johnstone, & Karandjeff, 2015). The work of an institution to bolster affordability can and should focus on more than direct costs. At Rowan University, we have completed 1.5 years of work with the Affordability Task Force, a cross-functional team of about 20 faculty, staff, students, and administrators who have conducted systematic study of affordability issues and experiences on our campus, and have active working subcommittees who continue to develop concrete deliverables to raise awareness and address affordability concerns. This paper outlines the process used by the Affordability Task Force, with focus on how we have used data to advocate for change on campus and on communication strategies to promote awareness of issues and available resources, as well as the creation of new resources. Through our work, the members of the Task Force hope to help Rowan students to stay enrolled and complete their degrees through bolstering affordability.

Below, we describe the Affordability Task Force, its data collection processes, domains of focus, and strategies to implement campus change in each domain. The Affordability Task Force is comprised of undergraduate and graduate students, faculty from multiple disciplines, and staff and administrators from numerous student-serving offices including academic support, the library, institutional research, residential learning, diversity access programs, adult learners, financial aid, bursar, and veterans affairs. After an initial series of weekly or biweekly large-team meetings which launched the work of the group, the Task Force subdivided into several very active subcommittees which establish their own meeting schedule, with monthly large-group meetings with reports from each subcommittee of activity and deliverables and for discussion of new directions for the group’s work. The statement of charge and scope is “The Affordability Task Force is a working group of Rowan students, faculty, staff, and administrators who will conduct an institutional self-assessment of affordability-related services, programs, and policies; make recommendations regarding augmenting support for affordability; and create and implement a communications plan to promote student awareness of such services, programs, and policies.”

Since its launch in the spring 2016 semester, the Task Force has become a highly visible group on campus, with frequent references to its work in numerous public forums including Board of Trustees meetings, faculty and staff professional development sessions run by other groups on campus, Student Government Association (SGA) meetings, and more. Because of its diverse membership and communication strategies, it has received a wide audience on our campus; because of its use of quality data to explain and address myriad affordability-related challenges, it has garnered respect as an important campus change agent. In this article, we describe the work of the Affordability Task Force in three specific domains (course materials affordability; food insecurity and other critical services; and communication strategies to promote affordability-mindedness and financial literacy) that strive to enact campus cultural and organizational change using data in methods of advocacy. Note that some preliminary work of the Task Force in its first semester was also reviewed by McElwee and Hendricks (2016).

Institutional Context

Rowan University is a four-year public institution, located in southern New Jersey in the greater Philadelphia region. Of approximately 17,400 students, 14,300 are undergraduates, 89% of whom are full-time students. In demographic terms, in fall 2016, 46% were women, 67% were White, 11% were Black/African-American, 10% were Hispanic/Latino, 5% were Asian/Asian-American, and 1% were International. Thirty-three percent of undergraduates in fall 2016 were Pell grant-eligible. The most recent first-to-second year retention rate for first-time, full-time undergraduates was 85% (cohort of 2015) and
4-year graduation rate was 52% (cohort of 2012), and six-year rate was 71% (cohort of 2010). Thirty percent of undergraduates live in University or University-affiliated housing.

Campus Change Through Using Data-Rich Advocacy

Launch of the Affordability Task Force: Initial Data Sources

During the Task Force’s initial semester (spring 2016), we completed the Lumina Foundation’s Beyond Financial Aid Self-Assessment (Chaplot et al., 2015) to establish an initial benchmark of our institution’s affordability-related services, programs, and knowledgebase. This Self-Assessment enables institutions to identify and rate the quality or scope of six strategies for promoting affordability across 78 questions. The strategies include a wide range of institutional practices, programs, and services that can affect affordability, including academic policy and process, working with community partners, making services accessible and visible, and availability and use of multiple forms of data. The gaps identified through completion of the Self-Assessment served as a major catalyst for our work toward our goals of raising campus awareness and driving down the cost of college.

The Task Force then formed subcommittees to explore various affordability domains in greater depth and to ensure concrete deliverables. Leveraging the expertise of each committee member, the Task Force worked initially in four subcommittees: Academic (policies, course materials costs), Financial Aid and Bursar Services, Critical Services (e.g., food, housing, transportation, health care, childcare), and Data. The Data Subcommittee led the Beyond Financial Aid self-assessment process (Chaplot et al., 2015) within the Task Force and then was tasked with developing and implementing a survey to gain a better understanding of the affordability issues affecting students. Questions were designed to garner foundational data about the financial well-being of students at Rowan. The survey was intentionally broad and addressed issues related to housing, food insecurity, course materials, and employment status, among other issues. The development of the survey instrument used several food security questions from the U.S. Department of Agriculture (2011) and housing questions as listed in Goldrick-Rab, Broton, and Eisenberg (2015). Prior to issuing the survey, we piloted it with several students and committee members to ensure the research instrument was clear and concise (Teddlie & Tashakkori, 2009).

Late in the spring 2016 semester, the Data Subcommittee administered the 18 question survey (see Appendix A) via an email invitation containing the survey link to half of our undergraduate population (6,167 students). Determined randomly, half of the undergraduate population received this Affordability survey whereas the other half received an unrelated survey regarding advising. Of those receiving the survey, 498 responded, representing an 8% participation rate. This low participation rate demands caution in generalizing the survey’s findings to our larger student population; however, the data do reflect the experiences of this subset of students, and we framed it as such in our campus communications regarding the findings.

An important finding was that among this sample, students indicated significant concern about having the financial resources to complete their bachelor’s degree. The overwhelming majority (82%) indicated they were extremely concerned, very concerned, or somewhat concerned. Only 10% of respondents indicated that they were not at all concerned about having the financial resources to persist. These data paint a grim picture of the financial status of so many students and are particularly alarming because financial stressors can be devastating for students, negatively affecting their academic progress (Wisconsin HOPE Lab, 2016).

Academic progress can also be impacted by level of employment; findings from other studies demonstrate that while employment during college has many benefits for students (financial and otherwise), working excessive hours can also increase the risk of negative academic outcomes (Carnevale, Smith, Melton, & Price, 2015). On the survey, we asked students if they were currently employed; 64% indicated they were. Although we had anticipated that many students would indicate current employment, we were surprised to find that over 40% of those currently employed stated they were working more than 21 hours a week. In an open-ended question, students cited a lack of evening...
classes, too few sections of required classes, lack of on-line classes, and commuter issues as the most common issues related to balancing employment and academic demands.

An additional set of survey questions addressed students’ experiences with academically-related affordability issues. In response to a question regarding whether they purchased all required course materials, 63% indicated that they had whereas 37% indicated they had not. The most common reason selected for not purchasing such materials was cost (85%), followed by the ability to borrow needed materials from other sources (43%) and the lack of a need for the textbook to be successful (39%). Other questions assessed students’ perceptions of their ability to prioritize academic concerns and responsibilities given the constraints of their lives. We asked students whether and how often they had missed class at least once during the spring 2016 semester due to a variety of reasons. Results indicated that some students missed class for childcare/family issues (31%), work conflicts (24%), and transportation issues (22%). Access to resources and services for students’ critical needs—such as medical care, food, and housing—has also been discovered through research to be a significant affordability concern for college students (Goldrick-Rab, Broton, & Gates, 2013).

Several survey questions addressed critical services issues, specifically access to food, housing, and medical care. We asked students whether and how frequently they did not seek medical care because of financial issues; 24% indicated 1-3 times, 5% indicated 4-6 times, and 2% indicated 7 or more times. We also asked students whether and how frequently they cut the size of meals and/or skipped meals because of financial issues; 22% indicated 1-3 times, 10% indicated 4-6 times, 6% indicated 7-10 times, and an extremely alarming 13% indicated more than 10 times. These findings regarding the severity and scope of food insecurity on our campus were distressing and served as a major catalyst for the work of the Critical Services Subcommittee, as is discussed in depth below. In our results, housing insecurity was a concern for fewer students than was food insecurity; results indicated that 79% of respondents indicated that they had not experienced difficulty in paying rent or utilities, frequent moves (more than twice), or having to move in with others due to financial problems. However, conversely, 21% of students did indicate that they experienced one or more of those housing insecurity indicators, most commonly difficulty paying rent (16%) or utilities (7%). Although fewer students in our sample were impacted by housing insecurity, having services in place to address this need when it does arise was clearly indicated by our results.

The survey concluded with an open-ended question inviting students to share anything regarding affordability that was not discussed elsewhere in the survey. The common themes from the students’ responses included concerns surrounding the overall expenses associated with the cost of tuition, campus food, and campus housing. Students also cited the need for additional scholarships and assistance with the cost of textbooks. Finally, students were asked to provide their contact information if they would be interested in participating in an interview or focus group to provide additional information about their experiences. There were 93 students that indicated interest; these students were contacted during the spring 2017 semester and as of this writing, several focus groups have been conducted and the data are currently being analyzed.

Thus, the work of the Data Subcommittee provided significant information about student experiences with numerous affordability-related issues on our campus, further complementing the analysis we had conducted with Lumina’s Beyond Financial Aid Institutional Self-Assessment (Chaplot et al., 2015). Subsequently, student concerns regarding food insecurity and textbook costs received particular attention from our Task Force and from the campus community at large, and are discussed in more depth below. Overall, the strong foundation in two forms of data, the Beyond Financial Aid Institutional Self-Assessment and the student survey, enabled the Affordability Task Force to begin campus advocacy activities even during our first semester of work. Because of the new information these analyses uncovered and because this approach demonstrated to multiple campus constituencies that the Task Force was action-oriented and focused on empirically-supported initiatives, our work was perceived with significant credibility from early in the process. This was an important launch strategy for ultimate campus change. To build on this initial work by the Data Subcommittee, three additional subcommittees focused on three important domains: Academic Issues, Critical Services including addressing food
insecurity, and Communication Strategies to raise campus awareness of affordability-related student needs as well as available programs and services

**Academic Subcommittee**

Academics are one domain in which college affordability may be less visible. Numerous academically-related issues affect affordability, including academic success in a right-fit major so that students make academic progress and remain eligible for financial aid or scholarships; academic policies that support on-time completion including transfer credit policies and GPA forgiveness policies; developmental education reform; and tuition policies that support enrollment in 15 rather than 12 credits per term to work toward on-time completion (Complete College America, 2014). The most visible area of affordability within the academic realm—to many constituencies including students, families, college employees, and the public—is the cost of textbooks and other course materials. The rising cost of textbooks is a contentious issue on college campuses; it is difficult to have a conversation about college affordability without the issue of course materials and textbooks arising. According to a recent report from College Board (2017), the average college student is spending roughly $1,200 a year on books and supplies. Although this is only a fraction of the overall cost of college, this issue is extremely important from a student success standpoint as students unable to afford their course materials are at a major disadvantage to excel in the classroom.

The Academic Subcommittee of the Affordability Task Force was tasked, in part, with exploring affordability issues related to course materials. The Subcommittee used the survey data from the spring 2016 semester as a springboard to explore this topic further. That survey revealed that 37% of students did not purchase all of their required textbooks. Many of the participants cited costs and being able to find materials in alternative ways, including borrowing from a friend, renting, and/or finding the materials online as the reasons for not purchasing course materials. The Subcommittee used these results to develop a survey for faculty about how course materials were selected and used, toward the goal of then establishing informational guides and support for selection of more affordable course materials to share in the future.

In spring 2017, the Academic Subcommittee issued a course materials survey (Appendix B) that consisted of 23 questions to every faculty member teaching a course during that semester. Many of the survey questions were derived from the Babson Survey Research Group’s (2016) survey regarding college textbooks. The list of faculty invited to complete the survey included full-time faculty, part-time faculty, adjuncts, and teaching professional staff, totaling 1,411 instructors; 284 of the instructors responded, representing a 20% participation rate. This Subcommittee includes several full-time faculty, so we were able to pilot the survey (Teddlie & Tashakkori, 2009) before launching.

One of the first questions asked faculty about the various factors involved when selecting course materials. Readability (97%), relevance or currency of information (97%), and cost to the student (82%) were the three highest cited as very important or important to faculty when selecting materials. A follow-up question asked faculty how cost was considered. Some responses included: providing multiple formats for students when purchasing (e-books, rentals, and older editions); reserving copies at the library; and the conscious decision to select texts that were less expensive for students. More than 27% of participants indicated using open education resources (OER) or other online resources in their courses (many of which were reported to be free for students).

We inquired about whether initiatives were taking place at the departmental level to reduce the cost of course materials. More than 21% reported yes, 21% reported no, and nearly 58% were not sure. Those that responded yes were asked to elaborate; many explained how they and members of their department are continuing to explore more affordable options for students. Toward the end of the survey, we asked faculty to share anything that was not discussed elsewhere in the survey. Seventy-two respondents addressed a wide variety of issues, many of whom exhibited enthusiasm about this topic. One faculty member wrote, “I often purposely assign slightly older versions of texts so that all the students will be able to buy used copies. I also email my students about a month before the semester begins to give them the book list so that they can hunt down cheaper, used
copies on their own if they want to.” Another faculty member wrote, “I am very concerned about the value of the assigned materials. Over my time at Rowan, I have freshly written new materials to replace expensive books, or those which were not fully utilized by students. We also coordinate our curriculum to utilize books across multiple successive courses.” These quotes highlight the enthusiasm of faculty members to drive down the cost of course materials and explore alternative means of doing so.

As of this writing, the Academic Subcommittee is further exploring the results from the survey and strategizing regarding partnership with departments and faculty members to determine what types of alternative textbook projects may be worth pursuing. Some options under consideration include developing informational resources for faculty who are interested in learning more about reducing the costs of course materials, bolstering library resources to support courses, and implementing a faculty development program with a stipend to enable faculty to have time to reformulate courses with affordable resources (Davis, Cochran, Fagerheim, & Thoms, 2016; Okamoto, 2013; Straumshein, 2015).

Critical Services Subcommittee

In recent years there has been a rapidly growing awareness in higher education that many college students do not have sufficient access to basic services including ample food availability, stable housing, quality medical care, reliable transportation, and appropriate childcare services (Goldrick-Rab et al., 2013). The Critical Services Subcommittee of the Affordability Task Force began addressing these issues with a special focus on food insecurity, given the results of the student survey (described above) documenting significant food insecurity on our campus. As the cost of education continues to rise, federal and state financial aid remains flat or decreases, and a more diverse representation of non-traditional, low-income, and/or underrepresented students enroll into college, food insecurity is more prevalent and has become an increasing concern for college officials (Dubick, Mathews, & Cady, 2016).

The lack of access to a sufficient amount of affordable, nutritious food has a significant negative impact on college student success as it related to their overall wellness and their academic performance and behavior, resulting in decreased retention and graduation rates (Cady, 2014; Goldrick-Rab, 2016). Behaviors such as absenteeism, increased depression, anxiety, and suicidal ideation are linked to food insecurity among children at the K-12 level, and are thought to be connected to food insecurity among college students (Cady, 2014). In addition, students impacted with food insecurity are often faced with housing insecurity and other financial hardships (Dubick et al., 2016). Over the past few years, there has been a surge in attention from colleges and universities to provide food, housing, and case management resources to students. Studies also show that colleges can improve their student outcomes by providing a comprehensive suite of support services (Daugherty, Johnston, & Tsai, 2016; Jordan, 2015; Lobosco, 2016).

In the spring 2016 semester, the Critical Services Subcommittee was charged with evaluating challenges faced by college students in relation to food insecurity, housing insecurity, and childcare needs. As a result of the student survey responses, it was clear that of the three areas, food insecurity was having the most negative impact on students, and thus this domain was chosen for the initial work of the Subcommittee.

The Critical Services Subcommittee, along with the leadership of the Rowan University Student Government Association (SGA), began making Rowan University students, staff, faculty, and the Board of Trustees aware of the survey results as well as state and national statistics on hunger on college campuses. We also addressed possible solutions to address food insecurity at Rowan University. The presentations were designed to create awareness as well as to garner support for the implementation of a food pantry and resource center on campus. The Student Government Association rallied the student base and received over 1,000 signatures in support of starting a food pantry on campus, serving as a strong impetus for the Critical Services Subcommittee to seek resources to develop a food pantry.

The Subcommittee learned that there were five college campus food pantries in New Jersey and joined a newly established New Jersey chapter of the College and University Food Pantry Alliance organization. The committee members began to research best practices for developing a campus food
pantry by reading articles, gathering pantry operational materials from established college pantries, speaking with pantry coordinators, and visiting local food pantries.

The SGA facilitated the launch of the food pantry by allocating $30,000 of their budget to financially support the startup cost of the pantry. The SGA also organized a “Stuff the Bus” day for students, faculty, and staff to donate items for the pantry with the goal of filling a Rowan University shuttle. We succeeded in receiving over 3300 donated items. The SGA has since adopted the Stuff the Bus campaign as one of their staple annual programs. Additional large contributions of clothing, food, and supplies were donated by a local church, a campus vending company, and the University food service provider, Gourmet Dining.

In February of 2017, representatives from Rowan University, among several other New Jersey colleges and university officials, testified at the Senate Health and Higher Education Committee hearing on the impact food insecurity is having on college students and how the senate can support our efforts in combating this issue. The College and University Food Pantry Alliance is continuing to discuss additional ways we can inform our state legislators of the impact of food insecurity on college campuses and possible solutions.

On March 23, 2017, the Rowan University food pantry and resource center opened. This center is named The SHOP, an acronym for “Students Helping Other Profs” (“Profs” is Rowan’s nickname) and is run by Rowan’s Associate Vice President for Diversity and Organizational Effectiveness (and an author here). The SHOP provides a broad spectrum of free and confidential services to any matriculated Rowan University student as needed. The resources and programs are intended to assist with basic life needs, which include food, connections to community resources, and housing services. To ensure that students, faculty, and staff are aware of the services of The SHOP, social media accounts were developed, campus wide emails listing the hours and services continue to be sent, flyers and brochures are posted, and signage is displayed around campus. Within the first 40 days of the opening of The SHOP, 67 unique students visited the center, some on multiple occasions. This usage rate demonstrated to us that there is a real interest and need for the SHOP on campus, and we expect usage to grow significantly in the future as we continue to promote this new campus resource.

Communication Planning Subcommittee

The Rowan University Affordability Task Force recognized an opportunity for promoting affordability-minded culture and bolstering use of relevant resources by improving communication and financial literacy information to students, faculty, and staff. Although there are quite extensive support services, programs, and resources available to students at Rowan University, it was evident that there was not a centralized communication strategy to ensure information was widely known, accessible, and available to the campus community. To address this gap, the Communication Planning Subcommittee emerged from the Affordability Task Force charged with exploring strategies to improve financial literacy education among students and staff, and to improve overall communication of resources available to assist students.

Over the past year, the Communication Planning Subcommittee met bi-weekly and implemented various strategies which have had a significant impact on increasing student and faculty awareness of financial resources available to students. In addition, the efforts by the Communication Planning Subcommittee have aided the Affordability Task Force in gaining further insight into understanding the challenges faced by students and resources needed by faculty and staff to further address affordability barriers at Rowan University through the efforts listed below.

In the summer of 2016, the Communication Planning Subcommittee developed a website to create a digital repository of affordability contacts and information for students, parents, and Rowan faculty and staff. The Rowan Resources Website, (http://www.rowan.edu/home/university-resources/contact-us), has webpages entitled Academic & Career, Financial, Food & Housing, Health & Wellness, Legal Tax & Notary, Library, Computer & Printing, State & Community, Transportation, and Additional Rowan Resources. As of May 2017, the site has had over 10,000 total unique visits since being launched.
The Communication Planning Subcommittee developed a tool to aid faculty in better understanding the affordability issues faced by students, the *Faculty Affordability Guide*, an infographic of students in a typical class and how financial barriers impact retention and graduation. In addition, the committee developed a list of 10 actions faculty could implement to help students impacted by affordability issues. This information was distributed to all new tenure-track faculty and all new adjunct faculty at new faculty orientations and to some returning faculty, especially those who participate in academic transition and support programming such as Rowan’s first-year seminar courses.

In an effort to broaden the discussion of affordability issues among students and employees and to share resources, the Communication Planning Subcommittee conducted student and faculty open forum sessions. The *Student Open Forum* was an effort co-sponsored by Public Relations Student Society of America (PRSSA) and the SGA in November of 2016 to engage students in discussing affordability issues. Students were given an opportunity to share how they use their resources, to identify additional resources and support that would help them, and to share concerns they had. Packets of information on affordability resources, including information on scholarships, FAFSA, and housing were distributed. The forum generated 80 unique responses from 18 attending students which provided a guide for next steps to address by the Communication Planning Subcommittee.

Two *Faculty and Staff Open Forums* were conducted as an effort to engage faculty and staff on affordability issues. The committee gathered 114 unique responses from 24 attending faculty and staff attendees in relation to inquiries regarding strategies faculty and staff were using to recommend resources to students, and to identify additional information that would help them be a better resource for students. During the forum, packets of information were distributed for faculty members to share with students in need.

In April of 2017, National Financial Literacy Month, the Communication Planning Subcommittee produced several successful events. This began with a *social media campaign*, posting four financial literacy facts each day of the week through the university campus wide email system and one financial fact a day on Twitter for the entire month. The Subcommittee also held a *Money Matters* open discussion, attended by 31 students and 2 faculty and staff who shared their experiences with money, offered financial advice, and received packets of financial literacy information. The Subcommittee also co-sponsored a *Financial Resource Fair* with the PRSSA and a second student group, the Communication Studies Association, where students were able to visit tables hosted by representatives from the financial aid, bursar, advising, testing services, study abroad, food pantry, library services, alumni association, and career advancement offices. Each office provided information on resources and financial assistance and support, as well as raffle tickets for a chance to win one of three baskets and the opportunity to take pictures in a photo booth. The event was promoted through cafeteria inserts, posters, the Rowan campus wide email system, direct emails to faculty and staff, and through the co-curricular involvement system. Seventy-two students attended and were able to obtain information geared towards financial resources and financial literacy.

In an effort to document, outline, and further communicate the Affordability Task Force’s strategies to address financial barriers and current resources for students, the Communication Planning Subcommittee developed an informational presentation, *Affording the College Life*, which is designed to be shared throughout the campus community. In the future, the Task Force plans to continue to develop additional financial literacy programming for faculty and staff. Thus, the Communications Planning Subcommittee implemented numerous strategies to promote affordability-mindedness and financial literacy on campus, to both students and employees.

**Recommendations for Other Institutions & Conclusions**

The work of the Affordability Task Force at Rowan University illustrates several lessons on facilitating campus change. First, it supports the Lumina Foundation’s position that institutions can devise strategies and resources that bolster affordability for students beyond traditional financial aid and direct institutional costs (Chaplot et al., 2015). In this paper, we have highlighted the Task Force’s focus...
on textbook affordability, strategies to meet students’ critical needs especially in the form of a campus food pantry and resource center, and broad-based and diverse communication strategies to raise campus awareness of the issues as well as available resources for bolstering affordability. A second lesson is seen in the fact that for each of these three domains, the foundation of our work stemmed from data we collected through the Lumina Foundations’ Beyond Financial Aid Institutional Self-Assessment, the spring 2016 survey to students, the spring 2017 survey to teaching faculty regarding course materials affordability, and feedback from employees and students who attended events. To enact campus change and to create specific deliverables from the multiple subcommittees, having and showcasing our campus’ data were instrumental to the successful initiatives. To share research on other campuses regarding food insecurity may raise general awareness on your campus; to show survey results from your own students indicating that many are going hungry on a regular basis is much more likely to lead to a call to action and allocation of resources. To share an article on the high cost of textbooks may pique some interest; to share strategies being used on your campus by faculty colleagues may lead to more actual behavior change when faculty choose course materials.

The work of the Affordability Task Force at Rowan also highlights a third lesson, the fact that grass-roots efforts can make a difference. Although support (moral, financial, logistical) from senior leadership is of great value, work can begin with a small group of concerned faculty, staff, students, and administrators who decide to tackle affordability together. Serving as a champion on your campus for these issues can start with discussions about what others see as affordability-related impediments to your students’ academic progress and retention. Introduce resources such as the Beyond Financial Aid Lumina guide (Chaplot et al., 2015). Lead discussions among small groups of students to ask about their experiences with affording college and get their suggestions for making available resources more accessible and visible as well as ideas for additional resources or services. More formal data collection can then be launched to address issues of concern at your particular institution.

The success of Rowan’s Affordability Task Force is certainly bolstered by the varied composition of membership; faculty, staff, students, and administrators have different viewpoints and information on relevant issues, and have stronger ties to myriad constituencies on your campus for bolstering culture change through dissemination of information in informal as well as formal channels. Buy-in from various constituencies will be increased when they feel that they are represented in the group’s work. In some examples from our Task Force, two of the undergraduate student members were leaders in the SGA, including the President of such, and the other was also the student member of the Board of Trustees. These students were instrumental to rallying the student body as well as the Board to support the creation of the food pantry and resource center. Faculty members on the Task Force, one of whom is also the Director of the Faculty Center and one of whom is a Public Relations faculty member (and an author here), were able to use their specific skills and ties to create stronger outreach to other faculty, particularly for infusing affordability tips into courses and for the course materials survey and issues.

In sum, institutional strategies to bolster an affordability-minded culture and to provide access to relevant information and services can be transformational for the student experience. Effective change agency will result from the use of quality data in advocacy communications for institutions to meet students’ needs, to the benefit of the institution, the students, their families, and their communities.

Acknowledgements

The authors extend appreciation to all of the faculty, staff, students, and administrators who serve on the Affordability Task Force; the many additional members of the Rowan community who have supported the Task Force’s initiatives or otherwise worked to bolster affordability on campus, including senior leadership without whom larger deliverables such as the food pantry would not have been possible. A foundational influence on this work stems from the Institute for Higher Education Policy (IHEP) Learning Lab on Postsecondary Student Success, sponsored by the Lumina Foundation (Boston, June 2015), for the opportunity to learn about the Beyond Financial Aid resource.
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Appendix A

Affordability - Student Survey

At Rowan, we care about keeping your education as affordable as possible. This survey gives you the opportunity to tell us about your experiences with a number of different issues related to affordability. We will use the information you provide to make changes in how Rowan provides services and informs students about them. The information you provide is confidential and any reporting will not be associated with your name. Thank you for taking the time to complete this very important survey. It can make a real difference for you and other Rowan students. While you are not required to complete the survey, we hope you will choose to because your voice matters. From The Affordability Task Force, comprised of Rowan faculty, staff, administrators, and students.

Q1 - Are you concerned about whether you have the financial resources to complete your bachelor's degree (extremely, very somewhat, a little, not at all concerned)
Q2 - Have any of these issues been barriers to your success at Rowan? Please check all that apply. (Personal finances; Family obligations; Work obligations; Flexibility of course offerings (evening courses, on-line courses, weekend courses); Financial aid problems; Availability of campus offices; Access to essential technology)
Q3 - Are you currently employed? (Yes/No)
Q4 - If so, how many hours are you working each week during the Spring 2016 semester? (1-10 hours, 11-20 hours, 21-30 hours, 31-40 hours, more than 40 hours)
Q5 - Did you encounter difficulty when scheduling your Spring 2016 courses because of your work schedule? (Yes/No)
Q6 - Please explain how you encountered difficulty in scheduling your Spring 2016 courses because of your work schedule. (Open-ended)
Q7 - Did you purchase all of your required textbooks and course materials for the Spring 2016 semester? (Yes/No)
Q8 - If you did not purchase your required textbooks and/or course materials, why? Please check all that apply. (Cost/expenses, I didn't need the textbook(s) to be successful, I was able to access the required textbook(s) from the library, I borrowed the textbook(s) or found the information elsewhere, Other - Please describe)
Q9 - Do you have a Rowan University meal plan this semester (Spring 2016)? (Yes/No)
Q10 - If yes, what type of meal plan do you have? (selection of options)
Q11 - In the Spring 2016 semester, how frequently did you miss class due to: Childcare/family Issues, Work conflicts, Transportation Issues (not applicable, 1-3 times, 4-6 times, 7-10 times, More than 10 times)
Q12 - In the Spring 2016 semester, how frequently did you: NOT seek medical care because of financial issues, Cut the size of meals and/or skip meals because of financial issues, NOT eat because there wasn't enough money for food. (0 times, 1-3 times, 4-6 times, 7-10 times, More than 10 times)
Q13 - Where do you live during the Spring 2016 semester? (on campus, off-campus with parents/guardians, off campus not with parents/guardians)
Q14 - How important was affordability in your housing decision for the Spring 2016 semester? (Most, Very, Important, Somewhat, Not at all important)
Q15 - In the Spring 2016 semester, did any of these happen to you? Please check all that apply. (Difficulty paying rent, Didn’t pay full amount of rent, Didn't pay full amount of utilities, Moved more than 2 times, Moved in with other people due to financial problems, None of the above)
Q16 - In the Spring 2016 semester, did any of these happen to you? Please check all that apply. (Thrown out or evicted from home, Stayed in shelter, Stayed in abandoned building, Didn't know where you'd sleep at night, Didn't have a home, None of the above)
Q17 - Is there anything related to affordability that you would like to share that was not discussed in this survey? (Open ended)

Q18 - Would you be willing to participate in an interview or focus group to provide us with more information about your experiences? (Yes/No; if Yes, provided contact information)
Appendix B

Affordability Task Force - Survey for Faculty Regarding Course Materials

The Rowan University Affordability Task Force was created to raise awareness of financial issues our students face and develop ways to make college more affordable. Our committee is a cross-functional team of faculty, staff, students, and administrators who are working to address affordability issues at Rowan. One of the many topics discussed at our committee meetings over the past few months is the rising cost of course materials and we are emailing to ask for your help! We are sending this survey to all faculty/staff that taught a course in the spring 2017 semester at Rowan in an effort to better understand how course materials are selected.

Q1 - Please indicate your faculty position/status in spring 2017 as it relates to you teaching a course at Rowan: (Full-Time Faculty (1), 3/4 Time Faculty (2), Adjunct (3), Professional Staff (4), Other (5) __)
Q2 - How were the course materials for your program/department selected for the spring 2017 semester? (I selected or helped select course materials for spring 2017 (1), The courses I am involved with do not require course materials (2), I was not at all part of the course materials selection process for spring 2017 (3)
Q3 - You indicated that you selected or helped select course materials for spring 2017. Did you select the materials for all or some of the courses you are involved with? (all, some)
Q4 - Please indicate your College/School:
Q5 - Are you the dean, chair or head of your department? (yes, no)
Q6 - Approximately how many courses did you help select the course materials for the spring 2017 semester?
Q7 - Approximately how many sections did you help select the course materials for the spring 2017 semester?
Q8 - Approximately what percentage of the sections in your department required students to purchase course materials? (0-20% (1), 21-40% (2), 41-60% (3), 61-80% (4), 81-100% (5)
Q9 - Please indicate the importance of the factors below when selecting course materials: readability, relevance or currency of information, materials are editable, length of text, supplemental instructor materials included, cost to the student (very important, important, somewhat important, not important)
Q10 - If cost of course materials was a factor, please explain how it was considered.
Q11 - What were the options offered for the required course materials you selected? Please check all that apply. (New (1), Used (2), Rent (3), Digital (4), Library Reserve (5), Not sure (6), Other. Please describe.
Q12 - Are students in any of your courses required to purchase on-line access codes, such as MyMathLab or MyEducationLab? (yes, no)
Q13 - How are the on-line codes utilized in your course(s) (check all that apply)? (quizzes, tests, homework practice, e-textbook, additional reading materials, projects, other________
Q14 - Approximately what percentage of your students' grade is contingent upon completing assignments through the on-line access code?
Q15 - In a recent survey of Rowan undergraduate students, more than one third indicated that they did not purchase all of the required materials for their courses. In your opinion, how much would not purchasing the required course materials affect a student in the courses where you selected (or help select) the course
materials? (A great deal (1), Somewhat (2), A little (3), Not at all (4), N/A - did not require course materials (5)
Q16 - Did any of your courses use an open educational resource (OER) or other on-line resources? (yes, no, not sure, not familiar with open education resources)
Q17 - Which courses are using open educational resources or other on-line resources?
Q18 - Are these open educational resources (OER) or on-line resource used in your course(s) free to students? (yes, no, not sure)
Q19 - Are there initiatives in your programs taking place to reduce course material costs? (yes, no, not sure)
Q20 - Please describe the initiatives in your programs taking place to reduce the cost of course materials.
Q21 - Was there anything in this survey that was not asked about course materials that you would like to share?
Q22 - As the work of the Affordability Task Force continues, would you be interested in receiving more information about college affordability issues? (yes, no)
Q23 – (if yes to Q22): Please provide your name and email: (name, email)
The Effect of Grades in STEM Courses on Retention

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Abstract: This study aims to examine the impact of performance in STEM courses on student retention and how the effect changes over time. By applying discrete-time event history analysis, this study models the six-year college outcomes for 5,583 students in the fall cohorts from 2006 to 2009. Results for a series of models, for both students in STEM and non-STEM, are used to evaluate the effects of enrolled terms, socio-demographic characteristics of the students, their academic preparation and course performance, on the odds of dropping out. Overall, students are more likely to drop out by the 3rd term. As expected, for students in STEM majors, earning a low grade in STEM courses has a negative impact on retention. However, students in non-STEM disciplines are also affected by performance in STEM courses. A new metric (Koester, Grom, & McKay, under review; Matz et al., under review) called the Grade Anomaly provides a measure of a student’s performance in a STEM course compared to their performance in other courses. Based on this metric it appears that female students and non-STEM major students are less affected by lower STEM grade.

Introduction

Innovations in science and technology have been effective in stimulating the economic growth of the country (National Academies of Science, 2016) and future demands for a diverse and highly trained workforce in the science, technology, engineering, and mathematics (STEM) fields continue to escalate. The Department of Labor predicts significant growth (9 million jobs) in STEM jobs from 2012-2022 (Vilorio, 2014). For universities, retaining and graduating students, especially in STEM disciplines, becomes a critical asset to the Nation’s productivity, growth and innovation (Ehrenberg, 2010). Various studies have contributed to shaping an understanding of the educational pipeline that leads to STEM graduates (see Maltese, Melki, & Wiebke, 2014 for a review), highlighting the complexity of factors that affect an individual’s commitment to a career in one of these areas. Timing in the development of an interest in STEM, having an innate interest in a discipline or parental influence have been shown as positive determinants in pursuing a career in one of these majors (Maltese et al., 2014).

The interconnected and dynamic process of student choice is likewise relevant for understanding retention and graduation. Cromley, Perez and Kaplan (2015) challenge researchers to consider STEM retention as a process rather than event due to the interdependence of influences such as institutional policy, grades, self-efficacy, interest, or student motivation. In a similar vein, DesJardins, McCall, Ahlberg, and Moye (2002) consider the academic trajectory of a student's time to degree by recommending time variant models over the traditional time constant models. Time variant models allow for the effects of particular variables to fluctuate over the student’s academic career. For example, their study suggests that a better understanding of the importance of academic resources, or financial aid, for degree attainment is provided by the inclusion of academic performance (GPA) over-time.

Pre-college experiences in the form of SAT scores and Advance Placement (AP) credits relate positively to student success in STEM (Rask, 2010; Cromley et al., 2015) and then diminish as the academic trajectory of the student advances. Then grades appear as a significant effect on retention in
STEM (Rask, 2010). Ost (2010) found that higher performance in physical sciences courses had a positive effect on retention in the physical and life sciences, and higher grades in life sciences have positive effect on retention in life sciences. Callahan and Belcheir (2015) found a significant strong relationship between first-year retention and performance in English and Math, and Rask (2010) highlighted the importance of both absolute grades and relative grades (for some disciplines) in affecting retention in STEM. Other attempts to tease out the impact of harsher grading on retention in STEM did not lead to conclusive results (Kokkelenberg & Sinha, 2010). These findings are particularly concerning given grading practices adopted in STEM disciplines, combined with the relationship grades have with retention (Rask, 2010; Cromley et al., 2015). At the same time, studies have identified institutional specificity of factors affecting retention in STEM (Ehrenberg, 2010; Cromley et al., 2015), which highlights the importance of conducting institutionally embedded analyses to inform locally embedded retention and graduation strategies both at the level of the institution and for STEM specific disciplines.

Understanding the participation of underrepresented students (e.g., females, minorities) in STEM education is of particular interest nationally and frequently referred to as 'Gender Gap' or the 'Racial Gap' (Xie, Fang, & Shauman, 2015), stating lower levels of educational attainment for the underrepresented. A review of the literature (Xie et al., 2015) suggests that the gaps in participation and achievements are closing and what is becoming more apparent are confounded effects. In particular, when academic performance is added to the models of student success, race and gender become statistically insignificant. This does not mean that these variables are not important but rather the effect of performance accounts for some of the gender/race effects (DesJardins et al., 2002 and others cited in Ehrenberg, 2010). For this reason, Xie et al. (2015) call for more research that unpacks the processes that promote persistence in STEM by gender and underrepresented minorities.

We build on the literature discussed above by accounting for student characteristics and academic related factors previously identified to be important determinants of student retention and graduation in STEM. We also apply a methodological approach that accounts for the time variant nature of the transition through college. We contribute to the literature by adopting a comparative approach to understanding STEM retention by including a selection of non-STEM disciplines in the analysis. We also differentiate between student performance in STEM and non-STEM courses. This allows for a discussion of similarities and difference in students behavior in these two broad disciplinary areas.

The purpose of this project is to examine the importance of course performance in affecting student retention at the institution. In particular, we will assess whether students in STEM majors show significant differences in their response to course and academic performance in selected STEM courses versus other courses compared to students not pursuing STEM majors. In other words, assess whether differences in grading practices in STEM disciplines disproportionally affects the retention of students intending to graduate in these areas. These overarching questions are addressed by 1) describing how the risk of dropout varies over time as well as the differences in the risk by student characteristics (e.g., gender, ethnicity, first generation, Pell grant eligibility, AP course preparation, and student academic trajectory represented by her/his cumulative GPA; and 2) assessing the impact of course performance. This latter objective is addressed in two ways: the first by treating performance in selected STEM courses and other courses as categorical variables with High, Medium and Low performance levels (see methods section for a definition of these levels); the second by including a continuous variable, the Grade Anomaly (GA) (see Koester et al., under review; Matz et al., under review), that represents the relative performance in each STEM course against all other courses.

Methods

Data Source

Data used in this study consist of first-time degree-seeking students in the four fall cohorts from 2006 to 2009, drawn from a large research university in the Midwest. The target population is students
whose intended majors are in STEM fields. There are many definitions of STEM fields. For example, the National Science Foundation (NSF) defines STEM broadly: it not only includes the common categories of natural science, computer science, engineering, and mathematics, but also some social science fields such as psychology and political science (Chen, 2009). This study used a more strict definition of STEM by following the National Center for Education Statistics (NCES) of the U.S. Department of Education (2000 edition), which includes computer and information science, engineering and engineering technologies, biological and biomedical science, mathematics and statistics, physical science, and science technology (as cited in Ginder & Mason, 2011). To make comparison with STEM fields, we selected a broad range of instructional programs from non-STEM fields, specifically political science, history, psychology, sociology, anthropology, English, economics, philosophy, and geography. All students are tracked by enrolled terms, including fall, spring and summer semesters with a maximum of 18 terms. The final person-term dataset includes 5,583 students with 40,002 records.

Variables

The dependent variable in the study is time-dependent and indicates whether a student drops out from the institution in a given term. It is a dichotomous variable with 0 = remained enrolled or graduated and 1 = dropped out from the institution. Whether a student graduates or not is informed by the graduation status after six years.

Both time-varying and time-invariant variables are included in the analysis. Time-invariant variables are a combination of students’ socio-demographic information and pre-college experience. Socio-demographic variables include gender, ethnicity, first generation indicator, and Pell grant eligibility indicator. Ethnicity is coded as a categorical variable with four categories: Asian, Underrepresented Minority (URM), White, and Unknown/Other. Two variables are used to measure students’ pre-college experience: Advanced Placement (AP) coded dichotomously indicating whether the student has AP credits, and SAT composite score. In addition, a dichotomous variable indicates whether the student’s intended major is in STEM disciplines.

Time-varying variables have values that may change over time and they capture students’ performance and academic trajectory. Time-varying variables consist of cumulative grade point average (GPA) at the beginning of the term, average term GPA for a selection of STEM courses and averaged term GPA earned in other courses. For the purpose of this study, STEM courses are courses taught (to STEM majors and non-STEM majors) from the following departments: biology, physics, chemistry, mathematics, statistics, computer science, and informatics. Any course outside this definition is assigned to the ‘Other’ category. These average term GPAs are then coded as categorical variables with four levels: High (greater than 3.0), Medium (2.0 to 3.0), Low (less than 2), and Not Enrolled (no enrollment in that term in that category). Besides the original term GPA, a new metric (Koester et al., under review; Matz et al., under review) called the Grade Anomaly (GA) provides a measure of a student’s relative performance in a STEM course compared to their performance in all other courses. For each course and student at that term, GA is calculated as the difference between the student's final grade in a STEM course and the student's GPA in all other courses. We then calculate the average term GA in STEM courses for each student. This measure provides the opportunity to evaluate an individual student's response to the impact course grades have on the decision to persist. In other words, we expect that negative GA associated with STEM enrollments will result in higher attrition. Students without a STEM enrollment in a given term are assigned a GA value of 0, because for the specific term the GA in STEM would have a neutral effect on the odds of attrition.
Analytical Models

Event History Analysis (EHA) is a technique for answering the “time-to-event” question in a longitudinal dataset. In this study, the event of interest is dropping out from the institution. The most attractive features of survival analysis are censoring and time-dependent covariates (Allison, 2010). Censoring occurs “when we have some information about individual survival time, but we don’t know the survival time exactly” (Kleinbaum & Klein, 2010, p. 5). In this study, we follow students for 18 terms. If a student dropped out from the institution any time before 18th term, we know exactly how many enrolled terms the student had when she or he dropped out. If a student graduated within 18 terms, we know the event never occurred to that student. However, if a student was still enrolled at the 18th term, there is no way to know whether the student will experience the dropout event in the future and at what time he or she experiences the event. The only thing we know is that the time to dropout is greater than 18 terms. In this study, all cases for which dropout is unknown are right-censored. Discrete-time EHA allows these censored cases to be included in the analysis up to the end of the time period considered. Within the discrete-time EHA framework, we fit the discrete-time logit hazard model using a logistic regression.

The model specification is shown below:

$$\log \left( \frac{h_{it}}{1-h_{it}} \right) = \sum_{t=1}^{18} \alpha_t D_t + X_i \beta + Z_{it} \delta$$

(1)

where \( i = 1, 2, \ldots, N, t = 1, 2, \ldots, 18; \ h_{it} \) is the instantaneous hazard of individual \( i \) experiencing dropout event at term \( t \), correspondingly, \( 1 - h_{it} \) is the probability of individual \( i \) experiencing no dropout event at term \( t \); \( D_t \) is a dummy variable representing \( t \)th term; \( X_i \) denotes the time-invariant predictors for individual \( i \) and \( Z_{it} \) is the time-varying predictors for individual \( i \) at term \( t \); \( \beta \) and \( \delta \) denote the vector of coefficients for \( X_i \) and \( Z_{it} \), respectively.

We run two sets of models: one set of models focuses on the effect of term GPA and the other set focuses on STEM GA. For term GPA models, we start with the simple model with only time as the predictor. Then the model with socio-demographic variables is estimated (M1). In M2, students’ pre-college experience is added to the model. Based on M2, M3 includes students’ cumulative GPA at the beginning of the semester. Then we add average term GPA for selected STEM courses and average term GPA for other courses to the model (M4). For STEM GA models, we replace the term GPA with STEM GA, and other variables remain constant (M5). Because we are interested in the relationship between STEM GA and whether the student is in a STEM field, a dichotomous variable indicating whether the student intended to pursue a STEM degree is included in M6. To investigate whether STEM GA has a different impact on STEM students compared to non-STEM students, the interaction effect between STEM GA and STEM indicator is included in M7. Based on M6, the interaction between gender and STEM GA is further examined in M8.

Unobserved heterogeneity refers to the unobserved variation across individual units of observation. If unmeasured variables are correlated with the covariates in the model but we fail to account for it, we will get biased estimates. EHA models are sensitive to unobserved heterogeneity. Allison (2010) notices that “unobserved heterogeneity tends to produce estimated hazard functions that decline with time”. To check whether unobserved heterogeneity is a potential threat, we introduce a random effect to the model representing the unobserved factors that are specific to an individual. By comparing the model with random effect and the original model specified in Eq. (1), the likelihood ratio test suggests that the heterogeneity variance is not significantly different from 0. Therefore, unobserved heterogeneity is not a threat to the model, hence the random effect accounting for unobserved heterogeneity is not included in the models presented.

Results

There are 5,583 students in our dataset as shown in Table 1. The Overall Enrollment column shows the descriptive statistics of time-invariant variables for all students: 979 students—17.5% of the total sample—dropped out from the institution; the Dropout column shows their descriptive statistics.
Table 1: Descriptive statistics.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Overall Enrollment</th>
<th>Dropout from Institution</th>
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<tbody>
<tr>
<td></td>
<td>Frequency</td>
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<tr>
<td>Total</td>
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<tr>
<td>Gender</td>
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<td>Ethnicity</td>
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<td></td>
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<tr>
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<td>343</td>
<td>6.14%</td>
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<tr>
<td>URM*</td>
<td>532</td>
<td>9.53%</td>
</tr>
<tr>
<td>White</td>
<td>4572</td>
<td>81.89%</td>
</tr>
<tr>
<td>Other</td>
<td>136</td>
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</tr>
<tr>
<td>First generation</td>
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<td></td>
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<tr>
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</tr>
<tr>
<td>No</td>
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<td>Pell grant eligibility</td>
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<td>No</td>
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<tr>
<td>No</td>
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<tr>
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<tr>
<td>SAT score</td>
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<td>149.97</td>
</tr>
</tbody>
</table>

* Note: URM includes African Americans, American Indians/Alaska Natives, and Latina(o)s.

Figure 1 shows the predicted probability of dropout across 18 semesters using the model with only time as predictor. It should be noted that term 3 and term 6 are summer terms with low enrollment, and there is no dropout, so the estimates cannot be obtained in those two terms. We note that the probability of dropout reaches a peak in the 2nd term (after one academic year), and then decreases along time until the 14th term with some fluctuations in between. Then the probability of dropout increases again from term 14. However, with only about 100 students left in the sample after the 14th term, the confidence interval of the prediction is very wide, increasing the uncertainty of the estimates.
The model results including term GPA and STEM GA are presented below. Akaike’s Information Criterion (AIC), Bayesian Information Criterion (BIC), and Likelihood Ratio test are used to compare model fit. According to Burnham and Anderson (2002), an AIC value difference exceeding 6 and especially 10 provides evidence of a model fit difference. A difference of 10 for a BIC value suggests strong evidence of model fit difference (Kass & Raftery, 1995).

**Term GPA as Covariate**

Table 2 shows the model results for term GPA. M1 only includes time-invariant demographic variables. Except for first generation indicator and unknown ethnicity (where the reference group is Asian), all variables show significant association with dropout. The odds of dropping out for URM students and white students is 53% and 43% higher than Asian students, respectively. The odds of dropout for male are 27% higher than that of female. The odds of dropout for students who are eligible for Pell grant is 75% higher than students who are not eligible. M2 adds students’ pre-college experience, and it decreases BIC by 20, providing strong evidence that pre-college experience can effectively explain the odds of dropout. The odds of dropout from the institution for students with AP credits is 82% lower than students without AP credits. M3 includes students’ cumulative GPA at the beginning of the semester, which is the strongest predictor of dropout. There is a substantial decrease in the AIC, BIC, and -2 log likelihood. For one unit increase in the cumulative GPA, the odds of dropout decreases by 77%. M4 is our final model and includes the time-varying STEM courses GPA and Other courses GPA. The BIC for M4 is 400 lower than that of M3, suggesting strong evidence to prefer M4. When we add variables about academic performance, the predictors that are significant in M1 and M2, such as gender and ethnicity, become insignificant. However, Pell grant eligibility, AP, and SAT score are still significant predictors of dropout. Students with low grades in selected STEM courses have 95% higher odds to drop out than students with high STEM grades. Students with medium STEM grades in selected STEM courses have about 37% lower odds to drop out than students with high STEM grades. Of particular importance is also the impact of grades in Other courses. In fact, a Low performance in this area results in 315% higher odds to leave the institution than a High performance, and not having enrollments in these courses is associated with an increase in odds to drop of 119%. Different from STEM course grades, there is no significant difference in the odds of dropout between Medium and High performance in other courses.

![Predicted probability of dropout over time](image)
Table 2: Model estimates of dropout using term GPA.

<table>
<thead>
<tr>
<th></th>
<th>M1(demographic variables)</th>
<th>M2(M1+pre-college experience)</th>
<th>M3(M2+cumulative GPA)</th>
<th>M4(M3+term GPA)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
<td>SE</td>
<td>OR</td>
<td>SE</td>
</tr>
<tr>
<td>Constant</td>
<td>0.20*</td>
<td>0.08</td>
<td>0.48</td>
<td>0.23</td>
</tr>
<tr>
<td>First generation</td>
<td>1.12</td>
<td>0.15</td>
<td>1.13</td>
<td>0.15</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>URM</td>
<td>1.53*</td>
<td>0.27</td>
<td>1.15</td>
<td>0.21</td>
</tr>
<tr>
<td>Unknown/Other</td>
<td>1.38</td>
<td>0.36</td>
<td>1.18</td>
<td>0.31</td>
</tr>
<tr>
<td>White</td>
<td>1.43*</td>
<td>0.22</td>
<td>1.23</td>
<td>0.19</td>
</tr>
<tr>
<td>Male</td>
<td>1.27*</td>
<td>0.08</td>
<td>1.29*</td>
<td>0.09</td>
</tr>
<tr>
<td>Pell grant eligibility</td>
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<td>0.14</td>
<td>1.53*</td>
<td>0.12</td>
</tr>
<tr>
<td>AP</td>
<td>0.18*</td>
<td>0.03</td>
<td>0.23*</td>
<td>0.04</td>
</tr>
<tr>
<td>SAT score</td>
<td>1.00*</td>
<td>0.00</td>
<td>1.00*</td>
<td>0.00</td>
</tr>
<tr>
<td>Cumulative GPA</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>STEM course GPA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>1.95*</td>
<td>0.23</td>
<td></td>
<td></td>
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<tr>
<td>Medium</td>
<td></td>
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<td>0.63*</td>
<td>0.11</td>
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<tr>
<td>Not enroll</td>
<td></td>
<td></td>
<td>1.51*</td>
<td>0.18</td>
</tr>
<tr>
<td>Other course GPA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>4.15*</td>
<td>0.39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td></td>
<td></td>
<td>1.10</td>
<td>0.11</td>
</tr>
<tr>
<td>Not enroll</td>
<td></td>
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</tr>
<tr>
<td>Model comparison</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AIC</td>
<td>8746.6</td>
<td>8530.1</td>
<td>7745.3</td>
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</tr>
<tr>
<td>BIC</td>
<td>8935.7</td>
<td>8736.4</td>
<td>7960.2</td>
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</tr>
<tr>
<td>-2 Log likelihood</td>
<td>8702.6</td>
<td>8482.2</td>
<td>7695.4</td>
<td>7231.2</td>
</tr>
</tbody>
</table>

*p < 0.05

STEM Grade Anomaly as Covariate

To examine the impact of GA in STEM courses, based on M4, STEM grade is replaced by STEM GA in M5. Table 3 shows the model results for STEM GA. According to the results of M5, the effect of STEM GA is significant, \( p < 0.001 \). For one unit increase in GA (that is, the grade in selected STEM courses is higher than GPA for all other courses), the odds of dropout decrease by 65%. To examine whether the probability of dropout for students in intended STEM majors differ from non-STEM majors, the STEM indicator is added to M6. The odds of dropout from the institution for students who are in intended STEM majors are 14% lower than students who are in non-STEM majors, \( p = 0.032 \), holding other variables constant. In M7, we examine the interaction effect between STEM major and STEM GA. The interaction is also significant, \( p = 0.023 \). The effects of STEM GA are different for students who are in STEM majors and students who are in non-STEM majors. Figure 2 shows the interaction effect. For students who are in STEM majors, one point increase in STEM GA is associated with 75% decrease in the odds of dropout. For students who are in non-STEM majors, the odds of dropout decrease only by 50%. Students who are in STEM majors are more affected by STEM GA.
Table 3: Model estimates of dropout using STEM Grade Anomaly.

<table>
<thead>
<tr>
<th></th>
<th>M5 (GA)</th>
<th>M6 (M5+STEM)</th>
<th>M7 (M6 + STEM interaction)</th>
<th>M8 (M6 + gender interaction)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
<td>SE</td>
<td>OR</td>
<td>SE</td>
</tr>
<tr>
<td>Constant</td>
<td>4.32*</td>
<td>2.16</td>
<td>4.48*</td>
<td>2.25</td>
</tr>
<tr>
<td></td>
<td>4.77</td>
<td>2.4</td>
<td>4.82*</td>
<td>2.43</td>
</tr>
<tr>
<td>First generation</td>
<td>0.99</td>
<td>0.13</td>
<td>1</td>
<td>0.14</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>0.14</td>
<td>1</td>
<td>0.14</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>URM</td>
<td>1.12</td>
<td>0.21</td>
<td>1.1</td>
<td>0.21</td>
</tr>
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<td>1.46</td>
<td>0.41</td>
<td>1.42</td>
<td>0.4</td>
</tr>
<tr>
<td>White</td>
<td>1.35</td>
<td>0.22</td>
<td>1.32</td>
<td>0.22</td>
</tr>
<tr>
<td></td>
<td>1.33</td>
<td>0.22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>1</td>
<td>0.07</td>
<td>1.02</td>
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<td></td>
<td>1.03</td>
<td>0.07</td>
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<td></td>
</tr>
<tr>
<td>Pell grant eligibility</td>
<td>1.38*</td>
<td>0.11</td>
<td>1.38*</td>
<td>0.12</td>
</tr>
<tr>
<td></td>
<td>1.38*</td>
<td>0.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AP</td>
<td>0.23*</td>
<td>0.04</td>
<td>0.23*</td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td>0.23*</td>
<td>0.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAT score</td>
<td>1.00*</td>
<td>0</td>
<td>1.00*</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>1.00*</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cumulative GPA</td>
<td>0.23*</td>
<td>0.01</td>
<td>0.23*</td>
<td>0.01</td>
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<tr>
<td></td>
<td>0.23*</td>
<td>0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEM GA</td>
<td>0.35*</td>
<td>0.05</td>
<td>0.34*</td>
<td>0.05</td>
</tr>
<tr>
<td></td>
<td>0.50*</td>
<td>0.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEM</td>
<td>0.86*</td>
<td>0.06</td>
<td>0.80*</td>
<td>0.06</td>
</tr>
<tr>
<td></td>
<td>0.86*</td>
<td>0.06</td>
<td></td>
<td></td>
</tr>
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<td>Male*STEM GA</td>
<td>0.38*</td>
<td>0.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEM*STEM GA</td>
<td>0.50*</td>
<td>0.15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Model comparison

<table>
<thead>
<tr>
<th></th>
<th>AIC</th>
<th>BIC</th>
<th>-2 Log likelihood</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7701.8</td>
<td>7699.3</td>
<td>7696</td>
</tr>
<tr>
<td></td>
<td>7690.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIC</td>
<td>7925.3</td>
<td>7931.3</td>
<td>7936.7</td>
</tr>
<tr>
<td></td>
<td>7931.4</td>
<td></td>
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<td>7649.8</td>
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<tr>
<td></td>
<td>7634.8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < 0.05

Figure 2: Interaction between STEM major and STEM GA.
M8 examines the interaction effect between gender and STEM GA. The interaction effect is significant, $p = 0.001$, indicating that STEM GA has different effects on female and male students. The interaction effect is shown in Figure 3. For males, one point increase in STEM GA is associated with 78% decrease in the odds of dropout, holding other variables constant. However, for females, the odds of dropout decrease by 41%. Males appear to be more affected by STEM GA.

![Figure 3: Interaction between gender and STEM GA.](image)

**Discussion and Conclusions**

The results of this study confirm the importance academic dimensions have on affecting student attrition or retention in higher education. In particular, they highlight the critical role of course performance, both in absolute terms and in relation to other course performances. This study also reveals the importance of addressing the study of students intending to major in STEM and their retention at the institution with a comparative perspective; given the striking similarities in the behavior of students pursuing a career in STEM or non-STEM in relationship to the impact course grades have on the odds of dropping out of university. In fact, models in Table 2 did not reveal statistical differences between these two group of students (a time variant STEM/non-STEM parameter was omitted from the reported analysis because of its lack of significant statistical contribution to the model), and both STEM and non-STEM students are affected by low grades in disciplines other than the STEM selected in the study.

According to the results shown in Table 2, when we control for students’ pre-college experience and academic performance, demographic variables (e.g. gender, first generation, and ethnicity) become insignificant in affecting dropout. This finding is consistent with previous research: a large amount of the difference in persistence rates by gender and ethnic groups disappears once the academic preparation is being controlled for (Ehrenberg, 2010; Griffith, 2010; Price, 2010). In terms of pre-college experience, having taken AP classes in high school and higher SAT score could decrease the risk of dropping out. The economic status of students, here represented by Pell grant eligibility, is associated with increased risk of attrition even when controlling for academic preparation and performance, which echoes literature indicating the positive effects of financial aid on college persistence (Chen & Hossler, 2016; Hossler, Ziskin, Gross, Kim, & Cekic, 2009), and at the same time might highlight gaps in the institutional ability to bridge psychological barriers experienced by low-SES students (Jury et al, 2017).
Not surprising, students with low grades in STEM courses have a higher risk of dropout for both STEM and non-STEM majors. However, the results suggested that students with medium grades in STEM courses have even lower risk to drop from the institution than students who have high grades. In this study, better grades are not necessarily associated with longer college persistence. The finding has significant implications for policy makers. The coursework may not be attractive and challenging enough for the best students and they are seeking opportunities to transfer to other institutions. The institution may consider open courses that are more challenging or increase efforts that encourage students to participate in research projects.

The negative impact of low grades in other courses on retention is much worse than low grades in STEM courses, this despite more stringent grading practice in STEM courses (Rask, 2010; Cromley et al., 2015). Students enrolled in STEM courses might enter the class with the expectation of earning a lower grade compared to courses in other disciplines. Resilience to STEM grades might stem from the importance of pre-higher education experience in leading students into STEM careers (see e.g. Maltese et al., 2014), and for non-STEM majors, resilience might be linked to the overall lack of relevance of STEM grades for the curriculum of these students. On the other hand, underperformance in non-STEM courses might highlight a student’s deeper struggle in the higher education context.

The Grade Anomaly provided another comparative opportunity by measuring a student’s performance in a STEM course compared to their relative performance in other courses; and examine whether performance in specific courses can act as a push factor for students. Positive GA means higher grades in STEM courses relative to other courses. Negative GA means lower grades in STEM courses compared to other courses, which can be thought of as a grade penalty in STEM courses. The results indicate that higher GA is related to lower risk of dropout, which means earning higher grades in STEM courses relative to other courses decreases the probability of dropping out from the institution. Moreover, the significant interaction effect between gender and STEM GA suggests that female students appear to be more resilient to underperforming in STEM courses compared to their overall performance, which is inconsistent with the psychological theories of stereotype vulnerability (see e.g. Litzler, Samuelson, & Lorah, 2014). Rask (2010) had similar findings, where females’ decisions to stay in STEM majors appeared less sensitive to grades than their male counterparts’ decisions. Although using different metrics, the two studies both showed that female students are less sensitive to academic performance in making persistence decisions. However, Ost (2010) had opposite findings and showed that females’ persistence decisions are more sensitive to grades than males’ in the physical science. Gender differences in persistence decisions in different STEM subfields may need further investigation. A follow up to this study will unpack the retention of female students, and look into the differences between females who are retained in STEM disciplines and who are retained at the institution. Future research can also focus on the retention in STEM disciplines, since past studies have showed that 45% to 50% of students who enter STEM majors fail to earn a STEM degree (Chen, 2009).

In conclusion, grades in STEM courses play an important role in retention, but the relationship is not linear. Low grades are associated with higher attrition, and more studies are needed to investigate the relationship between high grades in STEM courses and retention in STEM disciplines. We believe that beyond the relevant contributions that the results of this study make to the wider understanding of student attrition, this work confirms the importance of conducting institutionally embedded analysis so that analytical insights can directly contribute to institutional effectiveness.
References


Matz, R., Koester, B. P., Fiorini, S., Grom, G., Shepard, L., Stangor, C., …, McKay, T. A. Gendered performance differences in introductory STEM courses are consistent across five universities. *Submitted to AEIRA Open*.


Abstract: In efforts to address college attrition and retention concerns, particularly as they relate to underprepared, underrepresented, and first-generation students, a few colleges and universities have created and implemented transition programs for first-year students such as summer Bridge programs (SBPs). SBPs are designed to assist students with transition challenges, enhance academic preparation, and help them achieve equal footing with other students. The purpose of this study was to explore the experiences of participants in a summer Bridge program developed and implemented by a public Research I Institution in the Midwest. Seven participants who had participated in the SBP during the summers of 2008, 2009, and 2010 were interviewed. A multiple case study approach was used to reveal experiences that may have contributed to the participants’ academic and professional success beyond college graduation. A cross-case analysis revealed thematic constructs of the SBP that are indicators of individual student success. The themes that emerged and are discussed in the study were transition to college, confidence, community, relationships, diversity, and support. Recommendations drawn from study findings are offered to higher education staff and administrators interested in starting or improving summer Bridge or similar programs.

Introduction

Over the past 50 years, the development of initiatives aimed at providing equal access to higher education and increased diversity on college campuses has increased. Although such efforts are important, access to a college education does not necessarily translate into attainment of a degree. First-year students from impoverished high schools with limited resources may be academically disadvantaged compared to students from affluent high schools with many resources. Underprepared students have faced many obstacles to success once in college (Wathington, Pretlow, & Mitchell, 2011). Strayhorn (2011) argues that many high school graduates lack the basic skills necessary for success in college; they are academically un- or underprepared. In efforts to address attrition and retention concerns particularly as they relate to underprepared, underrepresented, and first-generation students, colleges and universities have created and implemented transition programs for first-year students such as Summer Bridge programs (SBP) (Kallison & Stader, 2012; Sablan, 2014). SBPs assist students with transition challenges, enhance academic preparation, and help students achieve equal footing with other students (Kezar, 2000). Although the focus of the programs may vary depending on missions and goals, Bridge programs typically involve the academic and social aspects of college (Kezar, 2000; McCurrie, 2009). They give students a head start for the fall semester and to pair students’ educational experiences with institutional expectations (College Parents, 2015; McCurrie, 2009).

Background

Summer Bridge Programs

Events such as the Civil Rights movement lead to an increase in support programs like SBPs (Kezar, 2000). The target population of these programs may vary; however, many are for students of
color, first-generation, and/or low-income students (Kallison & Stader, 2012). These programs help to ensure the transition to college is as smooth and seamless as possible. The components of SBP often focus on building community, academic support, college-readiness, academic workshops, and peer mentors/advisors. There are currently many forms of SBPs within colleges and universities around the country. For example, the University of California Los Angeles (UCLA) invites first year incoming students to participate to their six-week, residential SBP, the College Summer Institute. The program fees cover tuition for courses taken for credit toward graduation, housing and meals, and other student fees. The University of California Berkley’s SBP has been hosting first-year students since 1973. Currently, between 350 – 400 first-year students are on campus for six weeks, enrolling in courses that count for college credit. Participation fees cover tuition, room and board, textbooks and supplies, and campus costs. In contrast, the Ohio State University’s Young Scholars–College Success Program is free for participants, but courses are not credit bearing; since 1988 the program provides academic and personal enrichment workshops during the three-week program to approximately 19 participants. The University of California Santa Cruz’s free, one-week residential Bridge program selects approximately 35 participants to take non-credit courses to aid participants with the skills to be successful in the fall term.

**History of the University’s Program**

The SBP at the university in this study has been in existence for many years. In 1975, the learning skills office created the SBP to equip primarily in-state, minority students from inner-city high schools with a solid foundation for success in the fall term. Approximately 50 participants joined the program to strengthen their academic skills in reading, critical thinking, writing, mathematics, and study skills. Participants took three credit-bearing courses: English 125 or Writing 100, Math 103, and CSP 100. An introduction to computing workshop (CS 198) began in 1997 to familiarize participants with the university's technological environment, and was discontinued in 2010.

Today, the university SBP is a seven-week living-learning community program designed for a select group of approximately 250 high-achieving first-year students from groups considered underrepresented in the university. The goals of the program are to strengthen academic skills through foundational courses, provide personalized advising and instruction, acclimate students to the university’s academic rigor, establish a supportive and diverse environment, shape students’ personal and social adjustment to the campus environment, and expose students to campus resources. Although some SBP participants are perceived as developmental and/or remedial students (Sablan, 2014), this university’s Bridge program is not designed for students needing remediation. Remedial/ developmental courses are designed to help students catch up and fill in the gaps and often do not count for credits toward graduation (College Parents, 2015). The entire course load of 8–9 credits in the university’s Bridge program count toward graduation. The tuition-based program offers intensive academic preparation and highly individualized academic advising. Participants currently take a college writing course (English 125 or Writing 100), a mathematics course (Math 103), and a first-year reading seminar (CSP 100). All three credit-bearing courses appear on the student's official transcript. A mandatory 4-hour supplemental instruction workshop for writing and math is in the students’ weekly schedule. Each student has an assigned academic advisor in the SBP who serves as their advisor for the duration of their academic career at the university. Advisors provide guidance on course selection, career planning, progress towards fulfilling degree requirements, and academic socialization. Residential peer advisors (current upper-class students) work within the program as mentors to SBP participants. Approximately 12–14 upperclassmen live within the residence hall with the participants; they also serve as assistants for the reading seminar course.

Students who participate in the SBP are admitted for the summer term by the university’s undergraduate admissions office. These students are admissible to the university, and pay tuition and room board fees. They may be first-generation students, come from low socioeconomic status backgrounds, and/or come from underrepresented/underserved high schools or neighborhoods. Similar to the selection criteria of the Educational Opportunity (EOP), Special Transitional Enrichment (STEP), and TRIO Programs, the SBP takes into account low-income and/or, first-generation status, lower than
average high school GPA, and test scores (Villalobos, 2014). Admission to the SBP is not conditional and is not optional: the SBP is mandatory for students who are invited to the program, and who wish to attend the university.

Methodology

This qualitative study used a multiple case study approach to explore the experiences of college graduates who participated in a SBP to better understand the potential long-term effects of the SBP experiences on college graduates. The researcher examined the feelings, attitudes, and beliefs of multiple participants of an SBP through semi-structured interviews. The goal was to gain a deeper insight and understanding of the human experiences of attending an SBP (McCracken, 1988; van Manen, 1990). The design of the study was guided by the work of Robert E. Stake (2006) an expert in multiple case study qualitative analyses.

Identifying Sample Population

Table 1 displays the effort made to identify sample population of the case studies that represent students of 2008, 2009, and 2010 cohort years.

<table>
<thead>
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<th>Table 1: Summer Bridge student demographics</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>Average</th>
<th>(%)</th>
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<td>209</td>
<td>239</td>
<td>221</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Females</td>
<td>144</td>
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<td>135</td>
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<td>62%</td>
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<tr>
<td>Latino/a</td>
<td>30</td>
<td>27</td>
<td>26</td>
<td>28</td>
<td>13%</td>
</tr>
<tr>
<td>Native American</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>1%</td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
<td>8</td>
<td>4</td>
<td>7</td>
<td>3%</td>
</tr>
<tr>
<td>In-State</td>
<td>175</td>
<td>180</td>
<td>189</td>
<td>181</td>
<td>82%</td>
</tr>
<tr>
<td>Out-State</td>
<td>39</td>
<td>29</td>
<td>50</td>
<td>39</td>
<td>18%</td>
</tr>
</tbody>
</table>

In order to achieve the goals of this research, the sample population of interviewees for this study had participated in the university’s SBP, graduated from the university, and been employed and/or were continuing their education at the time of the study. Creswell (2013) suggests that participants should be able to adequately articulate the lived experience. This study used the commonly expected norm six-year graduation or fewer rate timeline to define eligible participants. Interviewees for this study participated in the SBP during the summers of 2008, 2009, and 2010. Purposeful sampling was utilized to better understand the experience of SBP participants (Creswell, 2013). Access to participants was gained through personal connections at the university. With the assistance of the department’s associate director, 23 former Bridge participants were identified that fit the study’s perimeters and sample population of the targeted cohorts. These former Bridge participants had been in contact with a member of the department within the last year, and graduated with at least a 2.5 GPA. An email was sent to acquire the targeted sample population. This resulted in seven participants who agreed to participate in the study, and were interviewed in the course of two months. According to Creswell (2013), five cases are sufficient for a
multiple case study. The selected students who participated in this study (see Tables 2 and 3), provided diverse perspectives of the 2008, 2009, and 2010 cohorts. The researcher assigned pseudonyms to each participant to preserve confidentiality.

Table 2: Participant demographics.

<table>
<thead>
<tr>
<th>SBP Cohort</th>
<th>Residency Status</th>
<th>High School GPA</th>
<th>Estimated Family Income</th>
<th>Family Background</th>
<th>Ethnic Group</th>
<th>First Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leslie</td>
<td>2008</td>
<td>In-State</td>
<td>3.4</td>
<td>Unknown</td>
<td>Two Family</td>
<td>African American</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>household</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trisha</td>
<td>2009</td>
<td>In-State</td>
<td>4.0</td>
<td>Unknown</td>
<td>Single parent</td>
<td>Caucasian</td>
</tr>
<tr>
<td>Alexis</td>
<td>2010</td>
<td>In-State</td>
<td>3.7</td>
<td>25-50K</td>
<td>Two Family</td>
<td>Latino</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>household</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brandon</td>
<td>2010</td>
<td>Out-State</td>
<td>3.9</td>
<td>Unknown</td>
<td>Divorced</td>
<td>Latino</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Two Family</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>household</td>
<td></td>
<td></td>
</tr>
<tr>
<td>David</td>
<td>2008</td>
<td>In-State</td>
<td>2.9</td>
<td>&gt;100K</td>
<td>Two Family</td>
<td>Latino</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>household</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Single parent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maurice</td>
<td>2010</td>
<td>In-State</td>
<td>3.5</td>
<td>25-50K</td>
<td>Single parent</td>
<td>Latino</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>household</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>African</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Megan</td>
<td>2008</td>
<td>In-State</td>
<td>3.2</td>
<td>&lt;25K</td>
<td>Single parent</td>
<td>African</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>household</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>American</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Participant college achievement.

<table>
<thead>
<tr>
<th>SBP GPA</th>
<th>Cum. College GPA</th>
<th>College Degree</th>
<th>Year Degree Conferred</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leslie</td>
<td>2.9</td>
<td>3.0</td>
<td>Psychology BA</td>
</tr>
<tr>
<td>Trisha</td>
<td>3.8</td>
<td>3.4</td>
<td>Psychology BA</td>
</tr>
<tr>
<td>Alexis</td>
<td>3.5</td>
<td>2.6</td>
<td>Psychology BA</td>
</tr>
<tr>
<td>Brandon</td>
<td>3.8</td>
<td>3.7</td>
<td>History BA</td>
</tr>
<tr>
<td>David</td>
<td>3.8</td>
<td>3.5</td>
<td>Sociology BA</td>
</tr>
<tr>
<td>Maurice</td>
<td>2.9</td>
<td>2.5</td>
<td>Economics BA</td>
</tr>
<tr>
<td>Megan</td>
<td>2.6</td>
<td>2.7</td>
<td>English BA</td>
</tr>
</tbody>
</table>

One recorded, approximately 90-minute, one-on-one interview was conducted with the seven respondents. In efforts for respondents to “reconstruct their experiences, anything shorter than 90-minutes is too short” (Seidman, 2006, p. 20). In efforts to make the interview process as seamless as possible, one interview was the best fit for the study. The researcher discovered the questions within the interview protocol were understood by the former participant based on the responses. The positive reactions to the questions during the pilot provided a sense of affirmation and confidence to the researcher. Sample questions included: How do you feel the SBP contributed, if at all, to your academic experience at the university? How do you believe participating in the SBP may have influenced what you find yourself doing now, following your graduation from college?

Data Analysis

In an attempt to accurately articulate the transcribed data, the researcher applied a cross-case analysis to support valid inferences from the multiple cases (Greene & David, 1984; Stake, 2006). Once data analysis process was complete, the researcher discovered the reoccurrence of several themes that were similar among all the cases. The researcher was also able to identify one participant that had a contrasting experience, which provided new data to the study. This occurrence alerted the researcher that no other interviews were needed to gather more data; therefore, the seven participants sufficed the study. According to Fusch and Ness (2015), if one has reached the point of no new data, or no new themes, one has reached data saturation.
Summary of Findings

Collecting data that provide thematic understandings of elements that aided SBP students in persevering toward degree completion is a significant contribution to the research literature. Gaining an understanding of how the multiple academic support models sustained the SBP participants, from the lens of a student, is essential to this study. The findings in this study help those who operate SBPs understand how the experiences within a SBP can influence one’s college and post-baccalaureate career. Providing examples through case analyses of students who participated in a SBP, attained a baccalaureate degree, and now have a successful career may begin to fill in the gaps of research on transition programs. This study intentionally focused on the student’s experience within the SBP in addition to their reflections about outcomes beyond their summer participation. Keeping in mind the goal of the central research question to explore and describe the experiences of SBP participants as it relates to student success, this section will discuss the findings through the lens of the research questions.

The SBP Experience

The first research question asked the SBP participants to describe their experiences in the program. Overall, six out of the seven participants described being very satisfied with their SBP experience. This was not surprising because previous studies evaluating the satisfaction of one program found that participants were satisfied with their SBP experience (Ackerman, 1991; Buck, 1985; Garcia, 1991; Gold, Deming, & Stone, 1992). Many participants in this study admitted they did not want to attend, or felt they did not need the program. However, all were happy they were admitted to the university. The initial admittance letter received from the admissions office might have fueled the skepticism of the participants. The admission letter raised several questions about their academic ability, and participants were not sure whether it was good news or bad news. Some former Bridge students conveyed excitement and happiness; however, several expressed feelings of disappointment, confusion, and academic self-doubt.

The use of proper terminology within the SBP initial admission letter is imperative in communicating a positive message to potential participants. This was clearly disclosed by several of the participants. Despite the reservation of attending the program, most participants felt the program was very valuable in their acclimation into the university socially and academically. Ackerman (1991) discovered participants felt moderately adjusted both academically and socially after participating in the SBP. In this study, only one participant expressed not being satisfied with her overall SBP experience. Megan felt the program had a negative effect on her academic skill, which contradicts Strayhorn’s (2011) findings. Overall, the findings show that most of the participants in this study were satisfied with their SBP experience. Despite one person’s lack of satisfaction, participants felt the program did, in fact, result in the retention and persistence toward graduation.

Academic Experience

Within the seven-week SBP, each participant took three credit-bearing academic courses: college writing, mathematics, and a first-year reading seminar. It was evident the math course, and the supplemental instruction workshops for math and writing, were influential to the participants. Maurice cherished the SBP math class and his instructor for training him to be an economics major. Brandon and David appreciated how the workshops exhibited supportive, positive learning in a group setting. Brandon developed an appreciation for being held accountable by classmates in the writing workshops. David’s confidence in math was reinforced during the workshops, as he helped fellow classmates with difficult course material. The rigor and expectation of the courses within the SBP inculcated the desire to excel academically, and provided confidence to compete within the university. Strayhorn (2011) revealed that confidence and academic motivation are key components to academic success. All of the participants discussed how the instructors within the program were very influential, and showed passion for the success of each participant. The SBP math instructors were recognized the most during this study for exhibiting dedication to the students’ success. It is apparent that the math course in the program was the
most memorable. Wathington, Pretlow, and Mitchell (2011) found that having the opportunity to form deep relationships with instructors within a program helped to shape a student’s experience. Two participants discussed how their academic success within the SBP not only provided assurance, but it set a tone for academic success throughout their college career. Strayhorn (2011) affirmed academic skill at the end of the program significantly increased prior to participation in a SBP. This is in contrast to studies that have shown that participation within a SBP does not always have a significant influence academically (Evans, 1999; Wolf-Wendel, Tuttle, & Keller-Wolfe, 1999). All the participants indicated appreciation for having the opportunity to take classes early that count for credits toward graduation. The idea of gaining credits a semester before their peers who were non-participants was very encouraging. This places SBP participants one semester ahead of non-participants. In studies by Barnett et al. (2012) and Walpole et al. (2008), SBP participants earned lower credits toward graduation. Barnett et al. (2012) found that SBP participants succeed at a slower pace than peers. This study showcases that participation in credit-bearing SBPs are more beneficial as students progress toward graduation.

Social Experience

This study revealed that all seven participants felt participation in the SBP contributed to their transition to the college setting. The immersion in the culture allowed them to learn campus and university norms. Successful transition is critical the first year of college, where it joins a student’s home and collegiate environment (Inkelas, Daver, Vogt, & Leonard, 2007). One participant explained, “I remember thinking I probably would have dropped out after [my first] year if I hadn’t made friends, and learned about the campus [in SBP].” In addition, each participant expressed great value in developing long-lasting relationships with friends, faculty, and staff associated with the program. Many participants were still currently connected with the friends they made within the SBP. The development of multiple relationships aided the participants in cultivating a sense of belonging and connectedness to the university. These findings indicate a positive effect on connectedness-sense of belonging and community after participation in a SBP, unlike Strayhorn (2011), who found no such effect.

A few of the participants recalled social events and/or programs that were memorable, which were coordinated by the programs peer advisors. In fact, five of the seven participants acknowledged the benefit of having peer advisors within the program, in addition to how that interaction contributed to the social transition to the university. The peer advisors were another factor of the program that provided support to the participants in the program. Inkelas and colleagues (2007) reviewed a number of studies and found that interactions with peers were significantly associated with a smooth transition to college (Astin, 1990; Inkelas & Weisman, 2003; Newcomb, 1962).

College Career

Research question 2 addresses whether or not the SBP participants feel the program contributed to their academic success through college and following graduation. All participants except one, felt the SBP contributed to their academic success throughout their college career. Multiple factors emerged within the participants’ academic and social experiences as contributors of academic success through the cross case analysis. Those aspects within the academic experiences included academic self-efficacy and support. Components within the social experiences included community and relationships. Transition to college was an element in both the academic and social experience.

The participation in the SBP provided the motivation and assurance these students needed to be successful throughout the college career and beyond. This supports Stolle-McAllister’s (2011) findings regarding SBP participants and its increase in academic-self efficacy. In addition, it suggests that SBPs develop a sense of academic self-efficacy amongst its participants. Academic self-efficacy is grounded in Bandura’s theory (1977), and is defined as an individual’s confidence in successful academic performance (Sharma & Nasa, 2014). Strayhorn (2011) concluded that SBP participants with high academic self-efficacy perform better academically. Most participants in this study expressed that the program developed academic self-efficacy during their SBP experience.
Academic resources mentioned were specific to academic advising, which included discussion around classes, career exploration, and support services provided by advisors. The development of trusting relationships with program staff is essential in the successful navigation of a student’s college career (Engle, Bermeo, & O’Brien, 2006). Walpole et al. (2008) found that SBP participants felt comfortable and were able to seek out services when needed compared to non-SBP participants. The introductions to staff and faculty within the SBP were beneficial to the participants in this study, and provided reliable resources, which could be utilized throughout college and beyond.

Table 3 shows data about each participant, including SBP cohort year, GPA, college degree, and year degree conferred. The national college GPA at four-year colleges and universities has increased from 2.52 in 1950 to 3.11 in 2006 (Newlon, 2013). Four of the seven participants earned a GPA above a 3.1 after the completion of the SBP. The average SBP GPA among all seven participants was 3.22, which is above the reported national average. Each participant received a baccalaureate degree within at least 4 ½ years from their first entering term. This showcases that participation in the SBP may not elongate the college career of SBP students, as argued in Walpole et al. (2008). Douglas and Attewell (2014) and Murphy, Gaughan, Hume, and Moore (2010) found that SBP participation increases the chances of graduation among underrepresented students. The average cumulative GPA of all seven participants upon graduation was a 3.05, which is comparable to the national figure.

### Following Graduation

In terms of contributions following graduation, six of the seven participants indicated the SBP contributed to their post-college success. Table 4 shows not only college achievement data on each participant, but also post-college attainment information, such as post graduate, and/or career activities.

All the participants are pursuing their desired line of work. Four of the seven participants have obtained graduate degrees, and two others are planning to attend graduate school in the near future. They indicated that exposure to the SBP experience, as a whole, was the key factor that contributed to the success beyond graduation. Specifically, the participants mentioned components of the program such as learning the importance of diversity, building relationships, immersion in a supportive environment, and contact with campus resources as having influenced their post-college success.

### Table 4: Participant Post-College Attainment

<table>
<thead>
<tr>
<th>SBP GPA</th>
<th>Cum. College GPA</th>
<th>College Degree</th>
<th>Year Degree Conferred</th>
<th>Post-College Attainment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leslie</td>
<td>2.9</td>
<td>3.0</td>
<td>Psychology BA</td>
<td>2012</td>
</tr>
<tr>
<td>Trisha</td>
<td>3.8</td>
<td>3.4</td>
<td>Psychology BA</td>
<td>2013</td>
</tr>
<tr>
<td>Alexis</td>
<td>3.5</td>
<td>2.6</td>
<td>Psychology BA</td>
<td>2014</td>
</tr>
<tr>
<td>Brandon</td>
<td>3.8</td>
<td>3.7</td>
<td>History BA</td>
<td>2014</td>
</tr>
<tr>
<td>David</td>
<td>3.8</td>
<td>3.5</td>
<td>Sociology BA</td>
<td>2012</td>
</tr>
<tr>
<td>Maurice</td>
<td>2.9</td>
<td>2.5</td>
<td>Economics BA</td>
<td>2014</td>
</tr>
<tr>
<td>Megan</td>
<td>2.6</td>
<td>2.7</td>
<td>English BA</td>
<td>2012</td>
</tr>
</tbody>
</table>

### Discussion

The conceptual framework used to understand and inform this study proposed transitions and indicators of individual student success, which draws from a multilayered model, developed by Perna and Thomas (2008). The longitudinal process displays ten indicators that fall under four main categories of transition: College Readiness—educational aspirations and academic preparation; College Enrollment—
college access and college choice; College Attainment—academic performance, transfer, and persistence; and Post-College Attainment—Post BA enrollment, income, and educational attainment. (Perna & Thomas, 2008). This researcher positioned the SBP in the model as a “moderator” between College Enrollment and College Attainment, creating opportunities to acquire skills and knowledge that may better insure student success.

As the study progressed, and the researcher analyzed participant interviews, and found it necessary to modify the original conceptual framework. Figure 1 highlights an updated model of the Perna and Thomas (2008) conceptual framework with modifications based on the findings and conclusions of this study. The final framework was modified to include the collective themes that emerged as the study developed (Baxter & Jack, 2008). With the understanding of SBP participants’ experiences, and the Perna and Thomas model of student success, the following indicators of student success were added: Transition to College, Confidence, Community, Relationships, Diversity, and Support. The thematic experiences of SBP participants are direct interpretations of student success indicators that may influence and strengthens the relationship between college achievement and post-college attainment (Baxter & Jack, 2008).

![Figure 1: Transition and indicators of student success of summer Bridge program participants. Model adopted from Perna & Thomas Transitions and Indicators of Student Success (2008)](image)

The model assumes that the SBP facilitates a participant’s transition to college by building confidence, community, diverse relationships, and support. One of the main objectives of the university’s program is to strengthen academic skills through foundational courses, and to acclimate students to the university’s academic rigor (SBP Goals, 2008). Other objectives of the university’s program are to provide personalized advising and instruction, establish a supportive and diverse environment, shape students’ personal and social adjustment to the campus environment, and expose students to campus resources (SBP Goals, 2008).

### Limitations

The limitations of this study include potential researcher bias, since the researcher is employed by the institution where the research was conducted, has ties with the institution's SBP, and some participants were previously advised by the researcher. Additionally, as a qualitative study limited to one SBP that includes a small sample size, findings cannot be generalized to all SBPs or participants within an SBP.

### Implications of Study

The results of this study revealed that participation within a SBP may contribute to a student’s academic success throughout their college career and beyond. The SBP in this study created an
educational community in a supportive context that developed academic self-efficacy among students who come from underrepresented and underprepared backgrounds. It is the confluence of the components—faculty, academic advisors, peer advisors, and other program participants within a supportive community—which increases academic self-efficacy, and in turn, influences academic success throughout college and beyond. This section provides suggestions for SBP leaders and students who are both key stakeholders in the operation of SBPs.

This study illustrates the importance of developing an educational community that creates a supportive and motivational environment to help students persist through a college setting. Administrators and university leaders should keep the end in mind, as they build a program that produces graduates of higher education institutions who are able to achieve their goals. Understanding the value of relationships and the connections established within the SBP, fostering a supportive academic community throughout college and even beyond is important. For example, Brandon established relationships with academic advisors, instructors, and peers. He stated, “I could always fall back on those relationships. It’s like a safety net, if I ever got like lost, you know. Those were the things that all contribute to my academic success after Bridge.” Administrators and leaders should hire faculty and staff who are able to develop authentic connections with SBP participants. In addition, trainings around building relationships and connecting with students should be provided for all faculty and staff working within the SBP.

Conclusion

Students are most likely to succeed and persist in academic environments that provide supportive academic and social educational communities (Baxter & Jack, 2008). This study explored the experiences of participants within a SBP at one public Research I institution in the Midwest. Those experiences revealed key contributors that influenced participants’ academic and professional success beyond college graduation. The findings illuminate multiple aspects of a supportive educational community as indicators of student success.

The results of this study indicated that the formula within this SBP works, and it appears to work well. The participants in this study represented millions of students who may be seen as low-hanging fruit by top-tier institutions. These SBP participants were able to persist through college, despite the negative perceptions of underprepared, underrepresented, low-income students who attend a predominantly White, Research I institution. A voice was given to the SBP participants within this study. Their voices communicated, “I am good enough! I am smart enough! I do belong here! I can be successful! I can be a college graduate of a top research one institution! I can go to graduate school! I can obtain a good job!” The thematic constructs revealed in this study showcase the strengths of the SBP and how those constructs influence student success. This SBP created a supportive living-learning community that fostered a sense of belonging within the institution among these participants. Being able to attend a SBP that introduced other students that either looked like them, and/or they could relate to was comforting and necessary for persistence. Most participants in this study determined that their experiences in this particular SBP aided them with the tools to be successful.

The study took a comprehensive look at the historical aspects of college access as it relates to SBPs and similar transition programs. The research design of a multiple case study approach was to gain a deeper understanding of experiences of SBP participants, and how those experiences strengthened one’s academic success throughout college and beyond. Multiple insights of the experiences of SBP participants were uncovered. This study produced evidence-based thematic understandings of what leads SBP students to persevere toward degree completion. As a result, the recommendations are significant to the contribution of existing research on SBP programs.
References


Abstract: Matriculation through and graduating from baccalaureate granting institutions, specifically Historically Black Colleges and Universities (HBCUs), is a uniquely celebratory experience. Within the halls of North Carolina Central University (NCCU), many learners wish to fulfill the mission of “preparing students academically and professionally to become leaders prepared to advance the consciousness of social responsibility in a diverse, global society”, by extending their studies beyond their bachelor’s degree. From this need, the Graduate School Exposure Tour (GSET) developed. GSET is an evolving, in-person, envisioning experience that connects undergraduate scholars to Graduate and Professional Programs. This paper will detail the successes and challenges of the implementation of this holistic exposure experience that has resulted in internships, application fee waivers, admissions, and graduation from prominent Research / Tier One institutions across the nation. Furthermore, this paper will outline the mutually beneficial relationships between the HBCU scholars that attend GSET and the educational, cultural, and experiential capital realized by the Predominately White Institutions (PWI) visited.

Introduction

“The Eagle is no common, ordinary barnyard fowl.” This sentiment originated with Dr. James E. Shepard, the founder of North Carolina Central University (NCCU). Dr. Shepard referenced the long-standing Eagle mascot, enjoyed as part of the storied 117-year history of NCCU. In kind with Dr. Shepard’s sentiment, graduates of NCCU are very much esteemed and highly regarded contributors in many professional disciplines. The history of NCCU and all Historically Black Colleges and Universities (HBCUs) originates from necessity and struggle, but this burden pregnant with hope seized by mothers and fathers past, makes possible tremendous opportunity in the present. With an increasing undergraduate enrollment of 6,285, favored status in the UNC System, preeminent degree programs, and recognition as HBCUs Digest’s 2016 HBCU of the Year (Carter 2016), NCCU is well-positioned today to support the learning journeys of tomorrow’s change agents. While appreciating these accomplishments and accolades, NCCU does not let a clarion of success distract from ongoing challenges. For NCCU learners, the journey is long and the work arduous as demographically 70% of Eagles receive financial aid and enter with an average SAT score of 866. The climb through matriculation does not level off, considering a first-year retention rate of 80% and a six-year graduation rate of 47%. Herein lies the challenge. What programs can sustain the climb-weary learner? What initiative succors the most successful students facing even longer learning journeys taking them through graduate studies in route to careers fraught with inequity (Asante-Muhammed, Collins, Hoxie, & Nieves, 2016; Ladson-Billings, 2006)? How do
Academic Counselors, an integral source of support for learners, convince scholars to enter and persist in graduate school when facing decades of long undertaking?

The Graduate School Exposure Tour

Addressing Specific Challenges

Academic Counselors within University College’s Academic Success and Enrichment Services (ASES) Unit excel at supporting the climb-weary learner interested in maximizing educational self-actualization by utilizing integrative counseling and student development theories coupled with intrusive, high touch practices to support cognitive, noncognitive, affective, and behavioral development. The Graduate School Exposure Tour (GSET) embodies a cornerstone of ASES mission “to deliver intrusive services encouraging mastery through strengths-based processing of challenges.” The intrusive, strengths-based program highlights self-awareness, resilience, adaptability, and utilization of all resources. Currently in its third annual cycle, GSET specifically addresses a challenge originating on the NCCU campus and veining systemically through most professional disciplines.

In 2015, the ASES Academic Counselors were supporting learners that were particularly distinguished academically and experientially. Despite successful undergraduate experiences and self-authored interest in graduate studies, these learners could not envision pursuing training with the most renown programs. Processing these thoughts and emotions revealed negative self-reflections. The demographic face of professional disciplines does little to support aspirations of NCCU learners (Brunsm, Embrick, & Shin, 2017; The Woodrow Wilson National Fellowship Foundation, 2005; Valentine, Wynn, & McLean, 2016). As a cautionary note, do not be deceived by overextended interpretations of gains (Bowen & Bok, 1998; Holzer & Neumark, 2000; Lloyd, Tienda, & Zajacova, 2002). In truth, all gains are desirable over regression, but doubling a barely above zero gain is still very close to zero and a far cry from equity. Furthermore, it is somewhat disingenuous to tout a small gain in 2017 against the lethargy of 52 years of supposed equal access commanded by the Civil Rights Acts (Harper, 2012; Ladson-Billings, 2006; Palmer, Wood, Dancy, & Strayhorn, 2014). GSET simultaneously addresses both challenges. First, learners access sensorial and experiential appreciations for the types of educational opportunities that are available. Second, this emergent thinking positions learners to take the next educational step necessary to ultimately bring the shared voice and experience necessary to improve academic/professional disciplines. GSET targets learners to exclusive graduate programs. This targeting supports Eagle scholars’ educational self-actualization and addresses ethnic/culture-based inequities of professional disciplines.

Theories Guiding GSET

A portion of the self-imposed academic limitations and negative self-appraisals targeted by GSET are attributable to stereotypical threats. This stereotypical threat hazards to self-confirm the inequality that black learners are not numerically present at exclusive graduate programs because they are scholastically and attitudinally ill-prepared to be successful (Steele & Aronson, 1995). The threat alters career aspirations, thereby perpetuating the racial inequalities of certain professional disciplines (McGee & Martin, 2011; Taylor & Antony, 2000; Woodcock, Hernandez, & Schultz, 2016). GSET is an in-person envisioning experience supporting learner’s self-authored disputation of that stereotype threat. The GSET intervention derives from positive visualization psychology (Fanning, 1998) and possible selves theory (Markus & Nurius, 1986).

Visualization is a necessary stage for action that develops an “I can” mindset through development of a sense of agency. Psychiatrist Roberto Assagioli touted the power of visualization as part of his Psychosynthesis approach (Assagioli, 1965; Assagioli, 1973). He believed visualization could harness and organize the power of human will to affect personal change. GSET is an in-person experience of Assagioli’s Ideal Model exercise. Image detail, clarity, thoughts, and associated emotions are critical
for visualization. Visualization must be undertaken intentionally with learners appreciating that the rationale of GSET is for learners to collect sensorially enriched experiences of themselves in these learning spaces (Ayres & Hopf, 1991). When scholars return to NCCU and willfully prepare themselves for the graduate school phase of the learning journey they benefit from the blending of visualization with exposure.

Possible selves influence the linkages among cognition, motivation, change, and action. There are past, present, and future possible selves that span a continuum of hopeful/desirable/adaptive to dreadful/undesirable/nonadapative. These possible selves have a role in shaping self-concept (Markus & Wurf, 1987). GSET places scholars on Tier One campuses to maximize the learner’s conceptualization of their future self. GSET is a strategy that brings the present self closer to the possible, future self (Oyserman, Bybee, & Terry, 2006). GSET aligns with the learner’s experiences, identity, and psychosocial environments to enhance favorable future selves and diminish the influence of negative or imposed future selves (Meara, Day, Chalk, & Phelps, 1995).

GSET is interwoven with ASES’s strength-based counseling philosophy. The power of self-efficacy is repeatedly emphasized in therapeutic dyads utilizing a scaffolded approach to scholarly self-actualization. Students connect today’s choices and actions to future benefits and consequences. This is critical for balancing the here and now orientation with the future orientation.

Methods

GSET requires a twelve (12) month preparatory cycle. Planning and execution benefits from a team-based approach sharing decisional responsibilities and maximizing individual strengths. Within the year preparation, GSET Advisors first decide the location targeted for the GSET experience. Once the location is agreed upon, the second component focuses on the targeted schools. These are two vital parts due to the attractiveness of the location with the learners. If the learners are not interested in going to “popular” or “scholarly attractive” locations, then it is a low chance of participation. Ten (10) months prior to GSET departure, the selection of participants begins. GSET is open to any NCCU learner interested in graduate school with a cumulative GPA of 3.0 or higher.

Recruiting learners includes a mixture of non-targeted and targeted advertisements. Departmental chairs, faculty, and Honors Program are helpful in locating top candidates. Informational sessions assist in generating participant interest as well. After the sessions, GSET Advisors author a survey through Qualtrics, and disseminate it to interested parties to collect information concerning their interest in GSET. Once the application period closes, GSET leadership independently review the applications selecting best-fit GSET candidates. The independent candidate lists are merged, and a meeting is held to resolve any candidates that achieved less than unanimous selection. On average, twenty-five (25) students are selected to participate in GSET each year.

ASES requires each participating GSET scholar pay $200. Also, learners are responsible for providing for their own food while attending GSET. Chaperones for the trip pay $150 each to lead GSET. This pooled chaperone fund offsets small, unanticipated expenses during GSET. NCCU travels by bus so GSET cities are dictated in part by reasonable driving distance. The time on site at destination universities is optimized against time invested en route. GSET utilizes the fall break recess days, associated weekend, plus one day of class. This approach nets 2.5 days on site at the destination universities and may require overnight bus rides. Beyond travel coordination, cities are selected based on concentration of Tier One universities and cultural exposure opportunities. Past GSET cities include Washington, DC; Columbus, OH; New York City; Philadelphia; and Boston. Typically, for any GSET scholar, a half day is dedicated to a single university program. For example, a prospective MBA trainee would spend the morning at Wharton School at University of Pennsylvania and the afternoon at LeBow College of Business at Drexel University. Following finalization of the destination cities and universities, the bus and lodging accommodations are reserved. We have had some success in asking destination universities to sponsor or
cost-share bus, lodging, parking, and/or food expenditures. Some universities have on-campus hotels or partnerships with local hotels.

**Selection of Destination Universities**

The most time-intensive responsibility is setting scholar’s individual schedules with destination universities. Facilitating visits is accomplished differently per university. Some universities have personnel that will take considerable responsibility for making faculty connections and setting schedules. In contrast, at some universities NCCU GSET leadership takes responsibility for determining every connection at the destination university. Initial contact people can include Graduate School Deans, Diversity and Inclusion Directors, or Departmental Chairpersons. It can also be effective to contact graduate school or departmental Admissions Directors. Directly contacting faculty members that serve as graduate mentors is also effective. Matching interests of GSET scholars and faculty is especially effective in disciplines where individual grant funding supports matriculation. Faculty that are impressed by GSET scholars can be tremendously influential in swaying admissions decisions. The ideal visit takes approximately four (4) hours. It is critical to meet persons involved in admissions decisions, graduate mentors of interest, and current students. It is highly desirable to attend a class lecture and/or tour a research lab. Campus tours and visiting student spaces such as libraries and unions are helpful. Setting itineraries requires multiple cycles of emails and phone calls. Convincing faculty and staff persons at destination universities requires deftly persuasive interpersonal skills. Essentially, GSET involves convincing the personnel of destination universities to take on additional work to receive the NCCU learners.

**Preparation of GSET Scholars**

GSET learners are successful students in terms of learning outcomes and performance marks. ASES Counselors support students cognitively, emotionally, and behaviorally. This holistic process evolves as a negotiation of what learners ask for and counselors’ appraisals of perceived needs. This empowers learners to be aware self-advocates positioned to access needed NCCU services. Certain needs can be anticipated. GSET learners benefit from ala carte academic counseling. Prior to GSET, there are five workshops learners must attend, covering topics such as document preparation, interview skills, and navigating graduate school applications. GSET scholars must prepare, revise, and finalize a resume, personal statement, and cover letter prior to visiting the destination universities. Also, there is a formal workshop and meal that introduces basic etiquette techniques. As GSET expands, there is interest in developing preparatory workshops that can support learners sitting for graduate admissions exams such as the GRE, LSAT, GMAT, and MCAT.

**Selection of Cultural Enrichment Experiences**

Selecting cultural exposure events is challenging. Cultural events are scheduled for weekend arrival days, late weekday afternoons, and evenings. Exposure events stimulate critical thinking, reflection, and discussion. In New York, GSET 2016 experienced the 9/11 Memorial and a Broadway theatrical performance of The Color Purple. Experiencing the nuanced character and gestalt of a university or city is powerfully influential. GSET 2017 will take a Boston Duck Tour. The most influential exposure event may be unanticipated. For example, visiting Washington Square near Columbia University or a Starbucks near University of Pennsylvania provides influential appreciation for the realness of the area. Learners are exposed to the site and can envision themselves there. Cultural exposure is critical to GSET. Experiential capital is gained that can be accessed to support creativity, conversation, and access to a common humanistic language. Visiting Tier One universities and the cultural exposures stretch learners to self-actualize to the best version of themselves.

**Execution**

Execution of GSET commences weeks prior to the loading of the bus. It is beneficial that scholars anticipate certain happenings. Learners must anticipate and prepare for many hours on the bus addressing
necessities such as sleeping, eating, and socializing. At the destination universities, there will be many miles of walking and long days talking with prospective programs. First impressions are lasting impressions. Typical, eating and sleeping schedules will likely be disrupted. Meals may come at odd times, early or late. Anticipate getting up early and be realistic about staying up late. It may rain or be uncomfortably hot. Executing GSET per the daily schedules is foundational to success. Chaperones provide learners with detailed, time- and task-delineated itineraries. Scholars are encouraged to learn as much as practicable about the persons and programs they will visit. Chaperones are responsible for getting learners to the appointments. Learners should have in hand their detailed itineraries, maps, and detailed walking/transit directions in case the chaperone is called to respond to evolving events. Pre-programming all scholar and chaperone phone numbers is necessary. A networking app, such as GroupMe, is essential for keeping scholars informed. Chaperones are encouraged also to have a separate chaperone-only GroupMe.

There will be unanticipated developments. Flexibility, resourcefulness, teamwork, and extra time are critical to successful execution. For example, a learner in GSET 2016 was very excited about visiting New York University School of Medicine. A mixture of excitement and anxiousness nauseated the learner resulting in emesis at the front door of NYU Langone Medical Center. Due to extra time built into the schedule there was opportunity for the learner to rest and recompose before meeting admissions personnel. Successful execution benefits from the union of empathic, committed chaperones developing sincere relationships with prepared GSET scholars.

Reflection, Assessment, and Evolution

Cycles of action, reflection, assessment, and evolution guide the change and growth critical for ongoing successes of GSET scholars and the GSET program. There is prime opportunity to reflect and process as the tour unfolds, during their meal time, and bus rides. Chaperones also make real time evaluations of GSET that can improve future events.

Assessing GSET is challenging. Validating the successes of GSET requires development of qualitative and quantitative metrics. Assessment is provided via short-term qualitative survey measures and slower-developing descriptive statistics, such as numbers of admittance and graduates. Within a week of returning, a Qualtrics survey is completed by each GSET scholar. The survey solicits feedback in two realms. First, how satisfied are the scholars with GSET; particularly focusing on the campus visits, cultural exposures, and execution of the tour. Second, probes query the perspectives and thoughts of the scholars regarding graduate school. Descriptive statistics tally scholars, programs contacted, internship offers, application fee waivers, admittance, and graduates. Admissions offers accumulate slowly. Considering if a second-year student participates in GSET, best case scenario is that an admission offer will arrive in two-and-a-half years. Third and fourth year students may get admitted sooner, but other opportunities can intervene. Noteworthy examples include the emergence of the gap year concept and service related programs, such as Teach for America, that offer student debt related incentives. In this era of budgetary constriction and strenuously pragmatic accountability the proposition of a slowly-evolving program is hazardous.

Results

This section has three sub-sections. The first results briefly detail participant satisfaction. Next, the quantitative success of GSET thus far is presented. Finally, a detailing of the intended, qualitative results of GSET. Understand that GSET is a newer initiative. Two cycles have been completed. Collecting data sufficient for critical assessment of the GSET mechanism will take at least five cycles.

The earliest data demonstrates GSET positively influences learners’ contemplation of attending Tier One universities. Following GSET in 2015 and 2016, scholars had increased interest in attending graduate school (Figures 1 and 2). Furthermore, learners experienced officials from Tier One programs in
Philadelphia and New York as sincere and welcoming (Figure 3). The cultural exposure were also highly influential for learners. The National Museum of African American History and Culture and The Color Purple were rated the most influential exposures (Figure 4).

**Figure 1:** Interest in graduate school, 2015

**Figure 2:** Interest in graduate school, 2016
GSET scholars from the first two cycles have experienced tangible benefits in partnership with the destination universities including internship offers and admission offers (Table 1). The two graduates evidence the meaningful outcomes resultant of GSET participation.
Success-In-Progress: Achievements Derived from GSET Participation
(n = 50 scholars)

| Graduation School Internship Offers for Undergraduates | 24 |
| Application Fee Waivers for Undergraduates             | 10 |
| Admission Offers into Graduate School                   | 4  |
| Graduate/Professional School Graduates                  | 2  |

Qualitative Outcomes
GSET is designed to challenge the educational development of learners through educational and cultural exposure. Scholars experience scaffolded opportunities forcing contemplation of their student identity and trajectory of their learning journey. These contemplations mutualistically challenge and reinforce each other resulting in learners’ holistic change and growth.

Educational
Educationally, there are four main components. First, participating learners have intentional conversations with decision makers at destination universities. These decision makers typically include program directors, professors, diversity/inclusion leaders, and, most importantly, current graduate students. Second, it is critical to experience a graduate class or other multi-sensorial learning experience. Example experiences would include a laboratory tour for a prospective chemistry student or a hands-on ultrasound tutorial for students interested in medicine. Third, learners invest themselves in experiencing student spaces and interacting impromptu with students in those spaces. Destination universities are distinguished in part by investments made in providing spaces, encouraging collegial learning, and a shared student experience. Noteworthy examples include the Vagelos Education Center at Columbia University College of Physicians and Surgeons and Huntsman Hall at the Wharton School at University of Pennsylvania. Other student spaces include libraries and dining spaces. Fourth, learners and GSET leadership informally process individual and group experiences through ongoing sharing and contemplation. GSET leaders serve as encouragers and foils to stimulate discourse, critical thinking, and deeper analysis. Processing can easily evolve over months or years. Learners are encouraged to invest in a self-perpetuating cycle of reflection and action leading to educational self-actualization.

Cultural
Culturally, there are no universal experiences that guarantee educational success. There is, however, unlimited value in increasing cultural competency. Multicultural fluency communicates personal confidence as well as malleability and willingness to learn, experience, and trust. Culturally, GSET intends to stimulate four areas: communication, self-awareness, connectedness, and creativity.

First, exposure to opportunities that enhance cultural competence strengthen communication skills. Imagine experiencing a Broadway play for the first time. Shared communication through language, action, movement, and nuance fosters community. Transitioning from an undergraduate at NCCU to a graduate student at a destination university is a significant transition that benefits from strong communication skills. Graduate school delivers specialized training reliant on ever-increasingly specific language. Cohort peers may share a discipline, but communicating and learning with persons from diverse domestic and international cultures benefits from a diversity of experiences.

Second, self-awareness benefits from diverse cultural exposures. Cultural knowledge informs development of identity and an empathic worldview. Imagine experiencing Emmett Till’s casket at the
National Museum of African American History and Culture. A watershed that is a wrenchingly horrific bellwether of constitutional hate and a testimony of culturally resolute resilience. GSET provides cultural exposures that powerfully stir contemplation of self. Simultaneously individual learners are influenced by other cultures and contribute to the self-authorship and dissemination of their own cultures. Agent identities and dominant cultures routinely marginalize and devalue target identities. One of the critical steps in cultural development is a grounded understanding of self and member cultures. This understanding includes knowledge and vocabulary sufficient to contemplate present self and future self. Learners observant of culture and identity are superbly positioned to be confident and successful self-advocates when facing the personal challenges and scholastic rigors common in graduate school.

Third, cultural exposures provide evidence of extant connectedness and bankable knowledge accessible for developing relationships. Reflecting and processing beyond superficial cultural misconceptions can show the sameness that individuals share. There is significant value in appreciating shared cultural bonds (Carnwath & Brown, 2014). Embracing connectedness requires a certain level of comfort with risk-taking and vulnerability. GSET opportunities to meet formally and casually with current learners at destination universities is critical for experiencing cultural connectedness and shared passions. Intentionally contemplating and developing connectedness can assuage concerns. Debriefing with GSET scholars routinely shows that learners’ capacity to envision themselves enrolling at a PWI increases following the tour. Connectedness is a factor contributing to this change.

Finally, creativity is both reactant and product in the cultural reaction wherein identities can create/revise themselves, experience in-group/out-group, and resolve conflict. If a learner has restricted exposure to a narrow cultural field of view, then there is a creative blindness for the assemblage and expression of distinct cultures (Ludwig, 1992; Rudowicz, 2003). NCCU learners bring their creative, cultural toolbox to graduate school. These resources accrue over a lifetime, but the undergraduate years are a critical developmental window. GSET enhances creative development by exposing learners to provocative cultural opportunities.

Benefits to Learner

GSET exposes learners to graduate programs at Tier One universities and cultural events. These opportunities have a super-additive influence on the trajectory of the learning journey. The universities provide a connection to future educational opportunities, while cultural experiences frame and integrate past, present, and future in a multidisciplinary manner. GSET intersects many systems in Ecological Systems Theory (Bronfenbrenner, 1992). The ultimate benefit to scholars is positioning them to be efficacious self-advocates that can shape their own successes.

During GSET the learner sees a destination university as a real, accessible entity. These Universities are simultaneously different from NCCU, and the same. The critical, basic elements of learner, learner space, and university are the same. The students, staff, and faculty are different, but the same. The collegial, learning fellowship among peers is familiar but differently nuanced. Each learner has a unique experience, but the visit shows that these programs are realistic, natural steps to continue one’s learning journey. The visits can be an opportunity to consider training experiences at a PWI. The significance of using the tour as an in-person envisioning is critical for selecting the best fit program. While the visits may be brief, they are sufficient to establish initial, formative impressions. Also, there are opportunities to visit with Diversity and Inclusion officials. These officials are well-positioned to outline strengths and challenges related to developing campus access and equity. These discussions can be very frank and underscore the necessity of attracting more NCCU students to certain disciplines. Visiting with current students at the destination is particularly valuable.

Many GSET scholars have not benefited from traveling outside of North Carolina. While their lifetime of cultural experiences is rich and personally influential, there can be challenges related to accessing differently cultured experiences and spaces. Cultural experiences support learners in acquiring language, skills, consciousness, and competence. There is a development of shared values and language that supports shared understanding and shared indemnification of humanistic worth.
**Benefits to NCCU**

NCCU can experience multiple benefits resultant of GSET. Temporally these benefits can be delivered immediately or, alternatively may take several years to evolve. The benefits are related to raising the academic and financial profile of NCCU. GSET has a clear benefit to the academic success of NCCU. Immediately following GSET the participating learners return to campus to deliver a halo effect. The GSET experiences are shared with on-campus peers. These peers are energized by the possibility that they too can access destination programs. This immediately stimulates learners academically. The halo ultimately encourages peers to participate in the next GSET and pursue graduate studies. The success of GSET in guiding learners to Tier One programs also attracts quality high school students. NCCU can further develop a reputation as a targeted pipeline that takes in top high school students and provides education and higher education services supporting transition to top graduate programs. Sending NCCU students to Tier One programs also increases the reputational influence and cache of a NCCU diploma. Placing the best NCCU learners as pioneers of sorts at destination universities establishes further the scholarly pedigree of GSET and NCCU. Foremost, GSET intends to encourage learners to secure the highest quality graduate placement possible, but it is undeniable that GSET benefits the scholarly profile and marketability of NCCU.

In higher education, there are entire functional units dedicated to convincing alumni to reinvest financially in their alma mater. Satisfied, successful alumni are better positioned to donate. GSET invests resources in satisfying students and challenging them to maximally self-actualize their individual learning journey. The GSET experience can translate to marketable degrees from top programs. These graduates are positioned for top-paying, successful careers. Successful careers launched in part by GSET, can over time stimulate alumni giving.

**Benefits to Destination University**

For the destination universities, GSET simultaneously improves the university and saves the university money. GSET learners improve the educational and cultural climate. The destination university benefits from free and ready access to exemplary NCCU scholars fully prepared to make an impact on their university and specific, professional disciplines. These scholars bring to campus their talents, expertise, and knowledge. They possess perspectives and cultural viewpoints signatory of meaningful change agents. These learners emphatically understand experiences and challenges associated with being part of an underrepresented population. This worldview is not typically accessible for many PWI graduates. As NCCU learners matriculate, the training university benefits from having shared in the student’s current and future successes. Furthermore, the university demonstrates through action its commitment to increasing access and equity of programs and disciplines. The financial savings to the university are straightforward. NCCU delivers top admissions candidates directly to the faculty and administration. The destination university does not have to invest money in recruiting materials and campaigns. University administrators are not overtaxed by having to travel to far-flung, cattle-call-style graduate school fairs dotted across the country. Programs save money by having access to vetted, prepared candidates. GSET participation is targeted to learners with performance marks, learning-leadership indicators, and learning experiences predictive of success in graduate school. GSET scholars also can be eligible for dedicated funding streams from National Science Foundation, National Institutes of Health, and many other prestigious funding sources. Graduate programs must maximize all available revenue streams in this era of dwindling budgets and contracted funding.

**Challenges Threatening GSET Success**

There are several challenges affecting GSET that range in severity from mildly inconvenient to grave. One challenge is that scholars and administrators can misconstrue GSET as a basically free trip for students to an exciting destination city. This is not accurate as the tour involves nearly continuous activity from the time students leave campus to the time they return, including cramped buses and hotel rooms, waking up early, dressing in business attire, adhering to a strict itinerary, and attempting to maximize graduate school opportunities. Scholars diligently work during GSET. This should be explicitly
communicated from the beginning. A second challenge is that scheduling GSET itineraries at the destination universities can be difficult. Initial contacts involve cold calls and unsolicited emails. Some faculty and administrators will be disinterested in participating. Some will be legitimately overcommitted and unable to participate. Some will never respond. There is challenging work and a certain amount of serendipity involved in making contact at the universities with persons willing to invest their institution, peers, and themselves in a plucky but unknown delegation from NCCU. Uncertain funding is a third, particularly grave challenge faced by GSET. With each cycle, GSET improves. Each GSET gains experiential capital and informs the next event, but the window of opportunity to prove the program is finite. Former naysayers at NCCU are expressing newfound interest in learning more about GSET. Some supporters are opening their coffers. Despite rising local support, it is unlikely that GSET will continue beyond cycle five without extramural funding. Each cycle creates more admission offers, but the slow developing nature of the learning journey is a fourth challenge. Beyond the slowly developing results of GSET, the diversity of opportunities available to GSET scholars can interfere with demonstrating the specific worth of the GSET mechanism. For example, how does GSET show value if a GSET scholar goes to a Tier One university, but not a university visited during GSET? It is likely that the envisioning experience offered by GSET positively influences learners in aspects of development that do not track to graduate school matriculation.

How to make GSET work for your institution

The implementation of GSET at NCCU may not be a perfect fit for your learners, budget, or university. Variations of GSET may be more practical. One variation is a local GSET. Arrange itineraries for scholars to visit programs of interest within a few hours driving distance from your university. This saves significant expense in travel and lodging. Our partners in the NCCU TRIO program have successfully executed this type of GSET. A second variation is to host a GSET. This involves inviting GSET scholars from HBCUs in surrounding states to come to Durham, NC. NCCU would arrange the individual itineraries for these students to visit graduate programs at NCCU, Duke University, University of North Carolina Chapel Hill, and North Carolina State University. Select NCCU scholars could also participate in this GSET hosted by NCCU. A third GSET variation is to establish formal partnerships between HBCUs and PWIs. Essentially, NCCU students are invited to participate in summer training experiences at destination universities. These summer programs are gateway experiences to graduate admission at the universities. NCCU currently has established such partnerships with University of Notre Dame and University of California, Los Angeles. This mechanism does not have the multiplicative impact of GSET, but for a single student each year the benefit is transformative. Multiple partnerships translate to multiple students benefiting so NCCU actively pursues these arrangements. Beyond the benefit to our scholars, these partnerships are attractive for NCCU as they involve limited expense incurred by NCCU. The necessity of increasing cultural equitability in STEM disciplines has made these types of partnerships beneficial for all HBCUs and PWIs.

Future Implications

ASES challenges scholars to commit themselves to action and reflection cycles that maximally self-actualize. Counselors’ intentionally holistic mechanisms position learners to succeed. GSET is easily a full-time commitment for a single counselor. GSET Director may be a dedicated job title in the future. Adding test preparation workshops focused on GRE, MCAT, LSAT are likely GSET developments. In coming years, there may be spring and fall GSETs. A GSET targeting destination universities in California is doable with sufficient funding. Europe and East Asia would be natural next steps when GSET transitions to Global Graduate School Exposure Tour. Effecting substantive change in professional disciplines requires a numerical increase in like-minded persons with hearts and minds sufficiently big and empathetically open to receiving the many-splendored rewards of being prepared...
servant leaders (Greenleaf, 1977). GSET is an initiative delivered by the Academic Success and
Enrichment Services Unit within University College at North Carolina Central University that leads with
heart, mind, and hand.
References


The Level of Decision Making, Perceived Influence and Perceived Satisfaction of Faculty and Their Impact on Student Retention in Community Colleges

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Abstract: This study expanded on previous models that looked primarily at student and support factors related to retention, and examined other stakeholder group functions not previously reviewed in relation to retention. Greater faculty participation in campus decision making and faculty satisfaction were assumed to be associated with a higher campus retention rate. The non-experimental retrospective design examined the unanalyzed 2007 community college (CC) Changing Academic Profession (CAP) survey in relation to campus retention rates. The CAP captured faculty perceptions of whether faculty or non-faculty entities were the primary influence on decisions regarding academic matters, as well as a rating of faculty satisfaction. Analysis indicated that CC faculty rated their participation in campus decision making versus non-faculty entities similarly to the ratings of faculty who had completed the CAP at four-year institutions. When compared with the 2007 retention rate per campus, only faculty job satisfaction was statistically significantly positively association with retention. Faculty as primary influence in academic decision making was not found to be associated with campus retention rate. Recommendations for future research include continuing to look at retention as an outcome of a multi-factorial model involving all campus stakeholders, and more research with retention as the outcome.

Introduction

The need to obtain a college education is predicted to increase in importance as people are joining or returning to the workforce (College Board Advocacy and Policy Center, 2012). The Lumina Foundation (2016) forecasts that 60% of all jobs in American will require some form of college education by 2018. In order to meet this requirement, the Lumina Foundation predicts that 60% of the population will need to have a certificate or degree by 2025, meaning an additional 280,000 degrees will need to be conferred each year through 2025 (Hebel, 2010).

Important entry points for many into college are community colleges as they are generally affordable, allow for completion in a short timeline, are linked to industry, and are open enrollment. This combination of factors makes community colleges highly accessible and highly populated by English-as-a second language (ESL), minority, non-traditional, first-generation, and part-time students (Fike & Fike, 2008). Given the impending increase in need for a college education, it is pertinent and timely to focus here on community colleges.

The problem is that as many as 22% of working age adults have attended college without completing their degree (Hebel, 2010). According to the National Center for Education Statistics (NCES) (2016), the number of first-time students enrolled full time (FT) in 2014 in two-year public colleges in the United States was 403,139, and part-time (PT) enrollment was 188,584. These combine to total 591,723 first-time students enrolled in public two-year institutions out of the 1,642,199 students enrolled in all types of college in the United States in 2014. At public two-year institutions in 2014, the number of PT and FT students who began and did not return the following year was 266,973. This number happens to be incredibly close in value to the 280,000 additional degrees per year that need to be conferred. Both numbers are equally staggering.
Background

In looking at first-time students in 2013-2014 (see Table 1), we see that for two-year public institutions student retention was 43.3% for PT and 60.3% for FT students (NCES, 2016). Student retention at two-year public colleges has ranged for PT students from 40.0% to 43.3% and from 59.0% to 60.3% for FT students over the period of 2006 to 2014 (NCES, 2016). While student retention over the span of eight years has increased on average 1-3%, it is also of note that gains in student retention numbers of a whole percent in one year only occurred three times during the 14 measures represented and there were periods of regression where the retention rate declined. This slow rate of improvement in student retention warrants a look at how student retention has been studied so as to elucidate areas for future research.

Table 1: Fall to fall retention of first-time degree seeking students (Adapted from NCES, 2016).

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<tr>
<th></th>
<th>Four-year public</th>
<th>Four-year nonprofit</th>
<th>Two-year public</th>
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<tbody>
<tr>
<td>06-07</td>
<td>78.0</td>
<td>79.5</td>
<td>59.0</td>
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<tr>
<td>08-09</td>
<td>78.6</td>
<td>79.8</td>
<td>59.1</td>
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<tr>
<td>09-10</td>
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<td>10-11</td>
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<td>11-12</td>
<td>79.2</td>
<td>80.6</td>
<td>58.1</td>
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<td>12-13</td>
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<td>59.3</td>
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<td>13-14</td>
<td>80.8</td>
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<td>60.3</td>
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Part-time student retention (percent)

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<th></th>
<th>06-07</th>
<th>08-09</th>
<th>09-10</th>
<th>10-11</th>
<th>11-12</th>
<th>12-13</th>
<th>13-14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Four-year public</td>
<td>48.9</td>
<td>50.0</td>
<td>50.8</td>
<td>51.3</td>
<td>49.7</td>
<td>50.2</td>
<td>52.5</td>
</tr>
<tr>
<td>Four-year nonprofit</td>
<td>47.1</td>
<td>48.3</td>
<td>46.8</td>
<td>43.7</td>
<td>43.9</td>
<td>39.5</td>
<td>40.6</td>
</tr>
<tr>
<td>Two-year public</td>
<td>40.0</td>
<td>38.9</td>
<td>41.4</td>
<td>41.5</td>
<td>41.8</td>
<td>42.9</td>
<td>43.3</td>
</tr>
</tbody>
</table>

In student retention studies, three main branches of research have been done. The first focuses on student factors. When working in higher education, it quickly becomes apparent that students with family responsibilities, financial troubles, or who are nontraditional and/or first-generation students often have trouble completing college. The research supports this idea and can be seen in the following list of factors associated with attrition.

Table 2: Factors associated with attrition

- Low level of student motivation (American College Testing (ACT), 2010)
- Low student commitment to succeed (ACT), 2010)
- High level of student family responsibilities (ACT, 2010)
- Low Socioeconomic Status (Goldrick-Rab, 2010)
- Underprepared academically for college work (McCabe, 2000)
- Working part-time or greater or attending part time (King, 2003)
- Traditional vs. Non-traditional/Parent-Student (Lovell, 2014-2015)
- First-generation (Bui, 2002)
- Minority and ESL (Wohlgemuth et al., 2006-2007)

The second branch of retention research has to do with student engagement and the work of Vincent Tinto (1993) who theorized that the student educational experience was the root cause for attrition. He emphasized academic integration, the classroom dynamic, learning communities, and student support as ways to improve engagement through social integration and campus engagement. Many studies based on his work found that the more integrated that students were in the school and the more engaged they were with faculty and staff, the more likely they would be to persist (Seidman, 2012; Astin, 1999; Pascarella & Terenzini, 1980; Sax & Astin, 1997, Bai & Pan, 2009-2010).

The third segment of retention research relates to organizational retention efforts. This branch of research integrates information from the engagement and student retention branches in order to determine which organizational efforts would be successful as resource allocation endeavors. As can be seen in the list below, resources diverted to activities such as labs, tutoring, academic support, remedial and developmental education, orientation and learning communities, etc., have been found to improve student success and retention.
Table 3: Organizational retention efforts

- Assistance labs in writing and math  (ACT, 2010)
- Tutoring     (ACT, 2010)
- Placement based on testing   (ACT, 2010; Peng, Le, & Milburn, 2011)
- Remedial/Developmental   (Boylan, Bonham & White, 1999; Fike & Fike, 2008)
- Academic Support    (Ruffalo Noel Levitz, 2015; Grillo & Leist, 2013-2014)
- One-on-one advising, pro advisors (Ruffalo Noel Levitz, 2015; Grillo & Leist, 2013-2014)
- Learning communities    (Bean & Eaton, 2001-2002)
- Freshman interest groups (Bean & Eaton, 2001-2002)
- Student success course (Windham, Rehfuss, Williams, Pugh & Tincher-Ladner, 2014)
- Orientation course (Montgomery, Jeffs, Schlegel, & Jones, 2009; Nguyen, Hays, & Wetstein, 2010; Bai & Pan, 2009-2010; Derby & Smith, 2004)

Despite all of the effort in retention and studying how to improve student success over the years, there was still only a 1 to 3% improvement in retention rates from 2006-2014. When looking at retention research, we see that a number of the studies have as their outcome self-reports from the students of satisfaction or self-esteem, their grade for the course, or their overall GPA. In order to be true retention research, the outcome for a study would need to be retention or re-enrollment in subsequent semesters (Reason, 2009). The literature focuses tremendously on student factors and reinforcing learning. Given the stagnation of the retention rate (Seidman, 2016), it is now pertinent to ask if there are other organizational factors that should be examined in reference to retention.

If we look at the Peterson et al. (1986) model for organizations, we see the organizational environment as central with other stakeholders contributing to the environment (see Figure 1).

Figure 1: College and university environments (Peterson et al., 1986, p. 75) (Used with permission)

We see graphically that colleges are multi-factorial and complex. Each of the stakeholder groups is also complex. For example, the faculty environment alone could be studied in terms of integration in decision making, job satisfaction, and communication with administrators. How changes to faculty job satisfaction impact retention could also be studied. The retention literature, however, does not fully evaluate each area of the model in relation to retention, but instead focuses heavily on a couple of the areas and even then only examines them partially in relation to retention. Further examination is needed into each of the components in relation to retention in order to allow for a more comprehensive view of the problems with student retention and also to allow for a multi-factorial retention model to be developed that includes best retention practices of each stakeholder. Given the stagnation of the retention rate, at this time it is pertinent to examine other organizational factors in relation to retention. The focus here will be on the faculty environment.
Both the human resource and higher education literature support the idea that participation in organizational decision making increases buy-in, morale, satisfaction, and engagement of participants (Heller, 1971; Floyd, 1985). Four-year institutional governance began as a political model where academics were highly separate from administrators. Over time, this model has become a more collegial model where administrators and academics employ two-way communication and work together on college governance issues (Peterson et al., 1986). Community college governance has typically been a bureaucratic or political model with one-way communication (Peterson et al., 1986). This type of governance historically has not promoted input from the faculty into administrative functions.

The administrative and organizational structure of colleges has been theorized to impact outputs like student retention. Centralized (administration only) and decentralized (administration and academics together) decision making processes have been theorized to have an impact on academic quality and enrollment (Qian, Xu, & Xiadong, 2014; Carroll, Dickson, & Ruseski; 2011 Collins, 2002). A collegial governance structure has been associated with improved student retention and the bureaucratic/political structure has been associated with student attrition (Astin & Scherrei, 1980; Berger, 1997; Peterson et al., 1986). This impact needs to be studied further beyond the theoretical realm. Future studies need to focus on practical applications such as how policies and procedures and the functioning of deans impact retention in real-world academic settings (Nelson, 2009; Berger, 1997; Bastedo, 2012; Astin & Scherrei, 1980; Jackson & Kile, 2004; Kezar & Eckel, 2000). Governance has long been implicated as a factor in retention (Astin & Scherrei, 1980), but studies linking the two have yet to advance out of the theoretical realm. Research is needed specifically on the level of faculty involvement in decision making at colleges and its impact on retention.

In 1992, Philip Altbach, with the Carnegie Foundation for the Advancement of Teaching, surveyed faculty at four-year institutions regarding their working environment and their role on campus. Portions of this survey were then formulated into a second survey called the Changing Academic Profession (CAP) survey 2007-08, which was completed by INCHER at Kassel University, Germany, and in the U.S. via a team co-led by William Cummings, George Washington University, Emeritus, and Martin Finkelstein, Seton Hall. The survey was given to faculty at four-year institutions. Comparison of the two renditions allowed for examination of the impact of tremendous growth in number and size of institutions on the faculty environment over time (Locke et al., 2011). The results of the survey at four-year institutions in 2007 revealed that central administration had lost influence since 1992 over decision making to deans and department chairs as the collegial governance structure persisted and thrived at those types of institutions (Locke et al., 2011). The CAP survey was also completed at community colleges in 2007 but the results were never analyzed.

The theoretical framework for the current study included the following three items. First, faculty participation in a collegial governance structure improves academic quality and retention (Gaff, 2007; Astin & Scherrei, 1980). Second, faculty participation in collegial governance improves satisfaction and performance of faculty (Astin & Scherrei, 1980; Berger, 2001; Pope & Miller, 2000; Floyd, 1985). Third, dual control, which is used in four-year institutions, is a model for community college governance to move toward in order to improve student retention (Collins, 2002; Peterson et al., 1986; Carroll et al., 2011).

The purpose of this current study was to examine faculty perceptions of involvement in campus decision making and satisfaction and their impact on student retention at community colleges. The 2007 community college CAP data was retrospectively examined in relation to the institutional retention rate. This study was done to expand the study of retention at community colleges in relation to the research question: Do community college campuses where faculty are engaged in campus decision making outside of the classroom or are satisfied with their job have higher levels of student retention?
Hypotheses

Hypothesis one: When compared, community colleges where faculty are the primary influence regarding the following key areas will exhibit higher student retention than community college campuses where the primary influence is a non-faculty entity: promotion and tenure decisions, selection of key administrators, choosing new faculty, and approving new academic programs (Collins, 2002; Finkelstein & Cummings, 2012; Brown, 1999; Kaplan, 2002; Peterson et al., 1986).

Hypothesis two: For community college campuses, increasing faculty influence on academic policy making at the department level will be positively associated with student retention (Finkelstein & Cummings, 2012).

Hypothesis three: For community college campuses, increasing faculty job satisfaction will be positively associated with student retention (Floyd, 1985; Heller, 1971; Bastedo, 2012).

Methodology

This retrospective non-experimental study utilized a portion of the results from the 2007-2008 Changing Academic Profession survey (INCHER, as cited in Finkelstein & Cummings, 2012) conducted at community colleges and compared it to the National Center for Educational Statistics (NCES) retention ratings for each responding institution. The dependent variable was retention and the independent variables were faculty respondents’ perception of primary influence (promotion and tenure, selecting key administrators, selecting faculty, and approving new programs), level of influence in policymaking at the department level, and job satisfaction. The initial question from the CAP survey utilized in this analysis is below.

Survey Question 1: At your institution, which actor has the primary influence on each of the following decisions (please check only one column on each decision)?

1. Government or External Stakeholders
2. Institutional Managers
3. Academic Unit Managers
4. Faculty Committees/Boards
5. Individual Faculty
6. Students

A. Making faculty promotion and tenure decisions
B. Selecting key administrators
C. Choosing new faculty
D. Approving new academic programs

(Row Institute for Higher Education (RIHE), 2008, p. 416; Changing Academic Profession (CAP) survey 2007-08)

A faculty group was constructed with institutions where the respondent indicated that faculty entities were the primary decision makers for that decision type and a second group was constructed where the respondent indicated that non-faculty entities were the primary decision makers for that decision type. This allowed for the retention rate for all community colleges where faculty were the primary decision makers for tenure and promotion to be compared to the retention rate for all community colleges where a non-faculty entity was found to be the primary influence for tenure and promotion decisions by way of a t-test of mean differences.
Question 1 Results format. (Repeated individually for each option A,B,C,D for question 1)

- Faculty entities (3,4,5)
- Non-faculty (1,2,6)
- Group One: Schools where the representative said faculty was primary influence
- Group Two: Schools where the representative said non-faculty was primary influence

<table>
<thead>
<tr>
<th>Group One: For P+T, Faculty primary</th>
<th>Group Two: For P+T, Non-faculty primary</th>
</tr>
</thead>
<tbody>
<tr>
<td>College 1 Retention %</td>
<td>College 3 Retention %</td>
</tr>
<tr>
<td>College 2 Retention %</td>
<td>College 4 Retention %</td>
</tr>
<tr>
<td>Group One Retention Mean</td>
<td>vs.</td>
</tr>
<tr>
<td></td>
<td>Group Two Retention Mean</td>
</tr>
</tbody>
</table>

- T-test of mean differences
- H1: If the primary influence for promotion and tenure decisions is faculty rather than non-faculty, then those community colleges will have a higher mean student retention rate.

Survey Question 2: How influential are you, personally, in helping to shape key academic policies?

1=Very Influential
2=Somewhat Influential
3=A Little Influential
4=Not At All Influential
5=Not Applicable

A. At the level of the department or similar unit
B. At the institutional level

(RIHE, 2008, p. 416; Changing Academic Profession (CAP) survey 2007-08)

Question 2 Results format

- No groups.
- Numeric rating of level of influence in academic policy making at the department level vs.
- Retention rate for that community college
- Correlation. Do they predictably vary in relation to each other?
- H2: (Positive) The higher the level of influence rating, the higher the predicted retention rate

Survey Question 3: How would you rate your overall satisfaction with your current job?

1=Very High
5=Very Low

(RIHE, 2008, p. 410; Changing Academic Profession (CAP) survey 2007-08)

Question 3 Results format

- No groups.
- Numeric rating of job satisfaction vs. Retention rate for that community college
- Correlation. Do they predictably vary in relation to each other?
- H3: (Positive) The higher the level of satisfaction rating, the higher the predicted retention rate

Summary of Data Treatment

The community college CAP data consisted of an Excel spreadsheet with the coded identifier per individual respondent, their institution of employment, and their answers to the CAP survey questions for each institutional responder. No names of respondents were given. Only survey question responses needed for the current study, along with their institution name and retention rate, were moved to a smaller spreadsheet for analysis. Questions requiring recoding of responses to decrease number of response sets to “faculty entity” or “non-faculty entity” were identified. Responses in the columns for these questions were recoded into a new identifier specifically representing all faculty entities and another new identifier specifically representing all non-faculty entities. The NCES retention rate for public two-year institutions was generated by this researcher for 2007 by utilizing a targeted search function available through the NCES (www.nces.ed.gov). The retention rates in this sample ranged from 43% to 79%. The original 2007 dataset had 254 responses. Institutions with more than one location listed in the retention list but without an additional identifier in the CAP dataset to allow for campus identification were eliminated. This removed four sets of responses from the dataset. One entry had no institution listed despite having all of the responses. This institution was eliminated from the dataset. This left a total of 249 institutions for analysis. The original 253 (254 minus one without institution name) responses represented 78 institutions.
across the five accreditation regions. The number of institutions per accreditation region were as follows: Western Association of Schools and Colleges= 66, Higher Learning Commission= 56, Middle States Commission on Higher Education= 22, New England Association of Schools and Colleges=11, Northwest Commission on Colleges and Universities= 25, and the Southern Association of Colleges and Schools= 73.

Results

The first survey question asked respondents to indicate if a faculty or non-faculty entity was the primary influence for certain decisions at their campus. The mean retention rate for all institutions where a faculty entity was the primary influence for that decision was tabulated. This was then compared against the mean retention rate for institutions where a non-faculty entity was seen as the primary influence for the same decision. The mean retention rates and the p-value of their comparison are listed below (Table 4).

Table 4: Mean retention rate for colleges by primary influence entity and variable

<table>
<thead>
<tr>
<th>Variable</th>
<th>Faculty Entity Mean (SD)</th>
<th>Non-Faculty Entity Mean (SD)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenure and Promotion</td>
<td>59.40 (8.6)</td>
<td>59.29 (1.0)</td>
<td>p&gt;.05</td>
</tr>
<tr>
<td>Administrator Selection</td>
<td>59.15 (8.3)</td>
<td>59.30 (8.1)</td>
<td>p&gt;.05</td>
</tr>
<tr>
<td>Faculty Selection</td>
<td>59.43 (8.3)</td>
<td>59.14 (8.0)</td>
<td>p&gt;.05</td>
</tr>
<tr>
<td>New Program Selection</td>
<td>59.50 (7.8)</td>
<td>59.24 (8.8)</td>
<td>p&gt;.05</td>
</tr>
</tbody>
</table>

The results indicated that the retention rate for community colleges did not vary statistically significantly whether faculty or non-faculty entities were the primary influence for the variables or decision types noted.

Table 5 presents information from the 2007 four-year CAP compared to that of the 2007 community college CAP. There was no other community college CAP dataset for comparison. Table 5 deals specifically with CAP questions and does not deal with institutional student retention as it was not part of the four-year CAP survey or analysis. At both the community college and four-year institutions, responding faculty indicated that faculty entities were the primary influence in tenure and promotion and faculty selection decisions, and that non-faculty were the primary influence in administrator selection. Perceived primary influence for new program approval was nearly a tie between faculty and non-faculty at both types of institutions.

Table 5: Percent of responses indicating faculty or non-faculty as primary influence in decision making at community colleges vs. four-year institutions per variable

<table>
<thead>
<tr>
<th>Variable</th>
<th>Community College</th>
<th>Four-year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenure and Promotion</td>
<td>Faculty=75%</td>
<td>Faculty=82%</td>
</tr>
<tr>
<td></td>
<td>Non-Faculty=25%</td>
<td>Non-Faculty=18%</td>
</tr>
<tr>
<td>Administrator Selection</td>
<td>Faculty=24%</td>
<td>Faculty=23%</td>
</tr>
<tr>
<td></td>
<td>Non-Faculty=76%</td>
<td>Non-Faculty=77%</td>
</tr>
<tr>
<td>Faculty Selection</td>
<td>Faculty=85%</td>
<td>Faculty=93%</td>
</tr>
<tr>
<td></td>
<td>Non-Faculty=15%</td>
<td>Non-Faculty=6%</td>
</tr>
<tr>
<td>New Program Approval</td>
<td>Faculty=48%</td>
<td>Faculty=52%</td>
</tr>
<tr>
<td></td>
<td>Non-Faculty=52%</td>
<td>Non-Faculty=48%</td>
</tr>
</tbody>
</table>

The remaining two variables, decision making at the department level and satisfaction, required comparison with the retention rating for that community college by way of correlation as the responses and the retention rates were both continuous in nature. The results in Table 6 show that as the faculty respondents’ perceived influence in decision making at the department level increased, it was not found that student retention at their campus also increased (p>.05). The results did show, however, that as the faculty respondents’ job satisfaction increased, student retention at their campus also increased (p<.05).
Hypothesis 1 looked at whether faculty or non-faculty were the primary influence in promotion and tenure decisions, selection of key administrators, selection of new faculty, and approving new academic programs, and their impact on retention. Primary influence was not found to be significantly associated with a difference in retention rates for community college campuses for any of the variables in question (p>.05) (Table 6). The null hypothesis was not rejected for hypothesis 1.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Correlation</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decision making at department level</td>
<td>0.11</td>
<td>.098</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>0.13</td>
<td>.038</td>
</tr>
</tbody>
</table>

Table 6: Correlation of response per variable vs. student retention per community college

Hypothesis 2 considered the level of influence faculty responders reported having on academic policy making at the department level and its influence on retention for the campus. The correlation was found to be 0.01 (p = .098), which was not a significant difference. Therefore, as the respondents indicated having more influence on academic policy making at the department level, there was no corresponding rise in retention rate for their campus. The second hypothesis had predicted that there would be a rise in retention rate as faculty influence on decision making at the department level increased, therefore, the null hypothesis was not rejected in this case.

Hypothesis 3 focused on the level of faculty job satisfaction and compared it to retention for their campus. The correlation between satisfaction of faculty and student retention was found to be 0.13 (p=.038), which is a significant difference. Therefore, as the respondents indicated being more satisfied with their job, there was a corresponding increase in retention rate for their campus. The third hypothesis had predicted that there would be a rise in retention rate as faculty satisfaction with their job increased. As this was found to be the case in a slightly positive yet weak significant correlation, the null hypothesis was rejected for the third hypothesis.

Overall only one hypothesis witnessed a statistically significant (p<.05) relationship with retention. As faculty satisfaction with their job increased, so too did student retention for that campus. The remaining variables of perceived faculty involvement in administrator selection, new program approval, new faculty selection, participation in tenure and promotion decisions, and decision making at the department level, while not significantly associated with student retention for the campus, were similarly skewed compared to the responses from the four-year institution 2007 CAP.

Conclusion

Peterson et al. (1986) suggested that community colleges were following the path that four-year institutions had traversed from political to collegial governance systems. The fact that the first rendition of the CAP administered at community colleges already revealed some decision making patterns in line with those at a four-year institution shows that Peterson’s prediction may be coming to fruition.

Faculty Satisfaction Significantly Correlated with Student Retention

Based on these results, it is possible to say that the more satisfied the faculty are, the more persistent that the students become. Satisfied faculty are likely more engaged in the campus (Bastedo, 2012; Heller, 1971). As Tinto (1993) noted, engaged students are less likely to succumb to attrition. Satisfied engaged faculty on a community college campus could be key as so many of the students are primarily involved in the campus only during class time. Based on these results, engaged faculty are satisfied faculty, and satisfied faculty help to retain students. Retention of students satisfies administration. A double, if not triple, loop of satisfaction could be at work on a campus with satisfied faculty.
Other Factors Analyzed Indicate Collegial Tendencies at Community Colleges not Related to Retention Rate

Based on the other factors examined in the hypotheses of this paper, and in this author’s dissertation which this paper was based upon, faculty having input into tenure and promotion, selecting administrators, selecting new faculty, approving new academic programs and decision making at the department level were not found to be significantly associated with retention. The percentages of responses indicating whether faculty or non-faculty entities had primary influence over these decisions at community colleges paralleled closely those found at four-year institutions. The community college results may be a by-product of the collective bargaining system to which they belong, which has given them increased control over academic matters in general. Previous models connected student retention with engagement of faculty in campus decision making processes (Astin & Scherrei, 1980; Qian et al., 2014; Carroll et al., 2011). While there was no significant relationship with retention found at this time, it is possible that this conversion to a more collegial system is still in a new and immature state and will take time to mature and see the full benefits of such a transition. Perhaps over time this improved structure will yield a maximum impact on retention as models had predicted that it would.

Limitations of the Study

This study was limited by a number of factors. First, inheriting a pre-existing datafile meant there were limits to how much was known about how the original study was conducted and why certain decisions were made. The original community college CAP study’s response rate was similar to that of the 2007 four-year CAP and was relatively low. This study was also limited by coding discrepancies. This resulted in the elimination of five cases, thereby decreasing the number of responses for analysis. As the response rate was already low, these eliminations were a serious issue. The original survey was not specific about what faculty member was qualified to complete the survey and therefore differences in faculty function (senate member, senate president, dean, department chair, faculty member without additional responsibility) could have impacted the responses as they were perspective in nature. Ensuring that the respondent is in tune with the other faculty at their institution would have given greater weight to the responses. A dean, chair, or senate president may have been in more of a position to receive feedback from a number of faculty members on their campus whereas an individual faculty member may not have that type of feedback to draw from for their responses. In general, as these are perspective questions, this study was also limited by having 19 campuses where only one campus representative responded to the survey. The remaining responses had at least two respondents per campus. Lastly, this study was limited by the fact that the community college CAP data was not analyzed immediately after it was run in 2007 so that this analysis could have been a follow-up study rather than tabulating the original baseline.

Suggestions for Future Investigation

A Second Administering of the Community College CAP in Relation to Governance and Retention

A second study of the CAP results would support the finding of changes between the 2007 and 2017 surveys which would capture growth, regression, and general trends. Beyond just administering the community college CAP again, it is recommended that future renditions of the community college CAP survey be again correlated with institutional student retention data. The connection between governance/decision making styles and institutional student retention has been analyzed in theoretical models (Astin & Scherrei, 1980; Carroll et al., 2011; Qian et al., 2014), but experimental studies that explore the relationship between the two are called for to fill in a void in the literature between theory and application. While no significant association was found in the current study between decision making strategies and retention, there could still be an association that has not been captured. It is possible that the tool used captured some elements of governance and collegiality, but did not capture the elements of governance and decision making that would impact retention the most. As the variability in retention levels between four-year and community colleges had not been explained by the current study, and there was a call to further study the relationship between administrative style and educational outcomes such as
retention, exploring other administrative factors such as communication type and style in relation to retention are reasonable variables to move on to for further examination.

*Community College Faculty Factors and Their Impact on Student Outcomes*

The basis for the current study leaned heavily upon examining the faculty environment. By way of analyzing the CAP data, only certain aspects of the faculty environment, specifically faculty participation in campus decision making and satisfaction, were examined. Future research should investigate further the faculty environment by looking at other factors associated with a community college campus faculty. The National Survey of Post-Secondary Faculty (NSOPF) is a comprehensive survey of the faculty at postsecondary institutions that analyzes demographic, employment history, employment status, and satisfaction, etc. per employment setting (Cataldi, Bradburn & Fahimi, 2005). This information allows for the identification of patterns of community college faculty demographics. It is recommended that database information be compared with survey and outcomes data. In the same sense, the community college faculty profiles developed from the NSOPF can be cross examined with student outcomes which would allow for a better predictive model to be developed that accounts for more of the variability in student outcomes in relation to the faculty environment.

*Research Based on the Peterson et al. Model with Retention as the Outcome for Each Stakeholder Group*

It is recommended that future studies on retention continue to be undertaken in all of the areas outlined in the Peterson et al. (1986) model, but with “Retention” as the intended outcome, including for that semester, subsequent semesters, subsequent years, or through to graduation. For example, more application research is needed into what components of the administrative environment are associated with the outcome of increased student retention. This research could be used to identify a “best practices” type or level of functioning of campus administrators in order to set up the most retention conducive structure for students. Each of the factors (student, curricular, administrative, etc.) need to be studied in relation to optimal impact on student retention so that institutions can tie decision making to research rather than opinion or group consensus. An entire campus utilizing strategies that have been tested and found to increase student retention is an ideal multi-factorial model to work toward. Until all areas of a college are optimally functioning with each other in relation to their impact on a student’s ability to persist, the retention rates will continue to be stagnant and, worse yet, students will continue to accrue debt and marred academic transcripts rather than graduating and thriving.

*Better Data*

There are already a number of systems that allow for calculation of retention numbers. What seems to be lacking, and is perhaps on the horizon, is a system that also captures transfer rate. We cannot accurately track system-wide whether or not a student has transferred and continued their education at another community college or a four-year institution or has quit entirely. The community college system was known first as a provider of technical education, but has grown to be a “feeder” to four-year institutions. In light of this connection, it is highly likely that some of the students who are captured in attrition statistics are in fact going to other institutions. Until a system is put in place to allow ease of access to information about these students, they will still be considered part of those whom the education system lost, rather than someone who took advantage of an opportunity.

*Summary*

Student retention is universally seen as important. Tremendous efforts have been undertaken to help improve retention. Change has been made in retention that has come from increased insights into effective methods, resources, and outreach. While these efforts are being applauded here, the retention rates make it necessary to keep pushing further into the problem to find more solutions. Looking more broadly at things like inclusion in decision making processes, governance, administrative structures, and
the faculty environment and comparing them to student outcomes was intended here to both link theoretical models to implemented research and to start discussions about what colleges need to strive for in the future.
References


Thriving at the Liberal Arts College: Key Issues, Service Models, and Research for Mental Wellness

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Abstract: In the past decade the number of students entering college with mental health concerns has climbed dramatically. Current research suggests a 10 to 15 percent increase in students reporting ever being diagnosed with depression during the past 15 years. This increase in prevalence has been accompanied by an increase in demand for services of all types including direct mental health support, group therapy, and supportive campus communities. To date, however, there is a paucity of empirical information for college administrators and other interested stakeholders about the nature and magnitude of the impact of mental health related impairment on academic success, and to what extent it may vary by student characteristics. Now in its third year, the 2017 Grinnell College ‘Thriving Conference’ focused on these critical issues surrounding mental wellness. This session will provide summary findings from opening and closing keynote presentations as well as three key areas related to mental wellness: 1) Prevention in mental health, the role of the college; 2) Models for mental health services; 3) Research collaboration on mental wellness and health. Conference participants included faculty and staff from both large and small colleges and universities, the Associated Colleges of the Midwest, and the RAND Corporation.

Introduction

In the past decade the number of students entering college with mental health concerns, specifically anxiety and depression, has climbed dramatically (American College Health Association, 2015). The American College Health Association National College Health Assessment (ACHA-NCHA) national survey of students also indicates that there has been a 10 to 15 percent increase in students reporting ever being diagnosed with depression as compared to the year 2000 (American College Health Association, 2015). This rising rate of mental illness appears to be a trend that will continue and is present in a variety of populations. The National Comorbidity Survey has indicated that about half of all adults will meet the base criteria for at least one mental health disorder in their lifetime (Kessler et al., 2005).

Students with mental illness are more likely to drop out of school and have a lower GPA than their peers (Eisenberg, Golberstein, & Hunt, 2009). Availability of counseling services should be of critical importance, yet, of the 47 percent of college students who have met criteria for a mental health disorder in the last year, only one fifth utilized services (Blanco et al., 2008). A survey conducted in 2010 indicated that over 90 percent of counselling center directors at postsecondary institutions were concerned about the increasing number of students with psychological problems (Gallagher, 2010).

In May of 2017, Grinnell College hosted a third annual student success conference to explore the promise and the challenge of mental health and wellness at liberal arts colleges. This conference series has its origins in the college’s “Quality Initiative (QI),” one of the elements of ongoing preparation for continued regional accreditation. During the summer of 2014, President Raynard Kington established a Student Success and Accreditation Task Force, charged with the goal of maintaining our accreditation
relationship with the Higher Learning Commission (HLC). For the QI, which involves the selection of “one major improvement project that meets its current needs or aspirations”, the Task Force developed a plan that promotes our understanding of and support for student success and retention at Grinnell College: “a systematic analysis of student success and persistence to completion of the baccalaureate degree. [...] using aggregate data to model features of student success, to examine these features to understand student behavior, and to enhance those support services that promote student success.”

The rationale for this initiative stems from three primary considerations. First and foremost is the college mission which includes explicit language about degree completion. Second is the increasing public interest in and awareness of four-, five-, and six-year graduation rates at colleges and universities. Graduation rate, operationalized as the six-year graduation rate, is an important mission metric of the College and is reported to the Trustees annually. Since 2008 the six-year graduation rate at Grinnell has fluctuated from 84 to 90 percent. While this range of completion rates is better than that of higher education as a whole, several institutions in our peer group routinely achieve rates in the 94 to 96 percent range. After deliberations regarding the graduation rates of our national peers and discussion of achievable goals, we believe that we should aspire to at least a 92 percent six-year graduation rate. Third and most importantly for the focus of this work, are the implications of student attrition. The college makes a very substantial personal commitment to, and financial investment in, every student. As a result, attrition may be seen as a failure on the part of the institution to adequately support its students. It also has an impact on campus morale as well as explicit replacement costs and potentially lost investment in institutional aid.

In connection with the multiple initiatives by both researchers and practitioners that are embedded within the QI, Grinnell has hosted spring conferences on student success and thriving topics for the past three years. To-date these conferences have attracted the participation of faculty and staff from more than a dozen liberal arts colleges and five universities. Detailed summary papers have been presented at the National Symposium on Student Retention for the past two years and are available in those conference proceedings.

**Success and Thriving in College - A Complex Issue**

Our own research and the results of the past three conferences have helped to reinforce the complexities found in success and thriving concepts. For small, selective colleges and especially for those like Grinnell that meet 100 percent of demonstrated need, attrition might be described as a “syndrome” with many complex, correlated factors not related to academic talent or financial need. Figure 1 illustrates this point.

![Figure 1. Attrition as a syndrome](image-url)
For the institutions that are the subject of this paper, a holistic approach to the analysis of the student experience can be particularly valuable.

Conference Proceedings

For our 2017 conference, we chose to introduce and frame the meeting with a keynote on how people, and especially students in liberal arts colleges, can find a sense of purpose and establish meaning in their lives. This was followed by three panels focused on mental wellness and health. We concluded the day with a review of the most recent lessons learned from the National Survey of Student Engagement. In the following section, we provide more detail on each of these elements of the conference.

Opening Keynote: On Purpose: Helping Students Find Meaning in Their Lives

Paul Froese, Associate Professor of Sociology and Director of the Baylor Religion Survey delivered the opening keynote for the 2017 Thriving conference. He is an expert on the relationship between religion and politics, secularization, and the sociology of culture and meaning. His most recent book, *On Purpose: How We Create the Meaning of Life*, explores how people talk about, think about, and conceptualize the meaning of their lives. The abstract for his presentation follows:

Academia has been criticized as being either too morally ambiguous by trying to divorce fact from value or, conversely, too morally fanatical in our commitment to “political correctness.” I think both criticisms merit serious analysis but both fail to see the moral depth and richness of the liberal arts experience. These natural strengths can be more intentionally fostered to ensure that today’s college students forge meaningful lives in an uncertain age.

Professor Froese set the stage for the mental wellness and health panels by drawing parallels between the virtues of the world’s religions and a liberal education with regard to establishing a sense of purpose for one’s life. For example, this can be done by examining the historical purpose of the disciplines found in the education setting, by fostering a moral community during the college years, by the development of a positive self-image, and finally by an intentional exploration of how best to live one’s life. He concluded by suggesting the use of three questions for self-examination: 1) What is the purpose of my studies? 2) How do I know what is right?, and 3) What is good about me? He said, “College is often a wonderful time when young adults naturally burst with moral idealism and candid optimism. By guiding and nurturing a student’s moral questions about themselves, their interests, and their studies, we can continue to not only improve a student’s mental health while in school but her sense of self for the rest of her life.” The full text of Professor Froese’s keynote is available at the Grinnell College Office of Analytic Support and Institutional Research webpage (https://www.grinnell.edu/about/offices-services/institutional-research).

The Panel Presentations

In this section, we provide brief synopses of each of the three panel presentations that were used to structure the conference. Additional presentation details and handouts are available at the Grinnell Office of Analytic Support and Institutional Research Web site.

Prevention in Mental Health – The Role of the College

The role of the institution in providing for the mental health and wellbeing of its students to date has been fairly nebulous. With ongoing demands from students, parents, and the public for robust mental wellness support on-campus it has become increasingly important that institutions define their place in this support. This panel focused on what role colleges and universities are currently playing, what role they might play in the future, and the role of prevention work in supporting mental health.
To begin the panel Dr. Barry Schreier (University of Iowa) outlined the roles of the campus mental health center; primary, secondary, and tertiary care options. The specific focus of the discussion was on the prevention (primary) and intervention (secondary) aspects of care. Schreier noted that in many cases, individuals on staff (faculty or other staff) in the campus community may find themselves in a situation with a student in crisis or in need of some form of mental health intervention. In these cases, he notes, most individuals intuitively understand what they should be doing or saying to help the student in crisis. Indeed, this is a most personal and basic human connection that one can make with another. And often students need someone to listen to them vent their frustrations or simply someone to be there while they talk through some concerns or issues. But, due to the sensitivity and risks around dealing with students with mental health concerns, many ‘talk themselves out of’ connections with students indicating that they weren't sure how to approach the situation or if they were ‘allowed’ to discuss these issues with students. This approach is dramatically limiting the amount of outreach that can happen within campus communities.

As others noted during the conversation, the student health center and mental health practitioners should not be the only ‘hammer’ or resource for students. The issues surrounding mental health require an integrated, campus wide approach to helping improve the mental health and wellness of all members of the community. The campus health center can be a model of this integration. Integrated models of care whereby medical and mental health services are located or operate closely together provide for holistic care which may facilitate more accurate diagnoses and timely care for those in need. Additionally, this model of holistic care may provide for an extension and improvement upon the traditional outreach that often occurs in the college community. At many colleges outreach is based on a medical model of illness identification wherein the problem lies within the individual student. This approach largely ignores the system wide or culture specific influences that may shape the mental health and wellness of the population. The ‘social justice outreach’ approach discussed by Dr. Fast (Lake Forest College) encourages not only appropriate treatment and diagnoses (as with the medical model) but also a focus on changing systems which adversely impact student’s wellbeing. This may be as simple as creating 'nudges' which help students make health-promoting choices. Additionally, this model has a much wider impact on students’ wellbeing as it shifts the focus to a population level, as opposed to an individual level, whereby everyone may benefit from outreach, not only those who are struggling with mental illness or who might be under ongoing treatment.

Additionally, all of the panelists for this session spoke on the importance of a community-wide partnership to promote mental wellness. This takes many forms including innovative locations of mental health staff (for example in dorms or academic units), as well as collaborations with other key areas of campus including athletics, student organizations, and other areas that have high rates of contact with students. All of these approaches serve to extend the reach of traditional mental wellness promoting activities.

One important additional consideration during this panel was the use of technology to substitute (in some cases) or assist in promoting mental health. There are a variety of applications for mobile devices as well as other phone based services that can act both as an early intervention and a treatment support service during times of need. These services have come to light primarily due to their demonstrated utility and relatively low cost when compared to hiring additional staff. The integration of technology and mental health services, which have been traditionally very interpersonally focused, is an interesting area for further exploration.

Research Collaboration on Mental Wellness and Health

Despite the recent research at many larger institutions, there is limited empirical information available to those ‘on the ground’ regarding the effectiveness of campus-level interventions to support students with mental illness. This panel discussed their current research efforts, gaps we might address with joint research, and the unique challenges of research related to mental health.
Dr. Rafiq Dossani, senior economist at RAND Corporation described in detail the current research in mental health in the college population. It comes as no surprise given recent news that approximately half of all students in the college going age group report a psychiatric disorder and of those only one-quarter sought help (Blanco et al., 2008). To date, the majority of mental wellness programs fall into one of four buckets; awareness, barrier reduction, identification, and response. Each of these program types may target a different portion of the population; individuals, personal or community networks, departments, and professional services on or off campus.

Although wide reaching in many respects, it is still unclear from research literature the relationship between academic performance and mental health issues (which are widely under or misreported) especially in unique college settings, how we might target interpersonal networks to maximize the impact of interventions, or how less formal response options might be implemented with individuals who have lower levels of training.

In addition, recent writing in popular culture has focused some degree of attention on the idea of 'nudges'; the pertinent question here being how one might design and implement an effective 'nudge' in the college setting. All of these questions are underscored by the larger issue of resource allocation within an institute of higher education. Some participants at the conference reflected the view that higher education is not required to nor should institutions provide robust mental health services, while others described the provision of mental health services on their campus as a necessary part of supporting the student community.

Kristin McKinley and Julie Haurykiewicz (Lawrence University) were able to share the results of the recent implementation of a three-year grant funded intervention grant focused on suicide prevention. This grant focused on many of the existing routes to service delivery as described above, specifically network activation and awareness, but with elements of all four of the larger categories described by Dr. Dossani. More detail on this extensive and well-organized effort can be found at the Lawrence University Lifeline Project website (http://www.lawrence.edu/students/wellness/lifeline).

Of particular importance for research consideration is the evaluation and assessment of the efforts funded through the grant. This evaluation included a pre/post survey design to assess the impact of suicide prevention training on knowledge of suicidal behavior, warning signs, and risk factors as well as confidence in incorporating new knowledge into mental health focused interactions with students.

At the end of this panel it became clear through question and answer that there are key elements of data security and sharing that need to be addressed for future research. In particular the potential for connecting data between mental health centers (health records) and academic performance records often housed in administrative datasets on campus. Although health data is typically covered under the Health Insurance Portability and Accountability Act of 1996 (commonly known as HIPAA) it is yet unclear how HIPAA requirements for data security and sharing might interact with security issues related to educational data covered under the Family Educational Rights and Privacy Act (FERPA). HIPAA applies specifically to individuals, organizations, and agencies that act as health care providers ("but only if they transmit any information in an electronic form in connection with a transaction for which HHS has adopted a standard", this typically is referred to as billing), health plans (company health plans or others), or health care clearinghouses (which process healthcare data). In some cases this may mean that college health and counseling centers are not covered under HIPAA, but instead under FERPA as part of the educational institution. There are interesting considerations here for the collection and use of data, which will require additional discussion and guidance to pursue. These discussions may have a strong impact on the future of research in this area.

Models for Mental Health Services

There is a breadth of literature surrounding medical care models in the United States, but this literature does not always translate into mental health care delivery in the college setting. This panel
discussed how their services are organized and considerations related to how the institution delivers care to students.

Tara Girard from Beloit College presented a description of their model of service, which is entirely contract based, thus the college itself does not employ the providers of care. This model provides the college with on-campus counselors during regular business hours through the Beloit Health System Counseling Care Center. This model is interesting in that many institutions of late have opted to employ their own care providers, shifting the risk onto campus as opposed to through a traditional health care provider practice or system. An important line of future research in this area may include treatment satisfaction, availability, and relative cost as compared to an employed provider model.

There are many different types of providers that can deliver mental health care including psychiatrists (M.D.), psychologists (Ph.D., Psy.D.), social workers, psychiatric nurse practitioners, psychiatric nurses, marriage and family therapists, and licensed professional counselors. This variety of options allows for a number of different input mixes with which to deliver and coordinate care. Jean Underwood (University of Iowa), a psychiatric nurse practitioner spoke to the extent of her practice, how it compares with what psychologists and psychiatrists do, and the holistic role she often plays in treating mental health issues in the college going population. It is yet unclear how many institutions are taking advantage of the variety of mental health care inputs or if there is a clear understanding of how the input mix may serve various issues within the community best.

Victoria Ngo (RAND Corporation) took the discussion of input mix one step further, describing in detail a model of care that has integrated multiple levels of providers to result in improved treatment access and outcomes. This model, termed collaborative care, allow for specialists to support non-specialists (for example lay health workers or community members) in the delivery of very specific components of depression care. This model expands on what was discussed during the first prevention panel of the day (including more individuals in supporting mental wellness) and formalizes the mix of inputs to deliver a relatively lower cost and highly effective form of depression treatment. This model of care has seen success in low-resourced international communities (Uganda, India, Chile, Pakistan, and Vietnam specifically). Importantly, this model does not remove any aspect of specialized care, but provides additional trained resources to the community as needed.

Because of the natural format of the college community, many non-specialist staff already take on some of the role of assisting students through emotional turmoil and in some cases through mental health issues or crises. This setting, with multiple levels of inputs, teams, and collaboration but often limited resources is thus a natural fit for the structure of a collaborative care model. In addition, the impact of improving treatment outcomes in the college setting may have a wide-reaching impact on the population at large as nearly 70 percent of American high school students attend postsecondary education (Bureau of Labor Statistics, 2017).

Closing Keynote on the National Survey of Student Engagement

Jillian Kinzie, Associate Director at the Center for Postsecondary Research and the National Survey of Student Engagement (NSSE) Institute at Indiana University School of Education, delivered the closing keynote. She conducts research and leads project activities on effective use of student engagement data to improve educational quality, and serves as senior scholar with the National Institute for Learning Outcomes Assessment (NILOA) project. The abstract for her presentation was:

Research by Laurie Schreiner and colleagues suggests that engaged learning—in which students meaningfully process class material, are energized by what they are learning, and continue to think about it outside of class—is an important component of student thriving in college. In this session, Jillian Kinzie, PhD, Associate Director of the Center for Postsecondary Research and NSSE will discuss what findings from the National Survey of Student Engagement suggest about engaged learning, and how NSSE findings may contribute to the development of alerts and predictive models for student success.
One of the speakers at the 2016 student success conference at Grinnell was Eric McIntosh who has worked with Professor Laurie Schreiner on the development of the Thriving Quotient™ (TQ), “an instrument that was developed to measure the academic, social, and psychological aspects of a student’s college experience that are most predictive of academic success, institutional fit, satisfaction with college, and ultimately graduation” (Schreiner, 2017). Engaged Learning—a measure of the degree to which students are meaningfully processing what happens in class, energized by what they are learning, and continuing to think about it outside of class—is one of five scales contained within this instrument. It is important to note the connection between thriving in college and meaningful engagement in one’s studies as suggested by Professor Froese, Professor Schreiner, and many years of work by those involved with the NSSE survey.

NSSE is an instrument that has been used by more than 1,600 institutions since 2000, with responses from more than 5.5 million students. In the NSSE context, student engagement “represents two critical features of collegiate quality. The first is the amount of time and effort students put into their studies and other educationally purposeful activities. The second is how the institution deploys its resources and organizes the curriculum and other learning opportunities to get students to participate in activities that decades of research studies show are linked to student learning” (Center for Postsecondary Research, 2017)

Survey items within NSSE are linked to “good practices” in higher education as confirmed by research. Results corresponding to a number of engagement indicators (e.g., higher-order learning, reflective and integrative learning, collaborative learning, learning with diverse others, student-faculty interaction, and quality of interactions) are provided. NSSE survey results are widely used as a source of indirect assessment of student learning.

Professor Kinzie shared some of the key findings from 2013 through 2016 NSSE results from 1,196 NSSE-participating institutions. These findings included both first-year student engagement correlations with retention and graduation rates and those related to effective support for learners. The institutional emphasis on studying and academic work as well as the average number of hours per week students spent preparing for class had strong, positive correlations. A key point made as part of her presentation was:

“Students do not necessarily enter college with the tools to be effective learners. Our findings show that students who get help with coursework invest more time in their studies and make greater use of effective learning strategies, and these behaviors pay off in higher academic achievement. Students who get the help they need are also less likely to consider leaving their institution. These results call attention to the imperative to ensure the availability and effectiveness of learning support services and to ensure students take advantage of those services when they confront academic difficulty” (Kinzie, 2017).

Next Steps

As noted earlier in this paper, we have piloted a new mental health survey at Grinnell that has provided us with a wealth of information about depression, anxiety, and substance abuse among our student population. We intend to follow up on this work with additional research related to collaborative care service models and their potential for use in higher education settings. A collaborative care model may have particular relevance for smaller schools with a strong face-to-face support network in the form of advising, student services, or mentors.

Associated with this focus on mental health research is a growing interest in sharing generalized data around utilization of healthcare services on campus in a way that would promote discussion among like institutions and the ability to benchmark costs, services, and practice patterns.
Discussion

Among the conclusions that have developed from the conference, the following have risen to the top for future action and importance. There is a strong connection between mental health and having a sense of purpose in one’s life. In the words of Professor Paul Froese, keynote speaker for the conference that is the subject of this paper, “…we find that happiness, self-esteem, mental health, good relationships, and productivity are all tied together and wrapped in the belief that life is meaningful. And the causation also seems to work in all directions, each outcome affecting and enhancing the other.” He notes that liberal arts colleges have been and need to continue to be intentional about establishing a moral community which provides students with a sense of history and belonging, a positive sense of self, and a faith that life has deep meaning.

The role of the college in prevention of mental illness and promotion of holistic wellness is still nebulously defined. What we can gather is that the role of staff across the institution is expanding dramatically in the prevention and promotion sense; many faculty and staff are being asked to and have offered to play key roles in this work. Additionally, it is clear that without a cross-campus collaborative effort there will be little change in the trends of current mental illness and treatment seeking behavior in the campus population. There exists a large gap in the current research literature on how to effectively mix inputs of service delivery (provider types among others) to produce the most benefit for students at a reasonable cost. Although there are models of service delivery that may help to guide this research, none have yet been implemented in the college setting in the United States. Ongoing research is needed in this area and in establishing best practices for service delivery in various college settings.

Research by Laurie Schreiner at Azusa Pacific University and the NSSE team at Indiana University has identified engaged learning as a key element in positive outcomes and thriving for college students. To achieve these outcomes, it is especially important for faculty to be aware of and employ best educational practices, and for students to take responsibility for their own learning and to devote appropriate time to their studies. Both the NSSE and Thriving Quotient™ surveys provide results that can provide insights for faculty and students alike.

While a great deal of the research work we have done at Grinnell to-date has been focused on students who are either enrolled or recently withdrawn or suspended, we recognize the growing national interest in outcomes beyond graduation rates. At Grinnell, the Office of Careers, Life, and Service (CLS) has grown dramatically in its services and its impact during the past five years. Now, every student has a CLS advisor from day one in addition to those for academics and student life. We expect that postgraduate success will be a key element of our conference in 2018.
References


Tracking Student Engagement in Co-Curricular Events and Using the Data to Make Meaningful Campus Decisions

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Abstract: Institutions encourage student involvement in co-curricular activities because research shows that campus engagement has a positive correlation with retention and academics (Kuh, Kinzie, Schuh, Whitt, and Associates, 2005). A campus collaboration between Columbus State University’s Academic Affairs and Student Affairs led to an initiative to systematically track student participation at events and evaluate results to make data-driven decisions. The authors used the Theory of Student Involvement (Astin, 1985) and the core elements of this theory—inputs, environment, and outputs—as the framework to analyze student engagement data. Student “input” data encompasses demographics and include gender, race, age, high school GPA, major, first generation, and low income. Student “environment” data accounts for co-curricular events including number of participants at each event and type of event: career, leadership, diversity, social, first-year experience, etc. Student “outcome” data reflects a correlation between student engagement, student achievement, and retention. The culmination of this research provides best practices for collecting data and using the results to improve co-curricular events, which develop skills and abilities that employers value in college graduates. Results reflect a two-year comprehensive analysis of student engagement data.

Introduction

Alexander Astin (1984) explained that student involvement is the amount of physical and psychological energy that the student devotes to the academic experience. Astin (2001) developed Student Involvement Theory because of his frustration with institutions treating students like a “black box.” He postulated that the input end of the black box was the various policies and procedures that students adhere to at institutions and the output end was student achievement measures such as GPAs and standardized tests. Student outputs did not take into account student learning or professional growth and development attained during a college journey. Further, it did not include experiences and life lessons students learn as they engage with co-curricular events and activities. Thus, Astin (2001) incorporated the student experience of involvement to challenge academicians in their traditional pedagogical practices, which includes that curriculum must incorporate experiential opportunities for students to invest energy and effort that will bring about desired learning outcomes through content, personal growth and development.

Researchers have continued to study this correlation with similar results. College students gain valuable knowledge in the classroom, which is enhanced as they engage in experiences that further develop the skills and abilities they need to be successful in a global workforce. Student involvement in co-curricular activities such as student organizations, leadership positions, and activity in campus residence halls has a positive correlation with retention and academics (Kuh & Pike, 2005). Institutions are going beyond the traditional co-curricular experiences and providing intentional development experiences in areas such as financial literacy, teamwork, self-awareness, critical thinking, problem-
solving, conflict resolution, diversity, community service, and networking. Employers are asking institutions to provide these real-world experiences and skills, which prepare college graduates for these encounters as they transition into the workforce.

**Background**

Columbus State University (CSU) offers 46 undergraduate and 42 graduate degrees. Students in all majors have opportunities beyond campus to enhance traditional learning through internships, clinical experiences, cooperative education and field research alongside senior professors. Columbus State offers valuable service to the community and "real world" experience to its students by collaborating on projects with a variety of business/industry, civic, arts and governmental partners.

CSU’s student body is diverse, which is a proud point of the institution. Fall 2016 enrollment included 6,789 undergraduate and 1,618 graduate students for a total student population of 8,407. The breakdown by gender was 4,989 (59%) females and 3,418 (41%) males. Fall 2016 enrollment by race and ethnicity for student body included Caucasian 4,290 (51%); African American 3,121 (37%); Hispanic 466 (6%); International 142 (2%) and other 388 (4%). In Academic Year (AY) 2016, 7,636 (91%) students received some form of financial aid including: 2,533 (33%) students who received Georgia’s merit-based Hope Scholarship, and 3,570 (47%) students who received Pell Grant. CSU’s six-year, first-year, first-time graduation rate for the cohort beginning in 2010 and graduating in 2016 was 30%.

The institution’s faculty and staff continually takes the pulse of the student body’s needs through locally developed assessment tools, as well as the National Student Survey of Engagement (NSSE) and Faculty Student Survey of Engagement (FSSE). Results of the NSSE and FSSE will be received Fall 2017. One of the locally developed student engagement surveys was initiated Fall 2013. CSU’s Student Affairs team embarked on a student engagement campaign that would illustrate students’ level of awareness and participation in services and events. The goal of this fact-finding campaign was twofold: first, to provide fruitful information about the types of services and events students wanted to see on the campus; and second, determine if current students were aware of the student services being offered on campus such as disability, career, diversity, student advocacy, student safety, student health, etc. This campaign received 1,300 undergraduate and over 250 graduate responses. Additionally, 100 students from different areas of campus participated in focus groups, which provided rich information Student Affairs incorporated into their annual goals. The outcome has been a more engaged student body.

This campaign led to a multi-divisional collaboration with Student Affairs, Academic Affairs and University Information Technology Services that set forth a plan to begin tracking student attendance at events in academic year 2014-2015. This partnership had two goals: one, the ability to track students; and two, use the data to make data-driven decisions to improve and enhance the curricular and co-curricular for ALL students at CSU. The scanning technology allowed students’ University Identification Cards (ID) to be scanned easily and quickly. Because the process was effortless, students did not stand in long lines. If a student forgot his or her ID, event staff or students could access the student’s information in Banner. The ability to scan student attendance quickly replaced the traditional practice of getting students to “sign-in” at curricular and co-curricular events. Colleges and academic departments used this technology for meetings, routine convocations, and other activities that were required of students. The outcome has been transformational for our campus community.

Following through with using the data to make data-driven decisions, a collaboration between Academic Affairs and Student Affairs researched the data for academic years 2014-2015 and 2015-2016. The campus community has learned a great deal from the rich results of this research, and it will be used in the new 2017-2022 university strategic plan, which will be implemented Spring 2018.
Methodology

CSU began tracking attendance of students, faculty, and staff at events in academic year 2014-2015 in the Campus Labs database. In Fall 2014, 2,448 students attended at least one event at CSU. The academic and demographics data of the full-time freshman cohort of 827 students extracted from Ellucian Banner, the Student Information System, was matched with the Fall attendees list and the events attended. Subsequently, the Spring 2015 attendees list and the events attended were matched with the Fall 2014 cohort. The events were classified into eighteen categories including Athletics, Diversity, Greek Life, Homecoming, and Residence Life. The number of events attended in each category was tallied. In Fall 2015, 2,587 students attended at least one CSU event. Academic and demographics data on 935 students in the full-time freshman cohort of Fall 2015 and their attendance at various events for the academic year 2015-2016 was also compiled similar to the Fall 2014 cohort.

Chi-Square analysis was used to determine if there was an association among the following “student input” variables: gender, race, major, first generation, low income, neighboring counties, event attendance, high school GPA, first-year GPA, retention rates, and completion rates. The goal of using this approach is to reveal the effect of attending events versus not attending events with student achievement, specifically first-year GPA and retention.

Results

Student Attendance

Student involvement in co-curricular activities has a positive impact on college retention and completion (Pascarella & Terenzini, 1991). Students who immerse themselves into the co-curricular experience are more likely to feel a sense of belonging in the campus community, which often translates into college retention and graduation. Kuh, Kinzie, Schuh, Whitt and Associates (2005) proclaim that institutions are being more proactive in getting students involved in effective, educational opportunities that connect academic programs to out-of-class experiences. A critical part of CSU’s study involved finding out who was attending events and who was not. Events are advertised at the institution, department or student organization level through a one-stop student portal that features all events. The authors wanted to determine if a correlation existed between student attendance, retention, and student achievement, identified as GPA and retention. The purpose of acquiring this data was to ensure the campus is making data-informed decisions as it relates to student involvement. This study focused on the first-year first-time cohorts in academic years 2014-2015 and 2015-2016. Table 1 provides comparisons of student attendance at events. It includes various student background data often used in student retention research—gender, race, low-income, and first-generation. It also provides county of residence details for Muscogee County which is where CSU is located, and Harris County, which is within 20 miles of CSU. Finally, CSU’s top three majors are included. The purpose for including the counties was to see if “local” students are involved, which would dispel the myth that these populations are not involved.

The results featured in Table 1 provide data that reveals an increase in student attendance in the following categories: low-income, higher percentage of female participants over male, and more Caucasian students attended events than African American. Overall, CSU experienced an increase in student cohort size and attendance to events.
Table 1: **First-time first-year student attendance at events**

<table>
<thead>
<tr>
<th>Grouping</th>
<th>Total Number of Students</th>
<th>Student Attendance at Events</th>
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</thead>
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<td>Cohort Size</td>
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<tr>
<td>Female</td>
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<td>552</td>
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<tr>
<td>Male</td>
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<td>383</td>
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<tr>
<td>Caucasian</td>
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<td>374</td>
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<td>Low Income</td>
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<tr>
<td>First Generation</td>
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</table>

**Student Retention**

Students who feel connected to their college campus appear to feel better about their experience and, in turn, stay through graduation (Astin, 2001). Research has provided some insight into the relation between student involvement on campus and retention rates, but it is unclear if an adverse effect to involvement exists (Pascarella & Terenzini, 2005). Pascarella and Terenzini discussed their findings on the impact college has on students. Such information provides a guide to better understand what students gain from college above and beyond what is learned in the classroom. National Student Survey of Engagement (NSSE, 2013) states that institutions that are committed to student success provide support and involvement across a variety of domains, including the cognitive, social and physical, which lead to higher levels of student performance and satisfaction. Students need to get involved on campus, no matter what they may be interested in doing professionally. Involvement teaches communication skills, professional development issues, and group dynamics (Trevas, 1996).

Figure 1 shows an increase in retention over the past five academic years for first-year first-time freshmen students. CSU attributes this increase to several factors including intrusive academic advising for at-risk students, participating in 15 to Finish where students are encouraged to take 15+ hours per semester, and a focus on student engagement in High Impact Practices in curriculum and co-curricular experiences. NSSE founding director George Kuh recommends that institutions should aspire for all students to participate in at least two HIPs over the course of their undergraduate experience—one during the first year and one in the context of their major (NSSE, 2007).

This study included first-year first-time retention rates for five years beginning in AY 2012. Figure 1 shows this data broken down by subpopulations to include female, male, African American and White. Total retention rates increased from 66% in AY 2012 to 73% in AY 2016, which is indicates a 7% increase. Each of the subpopulations experienced an increase in retention rates with the following breakdown: 7% increase in females, 10% increase in males, 6% increase in African Americans, and 9% increase in Caucasian. Figure 2 shows how the retention rates of students who attended events compared with those who did not attend in AY2015 to AY2016.

The increase in the institution’s first year first time retention rate is a continued area of improvement for CSU. Although CSU has experienced increases in the retention rates, administrators, faculty and staff are developing bold initiatives in our academic and non-academic programs and services to increase this further. While plans are being put in action now, the university will roll out a new Strategic Plan Spring 2018 for the campus.
Table 3 shows the differences in academic performance between students who attend events and students who do not attend events. The academic performance metrics of students engaged in AY 2016 are higher than the academic performance metrics of engaged students in AY 2015. The average HSGPA, Fall course completion rate, Fall GPA, Spring course completion rate, first year course completion rate, and first year GPA of students who attended events is higher than students who did not attend any events. Based on data from these results, CSU will continue to build a strong co-curricular environment that embeds high impact practices in our co-curricular events. Student engagement is one of the institution’s priorities in the new Strategic Plan, which will be implemented in Spring 2018.
Table 3: Event attendance and academic performance

<table>
<thead>
<tr>
<th>Variables</th>
<th>2011-2012 Mean</th>
<th>2012-2013 Mean</th>
<th>2013-2014 Mean</th>
<th>2014-2015 Mean</th>
<th>2015-2016 Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Attended Events</td>
<td>Attended Events</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>HSGPA</td>
<td>3.12</td>
<td>3.15</td>
<td>3.21</td>
<td>3.08</td>
<td>3.14</td>
</tr>
<tr>
<td>Fall Course Completion</td>
<td>80%</td>
<td>78%</td>
<td>87%</td>
<td>87%</td>
<td>77%</td>
</tr>
<tr>
<td>Fall GPA</td>
<td>2.45</td>
<td>2.58</td>
<td>2.77</td>
<td>2.85</td>
<td>2.53</td>
</tr>
<tr>
<td>Spring Course Completion</td>
<td>80%</td>
<td>79%</td>
<td>86%</td>
<td>86%</td>
<td>78%</td>
</tr>
<tr>
<td>First-Year Course Completion</td>
<td>73%</td>
<td>74%</td>
<td>81%</td>
<td>85%</td>
<td>75%</td>
</tr>
<tr>
<td>First-Year GPA</td>
<td>2.54</td>
<td>2.64</td>
<td>2.80</td>
<td>2.76</td>
<td>2.46</td>
</tr>
</tbody>
</table>

Table 4 names the top ten events students attended. In AY 2015, a student on average attended one athletic event and four events in the year. In AY 2016, a student on average attended three athletic events, one resident life event, and eight other events in the year. The average number of events attended doubled from the previous year. Table 5 depicts a higher percentage of African Americans attended athletics, diversity, financial education, homecoming, residence life, registered student organizations, student activities council, student advocacy, and welcome back events.

Table 4: Top ten events students attended

<table>
<thead>
<tr>
<th>Number</th>
<th>Event</th>
<th>AY 2015</th>
<th>AY 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cohort</td>
<td>827</td>
<td>935</td>
</tr>
<tr>
<td>1</td>
<td>Athletics</td>
<td>273 (32.9%)</td>
<td>208 (32.6%)</td>
</tr>
<tr>
<td>2</td>
<td>Career</td>
<td>25 (3.0%)</td>
<td>112 (11.6%)</td>
</tr>
<tr>
<td>3</td>
<td>Diversity</td>
<td>116 (14.1%)</td>
<td>159 (17.4%)</td>
</tr>
<tr>
<td>4</td>
<td>FYE</td>
<td>-</td>
<td>350 (37.4%)</td>
</tr>
<tr>
<td>5</td>
<td>Greek Life</td>
<td>51 (6.2%)</td>
<td>140 (15.0%)</td>
</tr>
<tr>
<td>6</td>
<td>Majors Meeting</td>
<td>60 (7.3%)</td>
<td>137 (14.7%)</td>
</tr>
<tr>
<td>7</td>
<td>Registered Student Org</td>
<td>17 (2.1%)</td>
<td>132 (14.1%)</td>
</tr>
<tr>
<td>8</td>
<td>Residence Life</td>
<td>206 (24.9%)</td>
<td>472 (50.5%)</td>
</tr>
<tr>
<td>9</td>
<td>Student Activities Council</td>
<td>283 (34.3%)</td>
<td>383 (41.2%)</td>
</tr>
<tr>
<td>10</td>
<td>Welcome Back</td>
<td>215 (26.1%)</td>
<td>327 (35.2%)</td>
</tr>
</tbody>
</table>

Table 5: Event type by attendance of African American and Caucasian

<table>
<thead>
<tr>
<th>Event Type</th>
<th>African American</th>
<th>Caucasian</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athletics</td>
<td>48.5%</td>
<td>39.3%</td>
<td>12.1%</td>
</tr>
<tr>
<td>Diversity</td>
<td>55.6%</td>
<td>34.2%</td>
<td>10.3%</td>
</tr>
<tr>
<td>Financial Education</td>
<td>57.5%</td>
<td>27.5%</td>
<td>15.0%</td>
</tr>
<tr>
<td>Homecoming</td>
<td>50.6%</td>
<td>38.6%</td>
<td>10.8%</td>
</tr>
<tr>
<td>Residence Life</td>
<td>52.9%</td>
<td>37.9%</td>
<td>9.2%</td>
</tr>
<tr>
<td>Registered Student Organization</td>
<td>64.7%</td>
<td>17.6%</td>
<td>17.6%</td>
</tr>
<tr>
<td>Student Activities Council</td>
<td>52.5%</td>
<td>37.0%</td>
<td>10.6%</td>
</tr>
<tr>
<td>Student Government Association</td>
<td>49.3%</td>
<td>35.6%</td>
<td>15.1%</td>
</tr>
<tr>
<td>Student Advocacy</td>
<td>74.0%</td>
<td>13.0%</td>
<td>13.0%</td>
</tr>
<tr>
<td>Welcome Back</td>
<td>46.3%</td>
<td>39.8%</td>
<td>13.9%</td>
</tr>
</tbody>
</table>
Conclusion

The results of the data from CSU’s assessment of student engagement in 2013, led the institution to implement a student tracking system that can be used campus wide at curricular and co-curricular events. It is evident that CSU can use the data collected to determine which students are attending and not attending events and compare this information to their academic achievement and retention rates. The institution will continue to encourage departments to use the student tracking technology to assist the campus community in understanding the population trends, retention, and completion efforts in terms of high impact curricular and co-curricular practices. Annual exploration of the data will assist in developing avenues for more sub-populations to participate to include first generation, low income and males. CSU’s centralized Academic Advising Center and Academic Tutoring Center can use the data to identify students who need to engage in co-curricular events and services to assist in their progression to graduation. Administrators can utilize the data to determine how resources should be used for different types of events and services.

CSU is planning to conduct additional studies with the data collected. The first study will examine the engagement level of transfer students and compare the engagement of the Fall transfer cohort with Fall freshman cohort. The second study will include Academic Year 2016-2017 data for a longitudinal analysis of the engagement of students. This will help CSU identify if engagement varies by student classification (freshman, sophomore, junior, senior), and if lower levels of engagement across years portends student drop out. CSU’s goal is to reach a first-time full-time freshman retention rate of 75% and six-year graduation rate of 36% by 2020. Studies on engagement and persistence like this study will help CSU reach our retention and graduation rates goals.
References

Transfer Preregistration: Building a Path for a Successful Transition

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Abstract: Transfer students create a unique challenge for institutions during the orientation and enrollment process. Although transfer students make up approximately 30% of our incoming class enrollment at the University of Tennessee at Chattanooga (UTC), they were experiencing a more difficult transition than our first-time college students. Transfer students were not able to get into the courses they needed to become full-time students or make timely progression to graduation. Students were frustrated with the multitude of closed classes, course waitlists, and course registration errors during orientation registration. This critical issue peaked during the summer of 2015 when over 100 students completed an orientation session without registering for any credit hours. UTC resolved to take a proactive step in solving this roadblock for future transfers. Having successfully preregistered first-time freshmen for five years, the decision was made to expand the process to transfer students. Revisions had to be made to accommodate the unique needs of transfer students, and a significant amount of time was devoted to encourage faculty and staff buy-in to the process. This presentation will explain the development of the transfer preregistration process, the results from our pilot year, and provide an update on our current process.

Introduction

Students who transfer from one institution to another constitute a significant portion of the current college population, 37.2 percent within six years per the National Student Clearinghouse Research Center (Fain, 2015), and contrary to literature, are not limited to the community college to four-year institution transfer, but also includes those who transfer from four-year to four-year and from four-year to two-year schools (Grites, 2004). This diversity among transfer students challenges institutions to create appropriate programs that meet the needs of all transfer students and appropriately guide them toward success (Archambault, Forbes, & Schlosberg, 2012). Beyond the challenge of moving coursework from one institution to another, most college students experience barriers that can make persistence and degree completion challenging, with transfer students experiencing barriers at least twice (once per institution), including, but not limited to, cost, academic policies and processes, climate, and post-transfer adjustment (Hatton, Homer, & Park, 2009).

Because they have experienced various aspects of higher education at one or more campuses, transfer students typically understand the general framework of higher education; however, orientation (and pre-orientation practices) offers details specific to the new campus, making it a critical resource to overcome transfer barriers (Wisniewski & Koskowski, 2012; Handel, 2011; Townsend & Wilson, 2006). Colleges and universities often use orientation as the time in which students get their first course schedule, which can include its own set of problems such as informational setbacks—students previously advised to take courses that will not transfer, (Packard, Gagnon, & Senas, 2012)—and imperfect course alignment—courses not transferring as expected, and/or courses required at one institution are different.
from what is required at the next institution (Lewis, 2013). Academic advisors can play a key role in helping students address academic barriers through one-on-one advising, early intervention, programs, and connecting transfer students with resources (Hatton, Homer, & Park, 2009). Preregistration could be viewed as an early intervention program, working with students to get them in the most appropriate courses prior to even stepping on campus for orientation, freeing time during orientation. To help students, advisors must interact with them as human beings rather than process them as course registrants (Cuseo, 2012), especially when “students do not always receive or understand appropriate advising either pre- or post-transferring (Archambault et al., 2012, p. 111).

Programs that invite students to become engaged with the new institution and with the academic advisor prior to application or enrollment may be a key to increasing the awareness of the student prior to transferring (Thurmond, 2007). In addition to online applications, electronic transcript submission, etc., the utilization of “advance registration capabilities have improved the transfer process quite readily. Institutions should maximize the opportunities and capabilities of these technological improvements in order to serve transfer students more effectively, more efficiently, and more successfully” (Grites, 2004, para. 6). As technological improvements are made “four-year institutions should undergo reviews of their academic advising enterprise to insure they are equipped to meet the needs of transfer students” (Turk, 2017, para. 9).

**Background**

At the University of Tennessee at Chattanooga (UTC), the onboarding process for new first-time college students has undergone significant changes since 2011. Prior to 2011, our first-time freshmen attended a two-day orientation which included meeting with an academic advisor and building their own schedules in a computer lab. Due to a variety of challenges, the decision was made to preregister our incoming freshmen for fall courses based on a preregistration model at the University of Montana. Since the UTC freshmen preregistration process was implemented in 2011, we have preregistered approximately 2,000 new students each year. The preregistration process is considered successful in creating a seamless enrollment process for our new students.

During this same time span, our transfer student enrollment process became increasingly difficult. UTC has enrolled an average of 850 new transfer students each fall for the past five years. However, the early preregistration of our first-year students resulted in fewer courses remaining available for transfer orientation sessions, particularly those within general education categories. Additionally, our transfer students encountered a variety of registration errors when attempting to add classes due to outstanding credits from in-progress coursework. The lack of class availability coupled with multiple registration errors left many of our transfer students with few to no credit hours when they completed orientation registration. Table 1 shows the registration errors encountered by 473 new transfer students attempting to register during the 2015 summer orientation sessions.

<table>
<thead>
<tr>
<th>College</th>
<th>Pre/Co-Requisite</th>
<th>Closed Class No Waitlist</th>
<th>Closed Class with Waitlist</th>
<th>Insufficient Hours</th>
<th>Program Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Sciences</td>
<td>210</td>
<td>212</td>
<td>1020</td>
<td>46</td>
<td>6</td>
</tr>
<tr>
<td>Business</td>
<td>65</td>
<td>28</td>
<td>210</td>
<td>30</td>
<td>2</td>
</tr>
<tr>
<td>Engineering &amp; Comp. Sci.</td>
<td>52</td>
<td>22</td>
<td>55</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Health, Educ., Prof. Studies</td>
<td>29</td>
<td>14</td>
<td>28</td>
<td>9</td>
<td>19</td>
</tr>
<tr>
<td>Grand Total</td>
<td>356</td>
<td>276</td>
<td>1313</td>
<td>90</td>
<td>27</td>
</tr>
</tbody>
</table>

Only students who attempted to register for a course and did not succeed in registering for any section of that course are included in the results. Over 1,500 instances of closed class errors occurred
which indicated our transfer students were struggling to find open courses. Furthermore, 134 incoming transfer students completed an on-campus or online orientation but failed to register for any courses during their orientation registration session as shown in Table 2.

Table 2: Transfer orientation fall registration results by session type in summer 2015.

<table>
<thead>
<tr>
<th>Orientation Registration Status</th>
<th>On-Campus Orientation</th>
<th>Online Orientation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time students (registered for 12+ hrs)</td>
<td>444</td>
<td>59</td>
<td>503</td>
</tr>
<tr>
<td>Part-time students (registered for less than 12 credit hours)</td>
<td>216</td>
<td>49</td>
<td>265</td>
</tr>
<tr>
<td>Students registered for no credit hours</td>
<td>41</td>
<td>93</td>
<td>134</td>
</tr>
<tr>
<td>Students on waitlists for 1 or more courses</td>
<td>315</td>
<td>51</td>
<td>366</td>
</tr>
</tbody>
</table>

Online orientation students in particular were an enrollment challenge with a large portion of students remaining at part-time status or with no credit hours. The closed class issues and registration errors were significant obstacles hindering the transfer enrollment process for many students. As a result, the decision was made to implement a preregistration process for transfer students.

**Building Campus Support**

With a successful foundation in place from our freshmen process, the implementation for preregistering transfer students was anticipated to be relatively simple. However, there were challenges to generate campus-wide support for the new initiative. The Associate Provost for Enrollment Services began building support for a transfer preregistration process immediately following the summer 2015 term. The units within Enrollment Services who would be significantly impacted included Undergraduate Admissions Office, the New Student and Family Programs Office, the Center for Advisement, the Records Office, and Banner Systems Support Services. These offices played a significant role in the preregistration process for first-year students, and they had first-hand experience to the positive changes that resulted from the freshmen preregistration process. The Enrollment Services teams began laying the groundwork for implementation in August 2015.

The next group of individuals sought for input were the members of the Advisors’ Council, our institutional steering body for academic advising initiatives. The Advisors’ Council membership includes all professional advisors, faculty representatives from each college, and other strategic partners from offices central to student success. Although the Advisors’ Council acknowledged the need to improve the transfer enrollment process, there were concerns expressed about the difficulty of preregistering transfer students. The most repeated concerns centered around the fact that transfer students are a unique population, and the students would not fall into prescribed plans in the same fashion that the freshmen preregistration process works. There were also concerns over a lack of class availability which many advisors have no authority to remedy. Extended dialogue was required to help members understand how the current preregistration process could be adapted to meet the needs of transfer students.

Recruiting faculty supporters proved a bit more challenging since this was a significant change for many faculty advisors. Although the professional advisors were heavily involved in assisting new students in registration, many of the faculty were not as engaged in the actual registration process. The majority had not witnessed the multitude of registration roadblocks our transfer students had been facing. The faculty were also concerned about additional work load. The Associate Provost visited the Council of Academic Department Heads as well as college-specific meetings to answer questions and address concerns. Full campus support was quickly evident after the first transfer orientation session with students preregistered in 2016. Feedback on transfer preregistration was overwhelmingly positive from faculty and professional advisors once individuals realized that additional work on the front end led to a smoother and less stressful orientation session.
Transfer Preregistration Process

The planning and implementation of a transfer preregistration process requires a significant time investment as well as collaborative efforts from partners across campus. Modifications were made to the freshmen preregistration process since many lessons were learned during the early years of adoption. This also allowed for minimal financial commitments to be required beyond the necessary time and energy devoted by those organizing and completing the transfer preregistration process.

Preparation

The freshmen preregistration process is based on information that students provide to the institution when they register for New Student Orientation. As a part of the orientation registration process, students must complete an Academic Interest Questionnaire (AIQ). The Transfer AIQ was adapted from our Freshmen AIQ to reflect the information necessary to build a transfer student’s schedule, including in-progress transfer coursework and class time restrictions. Meetings were held with advising stakeholders from each of the academic colleges to provide feedback on the Transfer AIQ questions, and a final version of the Transfer AIQ (Appendix A) was submitted to the third party vendor UTC uses for orientation registration.

Since all transfer students must complete the same Transfer AIQ regardless of major, AIQ Guides were created for each major to provide department specific information to students (see Appendix B for an example). Students are directed to review the AIQ Guides as they complete the Transfer AIQ. During late spring term, academic departments receive lists of students’ names and majors via email to help prepare for preregistration planning. Ongoing communication regarding new student AIQs to process, AIQ open lab processing times, and training opportunities are shared with departments until the official launch of the preregistration process in mid-May.

Participants

The completion of the transfer preregistration process is truly a campus wide team effort involving individuals at all levels. Approximately 70 individuals, including department heads, faculty members, and professional advisors, built over 800 transfer schedules during the summer of 2016. The AIQ process is coordinated by the Center for Advisement, UTC’s centralized advising center for first-year students and undeclared majors. The Associate Provost for Enrollment Services supports the initiative and communicates frequently with the Provost and Academic Deans regarding course availability needs. Representatives from the Honors College, Athletics Department, International Programs, and the Disability Resource Center assist with preregistering unique student populations. Lastly, on-going registration processing and technical support are provided by the Records Office and Banner Systems Support Services to ensure that the Transfer AIQ process flows smoothly.

AIQ Preregistration Process

The primary schedule building time period takes place during a one week period in May when approximately 1,500 schedules are built. During all AIQ processing times, a centralized computer lab is reserved for advisors to drop in and process schedules. Approximately 100 AIQ processing lab hours are scheduled throughout the summer to accommodate late registrants to orientation as well as any necessary schedule changes.

When building a schedule, advisors review information provided by students in the AIQ Dashboard, which is an in-house tool developed within an Argos Enterprise Reporting System. The AIQ dashboard populates the information received on orientation students, and a file is automatically sent each night to refresh the information. Once an advisor plans a student’s schedule, the advisor prints a registration form to give to a Records Office representative who processes the registration. Having a Records Office staff member process the registration provides a secondary review to check for errors as well as limits the number of individuals needing access to edit student records. UTC Records staff members also have the authority to enter necessary overrides which bypass errors that may generate...
during a student’s preregistration. If a registration error cannot be overridden, such as some closed class errors, the registration form is distributed back to an advisor for adjustments. Despite the fact that each student’s schedule is built individually, the number of individuals involved in the AIQ process makes the process move quickly.

Additional on-going workflow processes must take place to ensure accuracy and to coordinate the preregistration process amongst many individuals. During peak times, lists of new AIQs to process must be generated, divided, and distributed daily. Various reports are generated to identify students who change majors, track course overrides issued, and review advisor notes. Error reports are run frequently to help identify errors including class repeats and insufficient test scores for course placement. Lastly, fall schedules are dropped throughout the summer as students cancel enrollment with the institution.

Prior to each on-campus orientation session, student schedules are printed. If students change majors upon checking in at orientation, advisors are on standby in a computer lab to edit schedules. Students receive a copy of their fall schedule along with a Degree Works degree audit during orientation advisement. Orientation provides advisors time to do a final review of the schedule for accuracy and answer student questions. Students are then directed to a computer lab where they can make any schedule adjustments desired. Although the preregistration process is a significant time investment on the front end, the orientation program has become more effective and efficient as a result of the work completed prior to students arriving on campus.

### Results and Institutional Impact

UTC anticipated the move to transfer preregistration to provide positive outcomes due to the success of the freshmen preregistration process over the past several years. When comparing the results of orientation registration during 2015 and 2016, our data show an increase of 141 students who reached full-time standing during their orientation session and a decrease of 126 students on closed class waitlists.

<table>
<thead>
<tr>
<th>Transfer Orientation Registration Overview</th>
<th>2015 Not Preregistered</th>
<th>2016 Transfers Preregistered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time students (registered for 12+ hrs)</td>
<td>503</td>
<td>644</td>
</tr>
<tr>
<td>Part-time students (registered for less than 12 credit hours)</td>
<td>265</td>
<td>96</td>
</tr>
<tr>
<td>Students on waitlists for 1 or more courses</td>
<td>366</td>
<td>240</td>
</tr>
</tbody>
</table>

Additionally, we were able to resolve the majority of registration errors for students in advance of orientation registration by building their schedules for them. Unlike the summer of 2015 when over 100 transfer orientation students failed to register during their session, the vast majority of students were registered for at least some courses prior to orientation. Fewer than ten students attended a 2016 orientation without a schedule prebuilt for them, and these students were awaiting admission into competitive programs with no outstanding prerequisite requirements remaining. These few students were advised during orientation on appropriate electives or secondary major or minor options they could work towards in the interim period. Our online orientation students previously struggled significantly with their initial fall enrollment. After the implementation of preregistration, UTC experienced an increase in the number of online orientation students registered for full-time standing the summer of 2016 (see Table 4).
Table 4: Transfer orientation fall registration results by session type in summer 2016.

<table>
<thead>
<tr>
<th>2016 Transfer Orientation Registration</th>
<th>On-Campus Orientation</th>
<th>Online Orientation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time students (registered for 12+ hrs)</td>
<td>536</td>
<td>108</td>
<td>644</td>
</tr>
<tr>
<td>Part-time students (registered for less than 12 credit hours)</td>
<td>62</td>
<td>34</td>
<td>96</td>
</tr>
<tr>
<td>Students on waitlists for 1 or more courses</td>
<td>203</td>
<td>37</td>
<td>240</td>
</tr>
</tbody>
</table>

In addition to an increase of full-time standing for new transfers, there are additional positive impacts across the institution. Academic departments have advance notice to determine course needs in mid-May as opposed to late July. This grants department heads more time to adjust class capacities and secure resources for new sections. Additionally, the preregistration process requires our advisors review student records in advance of orientation. This additional time provides an opportunity to address and resolve concerns, such as transfer equivalency issues, prior to a student’s arrival on campus. Perhaps the greatest impact that has occurred is that advisors now have time to focus on meaningful conversations during orientation. Less of an emphasis on class registration allows for more opportunities to share information on academic programs, discuss students’ career and educational goals, and address questions related to the transition to UTC. Transfer students appear more satisfied when leaving orientation than in previous years now that they are experiencing fewer registration roadblocks. Lastly, the preregistration process has changed the culture of advising on our campus. There is sense of teamwork and unity that developed during this shared workload, and we have stronger advising network across the campus as a result of transfer preregistration.

Future Directions

UTC had an advantage in developing a transfer preregistration program since many challenges had been resolved in the implementation of the freshmen process. With the first year of transfer preregistration complete, we will continue to review and update the student AIQ in an effort to streamline the questionnaire for students while gathering the necessary information for advisors. Additionally, there are plans to revise the AIQ Guides to emphasize existing resources. There will be an increased focus on helping students learn the value of advising tools available throughout their time at UTC instead of creating a guide that students will only reference during orientation registration. UTC may also be transitioning the orientation registration process from a third party vendor into the CRM software program we currently use for recruitment.

Once additional cycles of transfer preregistration are completed, UTC will determine if there is a long-term impact of the preregistration process on students. Future assessments will include measuring retention, graduation rates, and time to degree for our transfer cohorts. UTC is excited about the progress achieved in creating a more seamless transition for transfer students, and we will continue to look for future opportunities to remove enrollment roadblocks for transfer students.
References


Appendix A

Transfer Student Academic Interest Questionnaire (AIQ)

Introduction to Academic Interest Questionnaire (AIQ)
Academic Advisors will preregister incoming transfer students for two or more fall courses based on major, placement scores, and information provided to us in the AIQ. You will be given a copy of your Fall 2017 schedule at Orientation where you will have the opportunity to speak with an Academic Advisor about your schedule, add additional courses, and make any necessary changes. Please contact the Center for Advisement at (423) 425-4573 with any questions regarding the Academic Interest Questionnaire (AIQ).

Review the AIQ Guide for your Major (web link embedded).

Essential AIQ Questions
Do you plan to pursue a second/double major? If yes, please tell us your second major.

Do you plan to complete a minor? If yes, please tell us your minor.

Are you interested in pre-health career (i.e. pre-medical, pre-pharmacy, etc.)? If yes, please select your field of interest below.

Do you have obligations that will affect your schedule of classes? If yes, please explain in detail. Example: Because of work, I cannot take any classes after 5pm.

Please select all class time preferences for fall courses:
- Morning 8am-11am
- Midday 12pm – 2pm
- Afternoon 3pm-5pm
- Evening 5:30pm-8pm
- Online courses

Approximately how many credit hours do you intend to enroll in this fall at UTC?
- Full-time standing (12+ credit hours)
- Part-time standing (6-11 credit hours)
- Less than part-time standing (1-5 credit hours)

High School Dual Enrollment and Prior Learning Assessment
Did you complete any college-level dual enrollment courses while in high school for which you will receive credit?
Did you complete any Advanced Placement (AP) courses while in high school for which you may receive credit?
Did you complete any International Baccalaureate (IB) courses while in high school for which you may receive credit?

Transfer Coursework
Please indicate all courses you are completing during the Spring 2017 semester (and final grades if known):
If you are completing summer courses, please indicate all courses you are planning to complete (and final grades if known):
Please list all institutions where transfer coursework has been completed:

Approximately how many credit hours total are you anticipating to transfer in from all previous institutions?
Less than 30 credit hours
30-59 credit hours
60-89 credit hours
90+ credit hours

Will you have completed an Associate’s degree before transferring to UTC? If yes, please select which type of Associate’s degree you completed.

Did you complete an Associate’s degree program on the Tennessee Transfer Pathway (TTP)? If yes, which TTP did you complete?

Will you have completed a Bachelor’s degree before transferring to UTC?

Your major may require a Foreign Language. Please select the language you would like to take.
French
German
Latin
Spanish

Indicate how many semesters you have completed or will complete of a Foreign Language prior to enrolling at UTC.
No foreign language in college
1 semester
2 semesters
3 semesters
4+ semesters

Please list any specific courses you would like to take this fall (if known):

Do you have any additional comments or questions regarding the AIQ or course selection?

By submitting this AIQ, I will assume full responsibility for my registered schedule. UTC cannot guarantee preregistration into any specific requested courses. Preregistration will be based on a student’s desired major, placement information, transfer work, and course availability.
Appendix B

Transfer AIQ Guides

Academic Advisors will preregister incoming transfer students for two or more fall courses based on major, placement scores, and information provided to us in the AIQ. You will be given a copy of your Fall 2017 schedule at Orientation where you will have the opportunity to speak with an Academic Advisor about your schedule, add additional courses, and make any necessary changes. Please contact the Center for Advisement at (423) 425-4573 with any questions regarding the Academic Interest Questionnaire (AIQ).

ART

The Department of Art has several degree offerings. As a transfer student, you have the choice to register as a Pre-BFA Art, which prepares you for entering into our competitive concentrations in Painting and Drawing, Graphic Design, Photography and Media Art, and Sculpture. We offer a noncompetitive degree, the BA in Art, which has three concentrations: Art Education, Art History and Studio. The BA in Art allows students to take a variety of art courses while pursuing a minor in an area outside of art. Upon successful completion of the BA Art: Art Education degree you are certified to teach Art in Tennessee at the K-12 level.

Transfer students should note that we make every effort to ease transition from other institutions; however, students pursuing Pre-BFA Art must complete courses in their intended area of study at the University of Tennessee at Chattanooga. As such, transfer students will take a minimum of three years to complete the BFA requirements. For the BA in Art, we accept all transfer art credits, making this a strong option for students wishing to complete their degree in the most timely fashion.

Art courses provide opportunities to explore creativity, develop skills, learn about the history of art and become more critically engaged in the world. We provide an atmosphere of support and mentorship as students learn to master a variety of art forms, articulate their ideas carefully, and solve complex problems. Ultimately our graduates are well prepared to enter into a competitive yet deeply rewarding profession.

Additional details about this major are available at the following links:
Art Department website (utcart.com)
Undergraduate catalog (catalog.utc.edu)
ClearPath for Advising (utc.edu/clearpath)
Understanding Student Motivations to Inform Practice:
Adopting a Multi-Methods Approach to Complex Questions

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Abstract: Institutional decision making is typically informed by quantitative data. However, the factors that promote student success are many and varied, and have complex relationships that may not be understood quantitatively or be meaningfully quantifiable. While student behaviors may be measurable, the motivations underlying their actions are often inaccessible via quantitative data. This paper describes one approach taken by Grinnell College to understand student success holistically. Researchers noticed students dramatically improving their recent term GPA compared to their cumulative GPA, but were unable to determine the causes of this improvement from the quantitative data. In-depth qualitative interviews, lasting approximately an hour, uncovered the complex factors contributing to students’ improved academic performance, as well as the barriers they had previously experienced. Barriers that became facilitators of academic success included class choices, faculty, study behaviors and attitudes, and help seeking. Other barriers included adjustment to the Grinnell environment and suboptimal mental health. Use of resources, self-care, organization, extracurricular activities, and friendships acted as facilitators. The paper closes with a brief review of how the greater understanding of student motivations underlying their behaviors are being used by faculty and staff in various roles at Grinnell College to inform practice, program development, and decision making.

Introduction

Much of the data about students and institutions are collected, managed, and analyzed by institutional research (IR) offices. The majority of IR offices in institutions of higher education in the United States are staffed with analysts and managers skilled in quantitative methods and data management (Harper & Kuh, 2007). A recent national survey of IR Offices (Swing, Jones, & Ross, 2016), showed that approximately 80% of these offices hold primary responsibility on campus for federal and state mandatory reporting, the reporting of data for national rankings, and the creation of institutional fact books, with other primary duties including enrollment reporting and analysis, data sharing, and the monitoring and development of key performance indicators. The same survey found that IR staff also frequently have shared responsibility for contributing to accreditation studies, strategic planning, and outcomes assessment. Thus, in addition to fulfilling reporting requirements, many IR offices gather and provide data to inform institutional decision making. The data that IR staff frequently assemble and manage for reporting and internal decision making are largely measurable or sortable variables. These quantitative data provide decision makers with helpful information about a wide variety of patterns and associations among a very large number of institutional constituents.
The topics of student success, engagement, retention, and college experience in general have been extensively studied quantitatively in the literature, with a sizeable body of literature stemming from the seminal works of Astin (1977), Tinto (1975), and Pascarella and Terenzini (2005), to name a few. The vast majority of studies cited in literature reviews of student success (e.g., Kuh, Kinzie, Buckley, Bridges, and Hayek, 2006) are also quantitatively oriented. These important works have necessarily used quantitative analytical techniques because of their desire to study a very large sample population and for their findings to be widely generalizable. They have shown that the factors that promote student success are many and varied, and have complex relationships with each other. In aggregate, their statistical findings are substantial and very informative for higher education scholars and practitioners.

Student success and retention, however, happens at a personal level; retention rates are comprised of individual students deciding to remain or leave. Subsequent use and application of these seminal theories in a variety of contexts and for a variety of populations show that organizational and social context can be important. There have been many studies applying, updating, revising, and adding to the seminal works in the field of higher education to investigate or take account of various elements of pedagogical design or context (e.g., Braxton, Milem, & Sullivan, 2000; Willging & Johnson, 2009), diverse populations (e.g., Quaye & Harper, 2014), as well as many other contexts and uses. Behind each student who leaves an institution prior to graduation is an individual set of factors that are salient to that particular student’s college experience. These various factors may not be entirely quantifiable or understood quantitatively, and they may not adhere to the statistical trends shown in the larger studies due to the student’s background, personality, behaviors, organizational culture, personal assumptions, or any other dimension that contributes to the student’s lived experience.

Although large quantitative studies provide us with trends and action items to provide assistance to students, these studies can only quantify the factors that they choose to measure. Studies cannot examine relationships between the multitude of factors of which researchers may be unaware, for any given student, at the time of measure administration. Additionally, the interplay of factors that can and do influence each individual student’s likelihood of persisting to graduation at any given institution is dynamic. As students’ circumstances change, so too may their outlook, desire, self-efficacy, and ability to continue their education. Thus, factors that may influence students’ behaviors regarding persistence may not be measured or counted, or may occur after measure administration. Therefore, quantitative researchers may be unable to see these factors, when examining larger datasets with data from student records or administered measures.

Turning from the literature to studies conducted by institutions to aid decision making, there are additional complexities in working with quantitative data. Within a single institution, particularly a small college, there may be patterns visible quantitatively that do not reach statistical significance due to the limited sample size. It may also be that the complex and multi-faceted nature of student success does not lend itself to the identification of clear patterns in commonly used college administrative records. Also, within the cultural context of a single institution, it is plausible that there are immeasurable cultural factors that influence students’ behaviors that would be masked in a multi-institution, larger study.

Decision makers requesting data from IR offices often like to understand trends, and even causality, in the data. However, to inform practice around enhancing retention, institutions need to be able to understand the factors that influence premature departure sufficiently to be able to prevent future departures. This requires a deep understanding of student motivations for their behavior, as well as student interpretations of the campus culture, of the behaviors of campus constituents, and of administrative actions. Individual interpretations are complex and highly varied; ultimately, while student behaviors may be measurable, the motivations underlying their actions are often inaccessible via quantitative data.

In addition, many scholars and practitioners have framed student success as a broad term with relevance to process improvements in a variety of departments or administrative units. In some cases, a wholly quantitative approach will be insufficient, at best, and misleading at worst, to understand and address leading causes of attrition in different parts of an institution. Most process and quality improvements related to student success require both data and an appropriate interpretation for informed
decision making, as well as practitioner knowledge and understanding of cultural nuances. Such cultural understanding and contextual interpretation may be more readily provided systematically by qualitative research conducted at the institution in question.

This paper describes a new approach taken by Grinnell College to understand student success holistically—the use of multi-methods research. This approach is distinct from the more commonly used ‘mixed-methods’ research (Johnson, Onwuegbuzie, & Turner, 2007) in that the defining characteristics of each method are unique, and are applied in a complementary fashion to similar, but necessarily different, research questions in distinct studies around a common problem. Although the purpose of this paper is not to present the study’s results in depth, the results may be of interest to faculty and staff at institutions of higher education who work on matters of student retention. They also highlight the richness of data available using this method, thus illustrate well the benefit of the approach. Therefore, study results are presented briefly, along with a small number of illustrative quotes.

Method

As researchers in the Office of Analytic Support and Institutional Research (OASIR) at Grinnell College, we were asked to identify students who had dramatically improved their grade point average (GPA) compared to their previous semester’s cumulative GPA because the president wished to congratulate these students on their improved academic performance. Once we identified these students, curiosity about their method or circumstances of their academic performance drove us to investigate a myriad of available quantitative data types. These included demographic factors, previous academic performance, high school preparation, reported high school behaviors from the Cooperative Institutional Research Program (CIRP) Freshmen Survey (Higher Education Research Institute 2016), admissions criteria, and other administrative data as available. However, ultimately there were no statistically significant differences that explained these students’ improved academic performance.

This type of investigation is consistent with a variety of other quantitative student success-related research questions the office has addressed; we have termed this set of research questions the “attrition syndrome.” This set of analyses involves analysis of the predictive ability of standard measures mentioned above, along with analyses of a complex set of mental health-related factors that may be related to attrition, as well as analyses of the Grit scale (both individual items as well as the holistic measure) created by Angela Duckworth (Duckworth, Peterson, Matthews, & Kelly, 2007). As with many research studies, analyses into the attrition syndrome begin with summary statistics and description, and regularly take the form of binary or count outcomes analysis (logistic or Poisson regression, where appropriate), or alternative forms of estimation including two-stage least squares and evaluation of instrumental variables for use when direct observation of the variable of interest is not possible or is likely to be endogenous. Given the relatively small sample size for many of our analyses, we cannot use recently popularized methods of advanced “data-science” due to either their methodological inappropriateness for the questions at hand and/or for the demands they make on data quantity and availability. Additionally, we find that traditional descriptive measures visualized in alternative ways are often more effective for communicating actionable data than providing decision makers with nuanced descriptions of findings. These visualization efforts have resulted in a variety of unique and immediately understood analyses including what we commonly refer to as “grade-dynamics”: a visualization of each student’s most recent performance compared to their past history. A variation of this visual also provides us with a path view of a student's academic achievement. This allows us to point out quickly to those who work with students that our numbers indicate an adverse trend in a specific individual’s performance, or even in that of a larger group. These specific snapshots of performance show us clearly when a student has changed trajectory, but we cannot determine from this quantitative data, presented in either complex or relatively simple visual form, the reasons behind this change in trajectory.

To investigate the factors contributing to these students’ increased academic success, therefore, we decided to conduct an in-depth qualitative study. This study adopted an interpretive, constructivist
approach, using narrative data obtained from individual interviews. Qualitative methods help researchers “to understand the meaning people have constructed about their world and their experiences.” (Merriam, 2002, p. 4-5). They provide rich descriptions of complex phenomena, capture the range of interpretations held by a variety of constituents around key events and campus conventions, describe motivations for behaviors and choices, and can uncover the constructs and factors at play in particular focal areas. Qualitative methods are particularly helpful when there are limited numbers of individuals related to the topic of interest, and when the topic is sensitive and/or complicated. The multiple layers of complexity that OASIR staff thought could be contributing to students’ substantially improved grades made qualitative methods an appropriate method for this study, especially after quantitative data had found no significant differences in the groups to explain their improved academic performance.

Narrative research data consist of stories detailing the narrators’ experiences of lived events (Merriam, 2002). People understand, explain, and make sense of their lives and the world about them through stories. They then use these stories to articulate the meaning they have subsequently constructed from their experiences. Narrative methods seek to uncover both the inner and outer meanings individuals create from their lived experiences, i.e., what the experiences mean on a personal level to the individuals, as well as on a social level in terms of an existing external environment (Clandinin & Connelly, 1998). This study thus solicited stories around a particular topic—students’ experiences of academic difficulty before increasing their grades at Grinnell College—to reveal the meaning-making they had performed, as well as the strategies they employed to improve their academic performance.

Having obtained approval from Grinnell College’s Institutional Review Board, we invited 39 students to participate. These students were those identified for the president’s congratulatory message, as well as others who showed remarkable and substantial improvement in their academic performance. These students received an invitational email to participate in the study. Those who volunteered participated in individual semi-structured interviews that covered topics suggested by the persistence literature and former research at Grinnell. First, participants were invited to tell their story of their academic improvement, bringing in whatever factors they perceived as relevant. Then they were asked about faculty, friends, institutional belonging, activities, post-graduation goals, and any other factors that they think may have contributed to their higher grades. Although the interviewer ensured all topics were covered, participants were invited to take the lead in these interview-conversations (Mishler, 1986), to ensure that the scope of the conversation was not limited to the factors about which the interviewer asked.

We assigned participants pseudonyms to protect their identities, transcribed the interviews verbatim, and coded the transcripts deductively and then inductively using NVivo 10 (QSR International, Melbourne, Australia) software. Analytical memoing and iterative coding—to recode data into themes that had emerged subsequent to when a transcript had initially been coded—were an integral part of the analytical process. We invited participants to read a full draft of the report to verify that they were comfortable that their quotes were presented in the context in which they had stated them, and that the researcher’s interpretations were appropriate. This process is also known as “member checks;” it contributes to the credibility, and therefore quality, of qualitative research (Lincoln & Guba, 1985). We also asked participants to suggest any changes they felt were necessary to protect their identity.

Results

Of the 39 invited students, 26 students agreed to participate, and 22 attended an interview. The interviews lasted an hour, on average, and provided substantial data pertaining to the complexities and factors contributing to students’ improved academic performance (“facilitators”), as well as the barriers they had previously experienced. Although we had not specifically asked about the barriers to academic success, participants frequently raised the issue as essential to understanding the narrative around their subsequent improvement. In many cases, once participants had found ways to overcome barriers or reframe their experiences in a more positive or more productive manner, they began to see almost immediate academic improvement.
The barriers and facilitators can be largely grouped academic or social/personal domains (Figure 1). The academic barriers mainly had strongly related facilitators; the academic barriers that subsequently became facilitators included class choices, faculty relationships, and study behaviors and attitudes. Social barriers had a less direct relationship with their associated facilitators, although seeking help was both a barrier and facilitator. Other barriers included adjustment to the campus environment and mental health issues. Use of resources, engaging in self-care, getting organized, extra-curricular activities, and friendships were social/personal facilitators that improved the circumstances of students who were struggling to adjust to being at college or who had suboptimal mental health.

**Academic Barriers and Facilitators**

**Class Choice**

A number of participants described finding that, once in a class, they found they were substantially less interested in it than they had expected. Often this stemmed from a poor understanding of what it would mean to take the class in terms of their own intrinsic interest, the type of work involved, or the pedagogical style employed. In these cases it was sometimes the case that the student had received incomplete or very limited advising around class choice, especially in the first semester. Lack of interest led to a lack of class engagement, and frequently poor class attendance. To compound the matter, once a student started to struggle in one class, miss classes, or stop doing the homework in one class, the behavior was contagious, with the student adopting this behavior in other classes in which they were not previously struggling or disengaged.

However, as students discovered the courses in which they were intrinsically interested and inherently motivated to learn more about the topic, their grades improved. Additionally, finding classes that had a pedagogical style, the type of work, and faculty personalities with which they were comfortable, their performance improved.

Given these experiences, participants strongly recommended being deliberate and intentional about course choices. They stressed the importance of carefully reading the course catalog, and talking to other students, their advisors, and other faculty members about different courses they were considering. Participants also advocated taking a variety of disciplines early in one’s college career, rather than narrowing down to an intended major early.

**Relationships with Faculty**

Interacting with faculty was remarkably intimidating for a number of participants, particularly domestic students of color and first-generation students. In quite a few cases, students did not know how to interact with faculty because faculty appeared unapproachable to them. One student commented, “I don’t think a lot of people know that professors aren’t trying to fail you. … For the most part, if you need to, they’re going to meet with you every day if they can. And I didn’t know that in my first semester.”

![Figure 1: Relationship of barriers to student success and associated facilitators](image-url)
Particularly where students were performing poorly in a class, talking to the faculty member teaching the class meant that the student needed to confront their underperformance on a personal level, which was intensely uncomfortable; it was easier and more comfortable not to do so. For many students, the barrier between themselves and faculty was due to a near-deification of the faculty; these students saw achieving a faculty position at an elite liberal arts institution as having reached the pinnacle of academic success, increasing the distance they felt between themselves and faculty members.

Closing the gap between themselves and professors occurred in a variety of ways. One common stimulus for this shift was for students to recognize that “professors are people too.” Once students saw faculty as fallible humans, they were able to begin forging relationships with faculty. Having informal conversations with faculty and seeing how faculty have struggled and then achieved success was instrumental in this regard. Students also benefited from asking their peers how to approach faculty, and recognizing that making an effort in a class makes approaching the faculty member easier. Participants appreciated faculty celebrating their effort and their small successes, stating that this made faculty feel more approachable.

Establishing trusting, strong relationships with faculty was important for academic success. Feeling comfortable interacting with faculty meant that participants were more apt to go to office hours and seek help. Over time and after numerous conversations with faculty and advisors, some participants then began to see faculty as collaborators and mentors in the student’s education, rather than directors or puppet-masters of time passage through college.

Study Attitudes and Behaviors

This reframing of faculty members’ roles occurred as students’ attitudes and behaviors surrounding their studies also changed. Like many of their peers, most participants had been academically successful in high school without substantial effort. Consequently, many recounted not fully understanding how academically rigorous Grinnell is, or the importance of regular class attendance and keeping up with class work. If students began to disengage and missed a class or two, they found it hard to return to the class. They thus entered a spiral of not doing homework, not attending class, and earning failing grades. Trapped in this cycle, many felt that working hard was almost futile because it did not lead to the results they desired: “It was kind of the slippery slope effect. I felt myself going downhill, but I just couldn’t stop it. And once it got started and I got behind on work, I stopped, kind of gave up, I felt like, ‘What’s the point?’”

Once students started to improve their academic performance—often through finding classes they loved and establishing relationships with their faculty members—they had the insight to recognize their former lack of ownership of their studies and the necessity of taking charge of their academic progress. As they discovered in which courses they were intrinsically interested, some participants began to change how they thought about academic work, finding new value in the knowledge and skills they gained, as one student described: “I kind of realized, ‘It’s not about grades so much as it is about learning as much as you can, and learning to enjoy your classes.’” As their personal horizons broadened by learning new material, meeting more people on campus, and engaging in extra-curricular activities, they were able to find personal connections to their class material, making the work more meaningful. They began to learn for learning’s sake rather than to earn a grade or for credits. For a few participants, this process eventually led to an identity shift around their studies, where they began to see themselves as “the kid who loves to learn.” Other participants did not experience a shift of this magnitude, but they developed new academic self-efficacy, which motivated them further. Perhaps for the first time, some participants felt that they did indeed belong academically at Grinnell, and they deserved to be here—something many had doubted previously.

Participants often mentioned their former lack of effective study habits and the distractions in which they would engage, as well as the many and varied justifications they gave themselves for this behavior. Receiving one or more failing grades was a clarion call to behavior change for many participants. With help from academic advising, faculty members, friends, and parents, participants largely changed their study habits, finding that, “You can work a lot harder than you think you can.”
the many different methods available to study effectively, participants described having to test various strategies until they found an approach and method that was most effective for them. Once discovered, they stuck to this method either through determination to improve their grades, or because the results were so dramatic that they were motivated to do so.

**Social or Personal Barriers and Facilitators**

*Adjusting to the Campus Environment*

Many participants described experiencing entry shock their first semester, and having a difficult time adjusting to the college both as an institution and the town of Grinnell. Students from urban areas and domestic students of color, in particular, struggled to adopt to life in rural Iowa, with its predominantly white population: “I felt very black when I came to campus.” The academic culture of the institution was foreign to many participants, who often now had to confront the “hard realization” of not being at the top of their class, as they had been in high school. Participants described entering this unfamiliar setting, with few or no friends, and feeling more academically challenged than ever before. Until their basic needs of friends and some level of competence in managing their daily lives were met, students could not attend to their academics. This was a barrier for which the corresponding facilitators were more loosely connected. To adjust, or feel like they belonged at the institution, participants had to take multiple other steps, such as learning to seek help, using available resources, finding fun activities, and making friends.

*Seeking Help*

Asking for help, or even identifying that they needed help, was extremely difficult for most of the participants. Having excelled in high school, many did not know how to ask for help. Often, they lacked the institutional knowledge to know whom to ask for help. Some simply did not know even that they needed to ask for help: “[I was] just going through, not asking for help, because I didn’t know to ask for help.” Participants frequently had established no help-seeking identity, describing themselves as not being someone who asks for help. A number of participants were also worried about being judged for needing help. In some cases, students described help being offered multiple times by staff and faculty, but the students were too uncomfortable receiving help or acknowledging their need for it. Trying to get by alone, some participants eventually sunk into a quagmire of disengagement and academic failure, paralyzed by their inability to accept help and too anxious to embark on behavior change alone.

Even when students had largely accepted the need to request help, a lack of knowledge about the plethora of available resources on campus prevented many from accessing the type of support they needed. Students learn of a variety of resources during new student orientation, but it is one of many sets of information they are given, and often they do not retain it. Having a staff member, advisor, or friend help participants identify potential resources played a large role in participants commencing efforts to reach out for help and use the resources.

However, there are multiple steps between identifying the need to ask for help, and ultimately receiving help. Participants described needing self-awareness to recognize one’s need; courage to ask openly for help and expose oneself as needing it; time to visit the resource; and organization to schedule appointments or arrange time to meet the people providing the assistance. It is very easy for any of these multiple links in the chain between needing and receiving help to break, and students described a failure to follow the full chain to the end as a barrier in itself.

*Mental Wellness*

Mental wellness is an important issue for students across the nation. In interviews, Maslow’s (1943) Hierarchy of Needs emerged as highly relevant when thinking about mental health. Participants described not being able to muster motivation to study or even care about grades when trying to overcome mental health challenges. When managing mental illness, whether sub-clinical or clinical, a number of participants described experiencing limited executive functioning ability; they lacked the organizational skills and follow-through behaviors to ensure that they were doing all they needed to do, academically.
Participants who experienced some of the most pre-occupying mental health challenges eventually recognized the need for self-care. They often came to this realization during the breaks from college, when they had to time contemplate how to improve their college situation. Once they recognized this need, students described changing their behaviors to prioritize self-care activities higher, and to desist from activities that may be harmful. They also arrived at some personal insights into their experience of and their behavior within the institutional culture.

**Extra-Curricular Activities**

There were two facilitators that were not directly linked to a specific barrier, but that had a more holistic positive effect on participants and their college life. The first is extra-curricular activities. Joining clubs and getting involved with activities, while a time burden, forced students to be intentional in managing their time. With a fun activity scheduled later in the day, students were more likely to complete a portion of their studies earlier, rather than using the middle of the day as leisure time and studying until late at night as a consequence. Activities also helped participants clarify their interests, which then allowed them to find more personally relevant classes. Finally, joining a club also opened up a network of friends with similar interests.

**Friendships**

Making friends was helpful in numerous ways. Friends provided a support network for all sorts of troubles, and generally boosted participants’ spirits. However, participants did note the importance of finding friends whose behaviors they would like to emulate; if their friends were all studying, participants said they were also more like to study. Friends provided advice and social wellness for participants, but many recognized only in retrospect the time and effort required to form meaningful friendships. Often, students arrived at college never having had to make this effort. Therefore, several participants did not realize that they would have to do this, or were reluctant to do so. However, some explained that once they were willing to make themselves vulnerable, by opening up to others about inner thoughts, the effort was rewarded with true and lasting friendships.

**Discussion**

The brief results presented above demonstrate the complexity and variety of experiences, attitudes, perceptions, and assumptions that affect students’ lives on campus. It is important to remember that participants did not experience these barriers and facilitators in isolation; frequently they were grappling with multiple barriers concurrently. As one barrier was overcome or reframed to become a facilitator, so others were often able to dissolve, either as a result of the student’s new positivity, new behaviors or perceptions, or new relationships.

**Deep and Rich Data**

The interplay of these barriers and facilitators was individual to each participant, but, in aggregate, the data the 22 participants provided allow readers of the study’s findings a glimpse into some common experiences. Understanding why some students found faculty intimidating is an added dimension that would be difficult to capture fully in a quantitative survey, if researchers even thought to include this as a possible answer or question. However, without a deep understanding for the causes behind some students’ sense of intimidation, it is difficult for faculty to know what behaviors they could reasonably modify to begin to show themselves as fallible humans interested in providing a meaningful educational experience to all students. Similarly, if faculty advisors do not fully appreciate the potential consequences of students choosing classes somewhat haphazardly, or at least without legitimate intentionality, they may not give as much thought and attention to advising meetings as some students may need, even if the students themselves are unaware of their need when they are choosing courses. The results around resource use and help-seeking were illuminating of the multiple steps in between students recognizing
they need help, and actually obtaining the help. Without this understanding, the only data around resource use would be numbers and types of students using specific resources on campus, as well as their grade improvements that may result from this help.

An additional, helpful insight from the data results not just from its qualitative nature, but particularly from the exploratory nature of the interviews and the interview style we employed, yielding to participants the power to lead the conversation to wherever they thought was relevant. We reached a deep understanding of the reframing in which students engaged of their attitudes to faculty and academic work only by inviting participants to raise these issues and talk about them at length, as well as then asking them about the ramifications of their new insights and views. In some cases, during the course of protracted descriptions of how their views changed, students created or clarified new insights of their own about their experience, during the interview. Thus, for some participants, engaging in gently guided, thoughtful reflection led to renewed awareness of their agency in their academic improvement.

The inclusion of a qualitative researcher in OASIR, and therefore the adoption of a multi-methods approach to some taxing questions, has brought positive feedback from around the institution. Previously, we had to limit our investigations of some questions when our results found no statistical significance, but now we have the opportunity to investigate them more fully. When studies using quantitative data reach no statistically significant findings—often because of a small sample size—we are able to dig deeper into the issue with in-depth interviews and reach a level of understanding about what is happening for a subsection of the possibility. Although qualitative findings are not widely generalizable in the manner of statistically significant findings, they illuminate some common experiences of the group of students under study, and thus can enhance appreciation of students’ perspectives and needs.

Implications for Practice

We have presented the results from this study to various campus constituents, including administrative leadership across the institution, faculty, student affairs and advising staff, trustees, and student government. Many people, in a variety of positions, have appreciated hearing students’ aggregated experiences in their own words. Well-chosen quotes from the data can illustrate a point with great clarity and strength, conveying the accompanying emotional consequences of an experience that are often unavailable to researchers working only with quantitative data. As a result, the data are more accessible to those readers who find representative stories or quotes more compelling than statistics.

Many readers of the report or audience members in presentations have noted the face validity of the findings; that is, they too had experienced or witnessed one or more of the barriers or facilitators, or shared, in some way, an experience described in the report or presentation. Staff from academic advising and student affairs staff appreciated the empirical evidence that the results provide of what they know as professional knowledge gleaned from working with many students over longer periods. They particularly welcomed that the report brings attention to the interplay among the factors, because working out how to manage multiple stressors and emerge from them in a positive manner is problematic for many of the students with whom they work.

College leadership have been using quantitative data to inform their decisions, and plan and evaluate programs for considerable time. Most notably, OASIR led the drive for more frequent assessment of student performance and notification of key intervention staff when appropriate. As is typical at many small liberal arts colleges, Grinnell is faced with the challenge of extended lag time between observations of student performance, namely end-of-term GPA. To combat this lack of actionable information during each semester, the college implemented a mid-term assessment program for all first-year students. Although not as granular as mid-term grading, this three category assessment provided key staff with an indicator of 'solid', 'marginal', or 'at risk' academic performance for every first-year student in each of their classes during the semester. In addition, these categorical data provide researchers with an estimate of student performance at another point in time. Although immediately helpful in many ways, this additional data point cannot provide us with any information on how students who end up earning a high grade achieve this, or conversely what hampers the success of those who have 'at risk' or 'marginal' reports at the mid-point of the semester. Although we can observe some limited
behaviors, for example number of visits to academic advising, these types of data act as only a proxy for the change in behavior we are attempting to understand.

Results of the qualitative study detailed in this paper have further informed decision making and program development in multiple domains around campus. For example, faculty teaching a first-year seminar, who also serve as a student’s advisor until they declare a major, have been made aware particularly of the findings regarding faculty relationships and class choices. Student affairs staff planning new student orientation have recognized the benefits of making small changes to orientation, based on what the results showed about students’ awareness of campus resources and willingness to seek help. The qualitative study results have been used by faculty and staff developing a new pre-orientation program to fine-tune particular aspects of the program so that it is most helpful to incoming students.

Students who have become aware of the study from attending presentations and from casual discussions with OASIR staff seem to find much more meaning in the qualitative results, possibly as a reflection of their own experience, than they do with graphs or numbers presented from quantitative research. The results have also been shared with all senior-level administrators, to provide them with additional institutional insights and context to the decisions that their units will make.

Conclusion

The combination of rigorous quantitative methods and in-depth qualitative research as employed by Grinnell College and described here has provided institutional decision makers with a rich and deep understanding of why some students behave in the manner that we have seen through our professional experience of working at the institution, and that have been quantified in a variety of surveys and reports. While the data do not, and cannot, explain all student behaviors, or pertain to each individual student on campus, they contribute to an appreciation of how students experience the institution, and therefore what may assist students in taking full advantage of their undergraduate experience, and completing their bachelor’s degree.

This methodological combination also yields the development of an interesting cycle of question and answer in the higher education context. In this case, quantitative research drove the implementation of a qualitative study. In turn, the findings here may drive future quantitative studies. The themes, which emerged inductively from the qualitative data, often had not been considered previously as variables for quantitative measure, but could be incorporated in additional study related to student success.

There is also professional capital to be gained for the OASIR staff from the inclusion of a qualitative researcher. On a campus with a variety of different epistemological perspectives, the credibility and value of the entire research team is bolstered by adopting a more holistic view of the issues at hand. Some practitioners may find more accessible the data that they can easily recognize as mirroring their professional day-to-day experiences, compared to presentation of statistics and trends. Additionally, as research staff, our approach to a variety of studies has benefitted. Central to the process of developing research questions is the dialogue that happens organically among researchers, as well as between researchers and campus constituents. These conversations are especially valuable when the researchers can bring to light new and diverse perspectives on the questions at hand, as well as an informed and constructive criticism of each other’s work. This more accessible and epistemologically inclusive approach has strengthened our relationships with a variety of campus constituents.

This case study and the Grinnell College OASIR structure presents a unique application of multi-methods research. The case presented here is a prime example of the added value from the inclusion of qualitative research, not only for a deeper understanding of the research questions at hand, but also in the guidance that the results of the qualitative study provides for future quantitative work, and implications for higher education practitioners.
References


Posters
(AAbstracts Only)

A Comprehensive Approach to Enhance Transfer Student
Retention and Success
Chun-Fang Kuo, Central Michigan University

Abstract: Transfer students face numerous transitional challenges, such as transfer shock, adjustment issues, academic performance, and financial stress. These stressors can affect transfer students' success. In order to enhance transfer students' adjustment and academic/career readiness, it is critical for universities to implement innovative programs that support their individual needs. This poster presentation addresses Central Michigan University's (CMU) partnership and cooperation among their Student Transfer Enrichment Program (STEP), Student Transfer Organization (STO), and Counselor Center. This collaboration facilitates transfer students' access to university services and enhances their persistence to degree completion. Participants will learn how to develop a support system that considers the unique needs of transfer students. Specifically, the author will present a comprehensive transfer student program that developed as a result of the CMU collaboration, including an overview of the transfer students support group offered by the CMU Counseling Center.

Beyond Retention: Engaging STEM Students for Student Success Outcomes
Rebekah McCloud, University of Central Florida

Abstract: First-generation college students are not only the first in their families to attend college, but they are often the first to hold professional positions. This is also true for low-income students who share a discrepancy in their career-related social capital including job-seeking skills and professional connections for mentoring and career networking (Brown and Hesketh, 2004). The PRIME STEM program at the University of Central Florida (SSS-STEM TRIO Grant), having achieved significant gains in academic progress and retention, has turned towards increasing STEM engagement opportunities to hone participants’ career readiness and engagement with their major and peers. These opportunities continue to support retention efforts, but also target the employment achievement gap prominent in first-generation and low-income graduates, particularly in STEM fields. There is a cited gap in the literature with regards to career-related interventions and their impact on STEM retention and engagement (Belser, Prescod, Daire, Dagley, & Young, 2016). Specific examples of the PRIME STEM engagement opportunities including learning communities, career academies, partnerships with workforce development boards, and more will be shared, as will preliminary data on the interventions.
College Retention Examined Through a Case Study of Student Reflections About Student First-Year College Programs and Campus Resources

Carrie Brenner, University of Colorado Colorado Springs
Freddie Rodriguez, University of Colorado Colorado Springs

Abstract: This poster presents a qualitative study focused on exploring students’ reflections on their first-year experiences at a public university campus. The application of the case study methodology examines influence on student retention into their sophomore year of college and provides insight into the components, such as the students’ personal qualities and resources along with their perceptions of the effectiveness of the university’s orientation programs and other retention efforts. Interviews were conducted with traditional sophomores defined as those students who attend college directly from high school and return the fall after their first year of full-time university studies. The sociological framework of resiliency was applied to identify personal attributes, expose various campus systems’ capacities to impact student resiliency, and to investigate gaps in student resources. The emerging themes of connectedness to other students, professors, and to the university as well as certain campus programs are mostly valued. Results showed that parents and key mentors involved in their lives before attending college had a lasting influence. Also from the data analysis, an interesting additional subtheme emerged regarding commuter students and their struggles with connectedness.

Course Innovation and Student Success in College Algebra at University of Houston-Downtown

Mikayel Yegiyan, University of Houston-Downtown

Abstract: Many students qualify for university admission but may not necessarily be ready for every specific challenge that university life presents. College Algebra is one course that is a prerequisite for various majors and degrees, and is also found to be challenging for many students, potentially becoming a barrier or gateway. Utilizing academic data from standardized test scores and high school performance, the University of Houston-Downtown found that student performance in college Algebra could be predicted prior to enrollment. Historically, those students identified in the new range for assistance performed, on average, one letter grade lower than their peers. In the 2015 and 2016 terms, students considered for assistance were offered extended Algebra courses to help them succeed in their academic careers. Students who enrolled in the extended courses over the past two years demonstrated equal-to-peer performance not only in their Algebra course, but in subsequent math courses as well.
Engagement, Retention and First-Generation Students

Sofia Hiort Wright, Virginia Commonwealth University
Daphne Rankin, Virginia Commonwealth University

Abstract: Virginia Commonwealth University (VCU) has a very diverse student population. Currently, one-third of the students in VCU’s first year class are first-generation college students. In light of what we have learned from our first two cohorts of the Summer Scholars program and from current research in the field, the Summer Scholars Advisory Board has recommended several initiatives and programs that will engage second-year students. In addition to targeting the students who participated in the Summer Scholars Program, we will broaden our engagement efforts to support all first-generation students and student-athletes. First-generation students bring an enormous amount of capital with them when they arrive on campus. It is our goal to empower these students and work with them to build community. Programs and initiatives that highlight our first-generation students will be designed to not only promote engagement but also help retention. This poster will highlight programs such as educational programming, community outreach, and learning support.

Evaluation of a Pilot Program to Restrict Online Withdrawal in Gateway Courses

Ryen Nagle, Moraine Valley Community College
Sadya Khan, Moraine Valley Community College
Dewitt Scott, Moraine Valley Community College

Abstract: Online student service systems grant the capability for students to withdraw from courses with relative ease and with little interaction between the student and the institution. The provision of this technological convenience for students enables students to make potentially uninformed decisions about their course performance or about available resources for success. It can also lead to a host of negative consequences—financial aid issues, delayed program completion, or complete withdraw from the college. A pilot project to restrict online withdrawal from high withdrawal rate gateway courses has demonstrated promising early results at Moraine Valley Community College (MVCC). For example, Fall 2016 withdrawal rates in Introduction to Computer Science (n=115) decreased 8.7 percentage points to 11.3% from Fall 2015; of note, the rate of students earning A, B, and C grades increased 10.4 percentage points to 68.7% in Fall 2016. This poster presentation will provide additional findings of an expanded online withdrawal restriction intervention at MVCC during Spring 2017 (n=616), offer preliminary conclusions regarding scaling up restricted online withdrawal programs, and outline considerations for implementing restricted online withdrawal interventions college-wide or limited to specific gateway courses.
Every Six Students: Generating a Plan, Gathering Buy-In, and Creating a Campus Culture Around Student Success

Carrie Cokely, Curry College
Allison O'Connor, Curry College

Abstract: As part of the 2012-2017 Strategic Plan, Curry College identified student success as a top priority and set goals of 80% retention and 55% graduation rate by the end of the plan in 2017. At the beginning of this process, the retention rate was 69% and the six-year graduation rate was 43%. The College launched a cross-area Retention Committee tasked with the development and execution of a plan to increase the retention and graduation rates at the College. The work of the committee began with the idea that every six students equaled a 1% gain in retention. They developed initiatives that were designed to improve processes at the College, raise the success rates for all students, as well as improve the experiences of students in targeted populations that were not retaining and graduating at the College. This poster highlights the tools used by the committee to analyze data, develop and assess projects, and to gather campus buy-in through interdepartmental work teams and regular reporting on the plan. Additionally, the presentation will highlight initiatives to date that allowed for increases in the retention rate to 71% and in five-year graduation rate to 51%.

Gear up for Success: Using Incentives to Increase Engagement and Retention in Online Students

Rebecca L. Jobe, Walden University
Jim Lenio, Walden University
Carlos Avent, Walden University
Katie Rossow, Walden University

Abstract: Universities provide many resources to support student success; however, actual utilization of those resources is often low. As such, strategies to increase engagement in tasks that increase retention are of key interest. The present study illustrates one strategy that Walden University tested with the goal of increasing participation in tasks that have resulted in positive student outcomes thereby, improving overall first term retention. Gear Up for Success was launched with online undergraduate (N = 891) and doctoral (N=740) students, offering them an opportunity to earn rewards for completing specific tasks prior to and during their first term. Results indicated that both groups participated at higher rates than prior cohorts who were merely encouraged to engage. As expected, undergraduate participants retained significantly better Term 1 (35% vs. 25%) as compared to those who did not engage in these tasks. Secondary analyses addressed the potential risk of selection bias and revealed a significant difference between high-risk participants vs. non-participants. Similarly, doctoral participants retained significantly better in Term 1 (70%) than their non-participating counterparts (49%). Again, secondary analyses showed this effect was driven by highest-risk students. Further analyses revealed the impact of the number and types of tasks, as well as the rewards chosen.
Knowing Your Students Before They Arrive: An Empirical Approach to Understanding Academic Success Among Minority Students

Nazly Dyer, University of Houston-Downtown

Abstract: Declining student persistence in higher education is a growing issue facing colleges across the U.S. However, due to the gap in college completion rates between minority students and their peers, identifying factors related to persistence among underserved students is of particular importance. Given the relative lack of studies that include minority students, generalizing research findings based on studies of predominately white, middle-income students to other populations can be detrimental to our understanding of persistence among culturally diverse students. To avoid prior biases, this study utilized a person-oriented analytic approach, known as Latent Profile Analysis (LPA), to examine whether qualitatively distinct student profiles could be determined from pre-college academic indicators, such as SAT scores and high school GPA. Findings based on a sample of full-time, First Time in College (FTIC) students (n = 3,540) indicated that a three-group model best fit the student data across four cohorts. The three empirically derived student profiles were differentially related to academic factors (such as first semester probation status and whether students dropped to part-time status) and behavioral factors (such as math and verbal confidence as captured by the College Student Inventory). Findings also indicated that women were over-represented in the most at-risk group.

Psychological Retention Factors of African American Engineering Students at a HBU

Tonya McKoy, Tennessee State University
Bethany Wilkes, Tennessee State University
Carlos Beane, Tennessee State University
Samuel Hargrove, Tennessee State University
Marie Hammond, Tennessee State University

Abstract: Fewer than 50% of freshmen who enter into Science, Technology, Engineering, and Mathematics (STEM) undergraduate programs will actually graduate with a STEM degree (Graduation Gaps for Science Majors, 2010; Hayes et al., 2009; Wilson et al., 2011). African Americans are underrepresented in engineering, receiving the smallest number of Bachelor’s degrees (Asian American 12%, Hispanic American 8%, Foreign Nationals 7%, African Americans 4%) of which 1% represent African American females. There has been a decline in the number of engineering degrees awarded to African American undergraduate students. In 2005, 3756 undergraduate degrees were awarded in comparison to 3587 degrees granted in 2012 (NSF, 2016). Research shows African American students depart from academic programs prior to their second year due to a lack of a sense of belonging. Due to the relational culture of African Americans, a sense of belonging is salient in African American students persisting in engineering related careers. While gender, ethnicity, and institutional environment (social & academic) are factors that impact sense of belonging (Marinis, 2014), this poster identifies and examines the effects of social, ethnic and professional identity to the retention of African American students in engineering at a Historically Black University (HBU).
Reverse the Path: Start With the end in Mind

Blake Cannon, Phillips Community College of the University of Arkansas

Abstract: Phillips Community College of the University of Arkansas (PCCUA) has implemented multiple interventions and strategies to assist students in completing college and preparing them for the workforce. In looking at the end in mind, PCCUA has emphasized identifying a clear pathway to the workforce for students. This pathway includes a newly developed virtual career center where students can take a career interest survey, developing an individual career plan; mandatory orientation, career exploration and financial literacy with career and financial coaches through student success courses; faculty identifying early assessments within the first three weeks of a course to help provide interventions sooner; student support services; and more intrusive advising. New software (Zogotech) is utilized to track data and contact information to evaluate these support services and interventions. With the end in mind, students can identify a clear pathway to success at PCCUA and enter the workforce with the skills needed to be successful in their chosen career.

SOS: Second Opportunity @ Success

Derwin Bennett, State University of New York at Cobleskill
Christina Ilowiecki, State University of New York at Cobleskill
Jennifer Golden, State University of New York at Cobleskill

Abstract: The SUNY Cobleskill Second Opportunity @ Success (SOS) Program is an academic-centered student engagement initiative that provides an assortment of formal and informal, instructional and advisory experiences intended to provide added support and guidance to students as they transition from various degrees of academic failure to measurable academic recovery and success. The poster presentation will visually display the eight main elements of the SOS Program:(1) SOS Winter Boot Camp experience for second semester freshmen- intensive workshop series that occurs four days prior to the start of the academic semester; (2) peer mentoring program for second semester freshmen; (3) upperclassmen Lunch N Learn three part series of seminars including a Saturday; (4) campus coach upperclassmen embedded support initiative; (5) student lingo online workshops; (6) Minute Clinic advisement outreach initiative conducted for two weeks per semester; (7) Task Force Committee meets once a month to design, implement, and reflect; and (8) student accountability with realistic goals and consequences including: bi-weekly meetings, documented study hours, signed contracts, and support from the Judicial Affairs Office. The SOS Program has positively impacted the retention of SOS participants over the past eighteen months.
Split Advising: Promoting Pre-Nursing Success

Alan Bearman, Washburn University
Elaine Lewis, Washburn University
Sean Bird, Washburn University

Abstract: This poster demonstrates how a commitment to collaboration among academic units results in improved student outcomes. Recognizing a need to diversify bachelors of nursing candidates, Washburn University’s School of Nursing and Center for Student Success and Retention embarked on a partnership to strengthen the academic skills and experiences for many of its underrepresented minority students interested in the health science professions. This initiative focuses heavily on intentional academic advising as the catalyst of momentum toward academic achievement. This poster will show the research and methodologies behind a decision to split academic advising of incoming pre-nursing students away from their academic department and to professional advisors in the Center for Student Success and Retention. It will include a description of the new advising approach which focuses on development of strong reading, critical thinking, and quantitative reasoning skills prior to a transition into the traditional science courses necessary for a nursing degree. These changes in advising grow student confidence and assist in the future success of students as they persist on the pathway to graduation.

Stepping up to Retention: The Impact of an Academic Advisor Career Ladder

Alexandra Yanovski, Temple University
Michele O’Connor, Temple University

Abstract: Temple University has combined the development of empirical risk models and significant investment in academic advising to develop an institutional retention strategy. The primary goal was to shift the culture of student support from the traditional passive/reactive model to a proactive/strategic/interventionist model that seeks to ensure the highest risk students are effectively engaged with the appropriate interventions. Development of an academic advising corps committed to the principles of intrusive advising and willing to be at the frontline of the intervention strategy was one of the essential strategy components in improving retention. This required significant university investment in academic advising and the development of a professional ladder that would address issues of equity, professional standing and advisor retention. The Academic Advising ladder was one of Temple University’s initiatives designed to improve advisor retention, create opportunity for professional development and advancement within the advisor ranks. This re-designed and expanded multi-tier career ladder encouraged advisor opportunity and market competitive pay and resulted in improved advising and a positive student Impact. The early results are encouraging. Both student and academic advisor retention rates are increasing. Other related outcomes include improved graduation rates, reduction in student debt, and reduced financial losses for the university.
The Purdue Veterinary Medicine USDA Multicultural Scholars Program: Driving Successful Retention of Underrepresented Minority Professional Students

Kauline Cipriani, Purdue University College of Veterinary Medicine
Henry Green, III, Purdue University College of Veterinary Medicine

Abstract: The Purdue University College of Veterinary Medicine (PVM) recently graduated its first cohort of USDA NIFA Scholars from the Doctor of Veterinary Medicine (DVM) program, and the second DVM student cohort is currently enrolled. This poster will describe the programmatic components essential to ensuring successful recruitment, matriculation and retention to graduation of underrepresented minority students (URM) in academically rigorous professional programs such as the DVM program. These components include individualized career coaching and mentoring, the use of intrusive (proactive) advising techniques, and facilitated peer mentoring. The program was built around both evidence-based and anecdotal knowledge of how to successfully recruit and retain URM students on predominantly white campuses, and adjusted to account for the unique aspects of the West Lafayette, IN campus culture. Results of efforts to create a diverse and inclusive environment, such as increasing the URM diversity in incoming DVM classes from 9% to 22% in 6 years, will be presented. We will also describe how the presence of the PVM Multicultural Scholars Program, together with other similar PVM programs, are collectively driving curricular and institutional changes which will improve the academic and work environment for all PVM faculty, staff and students.

The Stars in the Constellation: Results From the 2017 National Survey of the First-Year Experience

Dallin Young, University of South Carolina
Jennifer Keup, University of South Carolina

Abstract: The first year of undergraduate study has received attention because it is the period with the largest leaks in the educational pipeline both in the United States and around the world. In the US, nearly a quarter of full-time and more than half of part-time students drop out after their first year (NCES, 2016). To respond to this crisis, stakeholders in higher education have developed numerous initiatives and educational experiences under the heading of ‘the first-year experience.’ As Koch and Gardner (2006) explained, “The first-year experience is not a single program or initiative, but rather an intentional combination of academic and cocurricular efforts within and across postsecondary institutions” (p. 2). This presentation aims to provide an up-to-date overview of institutional attention to the first year of college nationwide, based on responses to the 2017 National Survey of The First-Year Experience conducted by the National Resource Center for The First-Year Experience and Students in Transition. The poster will focus on presenting recent evidence that describes an overall picture of the most common programs and initiatives institutions are using in the first year as well as findings about assessment, characteristics and features, and the students being reached by selected first-year programs.
Top 10 in the Last 10

Tobias Phebus, University of Arkansas
Deborah Korth, University of Arkansas
Trevor Francis, University of Arkansas
Shane Barker, University of Arkansas
Lisa Summerford, University of Arkansas

Abstract: The University of Arkansas at Fayetteville has grown tremendously (46%) from 18,648 students in Fall 2007 compared to 27,194 students in Fall 2016. During this same time period, the first-year retention rate remained fairly constant around 82% but the six-year graduation rates have risen from 58.0% in 2007 compared to 64.5% in 2016. These improvements in graduation rates can be attributed to many things; however, we feel that the Top Ten Reasons stem from the following: 1.) campus leadership; 2.) creating a culture of collaboration focused on student success; 3.) faculty initiatives; 4.) data driven decision making; 5.) academic support; 6.) professional advising center; 7.) student affairs; 8.) honors college; 9.) enrollment services; and 10.) new buildings. Our poster highlights some of the key elements of these ten areas. Although we are happy that our six-year graduation rates have risen the past years, we are committed to continuing the upward trend as well as hope to assist even more students to graduate within four or five years.

Using Data to Build a Proactive and Systematic Academic Success Program

Karen Morgan, New Jersey City University
Jimmy Jung, New Jersey City University

Abstract: New Jersey City University is designing a proactive and systematic academic success program. Throughout the implementation phases of its design and various other student success initiatives, the question remains: How do we put our students in the best position to succeed? The expectation is that successful implementation will help decrease the amount of time to earned degree, as well as increase the number of students in good standing with federal and state financial aid requirements. This poster presents data-driven methodologies and evaluation of targeted intervention strategies that can be used to improve retention and graduation rates of students. It focuses more specifically on the types and frequency of intervention that academic advisors have with students and whether those interactions are predictive of student outcomes.
WTF: Is the FYS Course a Waste of Money?

Danielle Mitchell, Penn State, Fayette--The Eberly Campus
Mary Budinsky, Penn State, Fayette--The Eberly Campus
Devon White, Penn State, Fayette--The Eberly Campus

Abstract: Scholars such as Vincent Tinto remind us that even with 50-plus years of work amassed on student persistence, “substantial gains have been hard to come by” (2006, p. 2). While we know much about how institutional settings and psychological, social, and economic factors impact students, many campuses still struggle with issues of retention. Our small, rural, largely two-year campus, for example, has experienced a roughly 40 percent decline in enrollment. While first-year retention has remained in the mid 70-percent range for the past six years, the campus implemented a first-year seminar to improve retention. Faculty worked together to develop the curriculum, keeping in mind studies suggesting first-year engagement is critical to persistence (Tinto, 2001; Upcraft, Gardner, & Barefoot, 2005; Terenzini, Reason, 2005; Tessema, Ready, & Yu, 2012). Yet results suggest the FYS course (and its significant financial and human investment) has had no statistical impact on persistence. Preliminary results will be drawn from 2015-17. Assessments of course content, cohort scheduling, and course delivery methods will be used to articulate what types of engagement appear most useful for rural, commuter campuses split between two- and four-year students.
Pre-Conference Workshops

(Abstracts Only)

Completion: Retention Initiatives at Later Stages of the Student Lifecycle

Rory McElwee, Rowan University
Sean Hendricks, Rowan University
Penny McPherson-Myers, Rowan University

Abstract: Participants in this workshop will explore support programs at later stages of the student lifecycle to facilitate retention, progression, and graduation. In the context of the national completion agenda, this workshop addresses special populations and distinct challenges for students closer to degree completion (in the second half of the degree program). A "Completion Toolbox" containing a data-driven suite of programs, policies, and practices to support later-stage retention and completion will be presented. Programs to support students from underrepresented backgrounds; transfer students, veterans or active military; those who return after a stop-out; and those who need to transition to a degree-completion program instead of a traditional major will be highlighted. Participants will engage with one another by sharing their own successful campus initiatives, planning for a future one, and exploring scenarios illustrating this topic. Strategies for campus culture change to support later-stage initiatives for diverse student populations will also be discussed.

Data Mining for Student Retention

Bryan Fendley, University of Arkansas at Monticello

Abstract: This workshop will provide a thorough introduction to educational data mining and hands-on practice using tools necessary for performing data mining with emphasis on retention. This workshop makes the process and skills approachable for beginners and offers a solid foundation for those with prior experience. Through the use of RapidMiner Studio (a free and easy to use data mining software) and the Cross Industry Standard Process for Data Mining, participants will experience the following learning outcomes through discussion, examples, and hands-on activities: 1) gain an understanding of data mining and its implications for student retention; 2) discover how to move from a hypothesis to discovering sources of quality data; 3) learn how to prepare a data set for analysis; 4) learn how to identify and use the proper data mining models; 5) understand the process for evaluating the results of a data mining model; and 6) determine how to put a data mining model into action.
Developing Students’ Sense of Belonging, Security, and Hope: An Integrated Retention-Centered Approach to the Student Experience From Pre-College to Satisfied Graduate

Marguerite Weber, Baltimore City Community College

Abstract: The student experience is full of internal and external obstacles where it is easier to leave than stay. A retention-centered student experience anticipates these “pinch points” and provides just-in-time guidance, support and affirmation. What is needed is an integrated student experience that strengthens a student’s sense of belonging, security and hope. Students need intentional, timed, and engaging experiences to help students manage pressures of their urgent second-thoughts on their decision to attend and to strengthen their sense of belonging as they connect with other students having similar pressures and making the decision to stay the course. Regardless of prior experiences, a student’s sense of security is tied to the belief in the sufficiency of personal resources to attain their goals and to overcome barriers to success. Finally, almost by definition, a student who chooses to start college is driven by an abiding sense of hope. Without hope that the learning opportunity is worth the personal investment of their time, energy and good will, students will not apply effort to overcoming inevitable obstacles. Workshop participants will apply student-centered design to experiences across the student life cycle and learn to implement those designs for coherent curricular and co-curricular approaches to student success.

From Theory to Practice: Setting a New Standard for Leading Student Success Initiatives

Linda Moran, University of Hartford
Jeffrey Anderson, Saint Leo University

Abstract: Escalating expectations for improved student success means schools are counting on professionals in student success more than ever before. Too often, however, bold and creative ideas championed by student success professionals stall and fail to deliver results. Meeting increasing expectations depends on innovative approaches to developing, launching, implementing, and sustaining initiatives. Lasting improvement requires rethinking ways to use university resources and involve colleagues. Participants will learn to apply Bolman and Deal’s four frames as a strategy for fostering collaboration and overcoming obstacles to student success initiatives. This interactives session uses large and small group conversation, individual reflection, and practical exercises to help participants apply the four frames (structural, human resource, political, and symbolic) to creating student success initiatives. This change-leadership workshop is a hands-on, personalized session meant to equip you with leadership skills you can use upon returning to your school. In the afternoon, participants will build a change guide that applies the four frames to the lifecycle of an initiative. Participants will examine their roles in leading student success initiatives, address “stall points,” and practice ways of engaging colleagues. Through applying the four frames to practical examples, participants will build a change plan that achieves results.
If You (Work Together To) Build It, They Will Come: Collaborating to Create a System for the Retention and Success of Online Students

Pam Cavanaugh, University of Central Florida
Jennifer Sumner, University of Central Florida

Abstract: While growth in online learning has become a major strategic objective for colleges and universities around the nation, many institutions may struggle with how best to create an infrastructure to support and service their online students. This workshop shares the development of “UCF Online” at the University of Central Florida, and the collaborative approaches taken to create an environment focused on online student access, connection, persistence, and success. Using evidence-based examples, participants will be guided through a process of discovery, with discussions and activities focused around the key areas of: recognizing emerging best practices and methodologies from industry and higher education experts; identifying internal and external partners critical at all stages of development; determining essential business processes and technological systems needed to facilitate operations; and investigating significant points in the undergraduate and graduate student life-cycle in order to develop techniques to meet online students where they are, and to promote their retention and success. At the conclusion of this workshop, participants will have an action plan with various strategies relevant to online student success that they can employ on their own campuses.

Implementing Student Success Programs for At-Risk Populations

Bernadette Jungblut, Central Washington University
Donielle Maust, West Virginia University
Regan Swan, West Virginia University

Abstract: Professionals from all areas of higher education institutions have goals of increasing student retention and graduation rates. This workshop focuses on student success programming for at-risk populations such as provisionally admitted students, students on academic probation, students undecided on a major, veteran students, and first-generation college students. Facilitators will discuss programs through the academic year as well as intervention strategies designed to promote students’ learning, development, engagement, persistence, and degree completion. Strategies will be shared on identifying at-risk populations and methods for evaluating success. This presentation will give examples from two universities outlining partnerships between academic/student affairs and institutional research. Participants will complete a self-audit on existing programs at your institution that support at-risk students as well as identify programming gaps, and create an action plan to enhance existing programs, and/or create an action plan to implement new programming (based upon gaps).
Measuring What Matters: Improving Student Success Through Analytics, Assessment & Key Performance Indicators

Loralyn Taylor, Ohio University

Abstract: Everyone is talking Big Data and Data Analytics, but with limited resources, how can you improve your use of small data to shape your student success efforts throughout the student lifecycle? With tighter or diminishing budgets, how can you utilize data to prioritize the work of your student success teams to have the largest impact? Can you demonstrate success to show a return on the institution’s investment or to show a need for more resources? Learn how to measure what matters, when it matters—what data to collect, request, and analyze and for what purposes, including: using existing data sets to determine which students may be at-risk before classes even start; using analytics to track students on their pathway to graduation, identify barriers to progress and to identify students who are off-track; collecting the data you need to assess AND improve your efforts; using early, middle and late stage key performance indicators of student success to ensure your efforts are on-track and to let you course correct when necessary; using data to demonstrate short term wins to reduce resistance to change efforts and increase stakeholder buy-in with your programs; and focusing on the intervention strategies that are most efficient and effective.

Retention for Rookies

Tim Culver, Ruffalo Noel Levitz

Abstract: You have just been named coordinator of student retention at your institution—now what? This session on learning the keys to retention success is back by popular demand. Discover retention strategies that get results at two-year and four-year institutions and learn the best ways to plan for programs by laying the groundwork for success and gaining faculty support. Participants will develop a relevant definition for retention. They will also develop an understanding of a Student Success Relationship Management Model™ and begin to establish an application to their home campuses. In addition, participants will develop an understanding of the principles for retention planning. Finally, participants’ interests will drive discussion for special topics discussion.
Students Engaging Students to Improve a Campus: Cultivating Students to Gather Insights
Will Miller, Campus Labs

Abstract: When higher education researchers try and make sense of student-related issues on campus, they often overlook a critical source of information—students. During my experience as Executive Director of Institutional Analytics, Effectiveness, and Planning at a regional liberal arts college in the Southeast, I experienced firsthand the value of including student voices as we worked to identify potential barriers and find solutions. Conversations with students in focus groups allow us to dig into the mechanisms behind the patterns we see in quantitative assessment data. They can also help us gather new evidence and answer questions with more detail and nuance than we might get from a survey. Complementing survey research with more in-depth focus groups can help to triangulate student-based data on campus. Engaging our students to lead survey design, focus group conversations, and presentations of findings can make the conversations even more useful. Through group discussion and planning packets, workshop participants will learn the benefits of this approach, how to create such a program, and the types of projects students can assist with—all without needing outside vendors or resources. Attendees will need minimal experience given the hands-on, experiential design of the workshop.

Using Assessment and Key Performance Indicators (KPIs) to Cultivate Co-Curricular Engagement
Angela Williams, University of Maryland Eastern Shore

Abstract: Are you responsible for developing co-curricular engagement on your campus? Or do you view assessment of key performance indicators as exceedingly burdensome? This highly interactive, hands-on session provides research-based guidelines and practical strategies for examining co-curricular engagement, KPIs, assessment, and research. Working in tandem, the University of Maryland Eastern Shore’s, Center for Access and Academic Success and the Division of Student Affairs supports the mission of the university by constructing cross-divisional collaborations on co-curricular engagement that utilizes key performance indicators to measure the impact of co-curricular participation by first- and second-year students and special populations. The presenter will illustrate various types of co-curricular programs and services, discuss limitations, and recommendations for enhancements.
CSRDE: Data to Support Student Success

Sandra Whalen, University of Oklahoma
Jane Zeff, William Paterson University
Edward Sullivan, California State University
Loralyn Taylor, Ohio University

Abstract: The Consortium for Student Retention Data Exchange (CSRDE) hosts the annual National Symposium on Student Retention (NSSR). We began in 1994 as a collaboration among a small group of institutional researchers who were interested in benchmarking student retention and graduation. Since then we have grown to include about 400 two- and four-year institutions. We report on first-time, full-time baccalaureate degree-seeking students, community college transfers into four-year institutions, STEM majors, and community college students. We have gone beyond data sharing and now host the NSSR and our monthly webinar series, as well as continue to add new material to our electronic book, Building Bridges for Student Success: A Sourcebook for Colleges and Universities. Join us as we discuss the data-sharing consortium and demonstrate ways that your institution can use the CSRDE data to set benchmarks, inform decisions, and support student success.
A Family Affair: Translating the Student Experience Across Student and Academic Affairs

Marguerite Weber, Baltimore City Community College

Abstract: One unfortunate casualty of campus “silo wars” is the missed opportunity to share values across academic and student affairs and in so doing to create a unified student experience at each “touch point” and learning opportunity. Currently the Vice President of Student Affairs, I have spent 30+ years in academic affairs, as a faculty member and administrator. In this round table, we will engage deeply in questions about learning in and out of the classroom so that we can discover our shared intentions for student learning across the curriculum and co-curriculum. For example, how do student development and faculty identify and seize on a teachable moment? What do front-line admissions and financial aid staff need to know about student learning? What discrete success skills, like literacy, numeracy, critical thinking, and information management, matter in both the curriculum and co-curriculum? How can both kinds of learning activities be mutually reinforcing? How do we explain attrition at the level of the course, of the degree program, and of the institutional effectiveness analysts? What are different perspectives of the ethics of retention? In the end, the goal is shaping campus-wide planning and collaboration to expand our understanding of student learning and development.

Collaboration as the Primary Resource: Retention Initiatives on a Shoe String

Deborah Korth, University of Arkansas
Lisa Summerford, University of Arkansas

Abstract: A primary concern among those of us interested in student success and retention is the limited amount of resources at our disposal, especially in light of the growing number of students we are to serve. One underutilized resource lies in the power of collaboration. Working together across units can often overcome resource limitations. Within the Fulbright College of Arts and Sciences at the University of Arkansas we have initiated a variety of strategic collaborative student success efforts involving faculty, advisors, administrators, and students. We have further collaborated with other units on campus such as our graduation and retention office, student affairs division, enrollment services, other academic colleges, information technology staff, and data analytics personnel. During this discussion we hope to collaborate with the participants to share examples and generate new ideas that could be used at our campuses to facilitate cooperation and overcome dwindling resources. We hope for a diverse group of people representing a myriad of institutional types because we believe that we can learn a great deal from each other.
Defying the Deficit

Ryan Orcutt, Northeastern Oklahoma A&M College
Keeley Adams, Northeastern Oklahoma A&M College

Abstract: The demand for community college education continues to increase, though state appropriation to these institutions is dwindling. As a result, funding for academic programs, resource development, and workforce is diminishing. Given the current economic climate in education, it is essential that community colleges seek innovative ways to meet student needs. To continue serving students in every capacity, two-year institutions have to leverage resources to sustain and enhance the student experience. In essence, we are charged with developing and providing high-quality services while defying the resource and funding deficit. How do we work toward overcoming these obstacles to assure that student needs are fulfilled? This roundtable will serve as an opportunity for community college representatives to address variables that contribute to the adversity community colleges face. In addition, participants in the roundtable will be encouraged to brainstorm new ideas for consideration and share their strategies for supporting student success within limited means—for example, overcoming constraints posed by limited staffing and funding. Northeastern Oklahoma A&M College will share the ideas they have developed to address these issues and facilitate discussion to assist other institutions struggling with similar challenges.

Encouraging Faculty to Invest in Retention

Will Miller, Campus Labs

Abstract: No matter how sophisticated retention efforts might be on a campus or how technologically advanced early alert systems and triggers may be, without the buy-in of faculty members—who see students on a daily basis and track performance more directly than any other member of a campus community—they are all for naught. The level of buy-in likely differs as much amongst members of any one campus as it does across institutions. In this roundtable, we will discuss 1) challenges campuses face with assuring faculty buy-in; 2) strategies for involving faculty in retention efforts—including those that go beyond classroom walls and academics; 3) techniques for working with faculty to understand how they can contribute to retention efforts and the importance of retention to a campus; 4) examples of successful faculty buy-in; 5) ways administrators can encourage faculty involvement in retention efforts, including beyond the academic setting; and 6) understanding faculty members’ perspective and overcoming resistance.
How do Students Define Success?

George R. Covino, Student Connections

Abstract: Student Connections worked with our research partner to determine how students define success in their lives, understand the obstacles students must overcome to lead a successful life, and determine the skills students feel best prepares them for the future. The dataset includes a total of 1,237 complete responses. To qualify for the survey, respondents had to be former college students that took a college course within the past five years. Respondents also had to consider themselves generally successful in meeting their goals. The results showed that students associate success with two things: making a stable income and doing what makes them happy. Unsurprisingly, more than half of the former students surveyed said that their financial situation was the biggest obstacle to finishing school and becoming successful, making it a significant stress factor in their lives. Half of all students worked either a part- or full-time job to mitigate the financial stress. Significant findings from the research will be briefly presented. Attendees will then participate in a guided discussion on what schools are or could be doing to address the issues raised in the research.

Integrating Advising to Improve Retention, Persistence, and Graduation

Adam Smith, University of Alabama
Khadeidra Billingsley, University of Alabama
Jonie Threatt, University of Alabama

Abstract: Following a period of 12-15 years of exponential student enrollment growth, the importance of increasing retention, persistence, and graduation rates became a top priority for The University of Alabama. This led to the creation of the Capstone Center for Student Success (CCSS), a centralized advising unit, in an effort to integrate campus-wide advising. During this roundtable discussion, attendees will first learn about different strategies utilized by the CCSS team including, but not limited to pre-campus outreach, intentional team-building, and social media curriculum in advising various student populations and the growing pains of building a centralized advising ‘one-stop shop’. Then, participants will share and exchange ideas about their own institutional advising practices, challenges, and wins as they progress along in their own personal ‘process’.
Student Retention in Career and Technical Education: A Holistic Approach

Diana Johnson, St. Louis Community College
Valerie Turner, St. Louis Community College

Abstract: At St. Louis Community College, the Career and Technical Education (CTE) Retention Specialists utilize a holistic approach to student retention by providing students a host of academic and non-academic support, as well as access to internal and community resources. Our research related to retention, student development and student success led us to develop a Predictive Model Retention Plan that was implemented in fall 2015 with the aim of increasing retention among specific but substantial segment of the student body: CTE students beyond their first year in college. This roundtable discussion will focus on a meaningful discussion of student retention and explore ways to strengthen retention at our institutions. The participants will share their experiences, challenges, and ongoing contributions to student success and retention. This session is intended to increase participants’ ability to develop an effective retention plan by combining group discussion and promising practices. Participants will leave with ideas to implement a retention plan using a holistic approach.

Supporting the Minority Male Student

Daniel "JJ" McEachern, Central Piedmont Community College

Abstract: Minority male retention and graduation is quickly becoming a topic of discussion at colleges around the country. Like many others, Central Piedmont Community College (CPCC) recognizes the importance of providing enhanced academic and social support to this high-risk population. Moderated by the Dean of Enrollment Management, this roundtable discussion will briefly share the importance of focusing on this group of students and the creative approach that Central Piedmont Community College is using to support African-American and other minority males. We will then facilitate discussion of activities designed to support minority male students at two- and four-year institutions as well as highlight low to no-cost innovative methods of increasing retention and completion. Attendees will learn creative new ways of reaching and supporting this group and have an opportunity to share the existing innovative activities and best practices of their own institutions. During discussion, they will also contribute to developing a suite of successful interventions, many of which have been scaled and sustained at their colleges and universities. Attendees will leave with new, low to no-cost ideas and student success methods that may be adapted and implemented in support of their existing minority male student success activities.
Tracking Graduate Student Degree Completion

Anne Edmunds, St. Mary's University

Abstract: The increasing importance of graduate degrees and need for graduate tuition revenue are compelling university leaders to pay increased attention to graduate enrollment issues. This roundtable will explore how to measure graduate degree retention and completion. With a lack of external requirements to report graduate degree completion rates, institutions often don’t track them. Those that do must decide how to handle students matriculating at different times of the year, part-time v. full-time enrollment, combined degree students, and other scenarios inherent in graduate education. The moderator will share her institution’s efforts to track graduate degree completion by developing a rubric for cohorting students then open the conversation to discuss how others are tracking graduate students on their campuses. Additionally, institutions may wish to consider the influence of student inputs (grades and test scores) on degree completion.
Enrollment Management Utilities

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Abstract: Many institutional researchers feel underprepared to perform data analyses required to meet the growing demand for higher education data analytics to support and evaluate retention and graduation initiatives. In addition, software packages used by institutional researchers are overly complex, due to the fact that they try to serve the statistical needs of all disciplines. Enrollment Management Utilities (EMU) was designed to address these two issues. Typical data manipulation and statistical analyses for institutional research can be easily performed in a point and click environment. In addition, a manual and online help system are available to explain how to perform each function and how to interpret the results. The system is free of charge to any institution of higher education that has a single user SAS license for SAS Base, SAS Stat, and SAS Graph. This session will consist of a discussion of the role of EMU in enrollment management and will present actual examples of using the software to address enrollment management issues, from importing data and building retention models to presenting findings graphically. A laptop is not required to attend this demonstration.

Rationale

With the increased emphasis on analytics in higher education, enrollment management researchers are now expected to perform research that is more advanced than a frequency table or a t test. Many of us have had little training or experience in research or statistics, and are therefore not overly confident in our abilities to meet these new demands.

While many excellent statistical packages exist, all have drawbacks for beginning and perhaps intermediate retention researchers. Some packages are quite powerful and are very good at data manipulation, such as SAS. However, with the increased power comes an increase in complexity leading to lengthy learning curves and a greater potential for user errors. Others have an advantage in price and leading edge statistical procedures, such as R, but also require familiarization with programming and scripting languages. Still others have a user-friendly interface, such as SPSS, but are more difficult to use for data manipulation, and choosing the proper statistical procedure and options, as well as interpreting the output can still be problematic. Finally, none of the currently available statistical packages include all procedures used in higher education retention studies, such as delta-p, Cohen’s D, and regression discontinuity.

The EMU Solution

Enrollment Management Utilities (EMU) is a menu-driven data analysis system written in SAS/AF. Anyone with a single user SAS license for Base SAS, SAS/Stat, and SAS/Graph can use EMU. (SAS/AF is not required.) Once SAS is installed on your PC or server, EMU can be easily installed in minutes, and researchers with beginning-level knowledge of the SAS language can use it with little training. We have done our best to take the SAS out of SAS, and instead use more of a PC approach. SAS requirements of filenames and libnames have been replaced with the more familiar folders, paths, and files of the PC environment. To further de-SAS SAS, EMU is started by clicking on an icon of a silly
looking emu, and SAS runs in the background, thus avoiding the typical SAS look of program and log windows.

Deciding what functions to include in EMU was problematic. First and foremost, EMU was developed to assist in higher education enrollment management analytics. Therefore, all data analyses required to complete the assignments for the Certificate in Institutional Research offered at Penn State can be performed in EMU, including standard graphing capabilities. In addition, we have included the functions that we use most often within enrollment management research. If more advanced statistical procedures are required, the EMU-created SAS data sets can be analyzed by standard SAS programs. Also, EMU can easily convert the SAS data sets to CSV files that can then be imported into other non-SAS data analysis packages.

EMU attempts to be less error-prone than programs written by beginning and intermediate SAS programmers by examining data before and after analysis and then manipulating files to correct possible errors. For example, the best way to import an Excel spreadsheet to avoid an increase in missing values is to first convert the spreadsheet to a CSV file. If you choose to import an Excel spreadsheet into EMU, the spreadsheet will automatically be converted to a CSV file and then imported. As another example, the merge program has many tests and corrections for such things as truncation, different variable types, and different names of the variables used to merge the data sets.

EMU is designed to take care of the mundane aspects of statistical programming, allowing the programmer to focus on the actual analysis aspect of the project. While we are experienced SAS programmers, we seldom work on a project without the assistance of EMU, and many times, complete the project using only EMU. In short, EMU saves time, allows novice researchers to be productive, and reduces programming errors.

Finally, the accompanying manual attempts to explain not only how to run the programs available in EMU, but also attempts to explain in nontechnical terms which type of statistical procedure to use, what the procedure is doing, and how to interpret the output. In many instances, examples of presenting results in a report are also included. The objective is to get novice researchers up to speed and productive quickly while following reasonable research and statistical procedures.

Features

There are six general functions included in EMU: importing and exporting data, viewing SAS files and information about SAS files, manipulating SAS files, calculating descriptive and inferential statistics, generating random samples from SAS files, and creating graphs.

Importing and Exporting Data

EMU can import CSV files and Excel spreadsheets, regardless of Excel release, and can export SAS files to CSV files. If a valid CSV file cannot be created from an Excel spreadsheet, EMU will not be able to create a SAS file. If there is more than one spreadsheet in the Excel workbook, EMU will allow you to select the worksheet(s) to import.

Viewing SAS Files

SAS files can be viewed in their entirety or individual variable values can be displayed. Information about the SAS dataset can also be viewed, such as number of observations, number of variables, and variable formats and lengths.

Manipulating SAS Files

EMU provides menu screens to sort files, remove duplicate observations, create log and antilog variables, create variables with formatted date values, and write small blocks of SAS code. In addition, a less error prone method for merging and appending files is included.
Calculating Descriptive and Inferential Statistics

Procedures included: crosstabulation, descriptive statistics, ANOVA, chi-square, correlation, dependent and independent t-test, factor analysis, logistic regression, linear regression, regression discontinuity plots, reliability, and confirmatory factor analysis.

Generating Random Samples

Stratified random samples for survey research, as well as simple random samples in support of statistical model building and verification can be created.

Creating Graphics

While far more sophisticated graphing packages such as Tableau are available, they generally are overly cumbersome for creating standard bar, pie, and line charts. EMU offers over 20 types of simple graphs from an intuitive point and click menu system.

Presentation

The role of EMU in retention research will be discussed more fully, followed by an introduction to various EMU screens. Next, an example of a typical scenario in retention research will be presented. The scenario will show attendees how to import an Excel spreadsheet, merge it with institutional data, and then create a statistical model to predict the probability of returning the following fall. All of this will be accomplished without writing SAS code. The presentation will conclude with a questions and answer session.
Improving Retention by Fostering Positive Identities Among Minority Students Through Situational Cues

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Abstract: Research recognizes that ‘what occurs’ at an institution of higher education (e.g. situational cues) is often more important than ‘what students bring’ into the institution (e.g. ethnicity, age, etc.) (Hovdhaugen et al., 2013; Tinto, 1993). These situational cues inside a learning environment are important as they cue which identities come to mind and the meaning these identities carry, which consequently influence which behaviors, choices and motivations are primed in a student (Oyserman, 2009). Research indicates that students struggle academically when these identities do not ‘fit in’ with a particular environment (Landau, Oyserman, Keefer, & Smith, 2014), and when they are stereotyped as being unable to succeed (Entwisle, Alexander, & Olson, 2005; Jackson, 2010). This tutorial will discuss how situational cues influence a student’s identity, and how this in turn affects retention. This tutorial will also discuss what our university learned from performing a situational cue analysis on Native American students and steps we took to correct harmful situational cues. Specific strategies for how to foster positive identities will be offered. An opportunity to reflect on how these ideas might be implemented on participants’ campuses will also be presented.

Introduction and Background

Self-identity is defined as the awareness of one’s personal values and the way these values impact one’s interactions with others (Bird, Mendenhall, Stevens, & Oddou, 2010; Lange, 2015). Self-identity is an important quality for students to develop as “a strong self-identity means one has strong personal values and maintains a high sense of personal integrity while at the same time being openly accepting to those who are different, without feeling personally threatened” (Keeley, 2014, p. 68). Bird, Mendenhall, Stevens, and Oddou (2010) found that a “strong self-identity allows people to integrate their new cultural knowledge into existing mental models, whereas those low in self-identity are either unable to integrate new knowledge, or when they do, they experience life crises that overwhelm them” (p. 819). Individuals with a strong self-identity “can adapt culturally, but will do it in a way that maintains a strong framework of personal values, thus allowing them to maintain a sense of their personal integrity” (Keeley, 2014, p. 68).

Regarding self-identity, theoretical assumptions provide that multiple self-identities coexist within the same individual (Banaji & Prentice, 1994; Turner, Oakes, Haslam, & McGarty, 1994). Markus and Nurius (1986) posited that an individual has an array of selves such as an ‘ideal self’ (how we would like to be), an ‘ought self’ (how we think we should be), and the ‘actual self’ (Klenke, 2007). For purposes of this paper only two components of self-identity are explored (specifically racial-ethnic identity and future identity) with regards to their influence on student persistence.

Racial-ethnic identity, defined as a sense of group or collective identity based on one’s perception that he or she shares a common heritage with a particular group (Helms, 1995), is a critical part of the overall framework of self-identity (Chavez & Guido-DiBrito, 1999). Racial-ethnic identity affects individual’s behavior “by providing information about the norms, expectations, and behaviors relevant to group membership and by influencing the sense made of social and contextual feedback” (Oyserman, Brickman, & Rhodes, 2007, p. 92). Future identity, defined as a picture of one’s possible future self (Oyserman & Fryberg, 2006; Oyserman & James, 2009), is also an important component of self-identity. Weinreich (1986) explained that self-identity is the totality of the continuity between how one construes
oneself as one was in the past and how one construes oneself as one aspires to be in the future. Overall, theoretical assumptions and empirical observations reveal that racial-ethnic and future identities are an important part in the framework of self-identity. Consequently, if institutions want to enhance an individual’s self-identity, focusing on racial-ethnic and future identities becomes an important task for both scholars and practitioners.

Not only are racial-ethnic and future identities important components of self-identity, but they both play an important role in retaining and developing students. Research has found that academic success and retention are increased when the connection between one’s self-identity and future identity is achieved (Ersner-Hershfield, Wimmer, & Knutson, 2009; Oyserman & Destin, 2010). Research further evidences that students struggle academically when their racial-ethnic identity does not ‘fit in’ with a particular environment (Landau, Oyserman, Keefer, & Smith, 2014; Walton & Cohen, 2007), and when they are stereotyped as being unable to succeed in school (Entwisle, Alexander, & Olson, 2005; Jackson, 2010; Orfield, Losen, Wald, & Swanson, 2004; Steele, Spencer, & Aronson, 2002).

However, while understanding ‘what’ identities are is important, researchers across a range of disciplines have sought to go one-step further by exploring ‘how’ identities are constructed and maintained (Bryman, Collinson, Grint, Jackson, & Uhl-Bien, 2011). Researchers have found that the construction and maintenance of an individual’s self-identity is “never done in isolation and is an ongoing negotiation, not a once and for all achievement” (Bryman et al., 2011, p. 509). This ongoing negotiation occurs in everyday contexts and environments. As each environment changes, it brings with it new situations and forces that highlight different identities (Oyserman & Destin, 2010). The environment relevant to the purposes of this study is within boundaries of educational institutions—educational learning environment (Booker, 2007; Chhuon & Wallace, 2014; Osterman, 2000; Oyserman & Destin, 2010; Petty, 2014; Usher & Kober, 2012).

Educational learning environments, defined as the “overall atmosphere or characteristics, the kinds of things that are rewarded, encouraged, emphasized, and the style of life that is most visibly expressed and felt” (Genn, 2001, p. 3), exist in educational settings throughout the world. They are found in science classes in Korea (Kim, Fisher, & Fraser, 1999), mathematics classes in Australia (Taylor, Fraser, & Fisher, 1997), undergraduate studies in South Africa (Bangeni & Kapp, 2007), digital game-based learning in Europe (Brom, Šisler, & Slavík, 2010), or throughout universities in Canada (Marshall, 2008). These learning environments have also become a focus among many national and international educational organizations (Abualrub, Karseth, & Stensaker, 2013).

Each learning environment influences how students’ identities are constructed and maintained through unique environmental cues (Komives, Lucas, & McMahon, 2006; Oyserman, et al., 2007; Oyserman, Bybee, Terry, & Hart-Johnson, 2004). Such environmental cues can be images (McKee, Nhean, Hinson, & Mase, 2006), words (Bargh, Chen, & Burrows, 1996), identity-relevant cues (for summary, see Kettle, 2011), objects (Berger & Fitzsimons, 2008), or engagement in identity-relevant actions (Mussweiler, 2006; Schubert & Koole, 2009). Differing cues thus have the potential for priming different identities, which in turn influence differing behavior, choices, and actions (Oyserman et al., 2007). Therefore, if an institution wants to help students develop a strong self-identity for retention purposes, it needs to pay attention to its learning environment and the situational cues contained therein. Additionally, a concerted effort must be made to understand the connection between an institutional learning environment and the development of a student’s self-identity. To explore how a learning environment impacts such things as a student’s self-identity, researchers have “strongly relied on the results reached through investigating the students’ perceptions of the learning environments in which they study” (Abualrub et al., 2013, pp. 97-98).

Confronting years of low retention rates among minority students on our campus, we decided to study an area that had not been explored among minority students on our campus: their self-identities. In particular, we focused our study on how Native American (i.e. Paiute) students, who historically have had the lowest retention rates at our institution, perceive their self-identities and how our campus’ learning environment and situational cues affects the development of their self-identities. This paper will review the literature on self-identity, will discuss the theoretical perspective and methodology that were used to
guide these efforts, and will conclude with an overview of how we are shifting situational cues across
 campus to foster more positive self-identities among minority students in a hope of improving retention
 rates.

**Literature Review**

This section provides a review of the literature regarding learning environments, situational cues,
 self-identity, racial-ethnic identity, and future identity. The following is an abbreviated review of the
 literature pertinent to this paper.

**Learning Environments**

The academic and social components of an educational institution create its learning environment
 (Tinto, 1987). There is an immense amount of research evidencing that learning environments impact
 students’ learning, educational outcomes, and academic performances (Bigdeli et al., 2015; Froyd, 2008;
 Jaeger & Adair, 2014; Ong & Cheong, 2009). Positive learning environments have been linked to identity
development, high levels of learning, educational effectiveness, personal development, and increased
 retention rates (Aries & Seider, 2007; Biggs, 1989; Krause & Coates, 2008; Kuh, Kinzie, Buckley,
 Bridges, & Hayek, 2007; Lizzio & Wilson, 2009). Research has shown that a positive learning
 environment is one that creates an atmosphere where all students, regardless of their backgrounds, (a) are
 engaged and valued in the classroom learning environment; (b) have access to the learning facilities and
 resources and student services provided by the learning organization; (c) are able to participate in building
 new social networks and join learning communities connected to their study interest; and (d) invite
 students to take risks and to question their own and their peers’ thinking and acting (Jaeger & Adair,
 2014; Rauste-von Wright, von Wright, & Soini 2003).

According to the research, institutional learning environments that are not ‘positive’ cause
 students to be more ‘closed’ to learning in an effort to protect their well-being (Boekaerts, 2010;
 Bransford, Brown, & Cocking, 2000; Chu, Babenko, Cui, & Leighton, 2014). These ‘closed’
environments have been found to stunt students’ learning, derail them from being innovative in their
 thinking, and ultimately depress their academic performance (Leighton, Chu, & Seitz, 2013; McGregor &
 Elliot, 2005). Such closed environments also stunt identity development among students (Day, Harrison,
 & Halpin, 2009).

An institutional learning environment is comprised of many categories that impact both the
 academic and social successes of students. These categories include engagement and value both inside
 and outside the classroom, access to learning facilities and resources, and connection to social networks.
 To understand the impact learning environments have on students, researchers have strongly relied on the
 results reached through investigating the students’ perceptions of the learning environments in which they
 study (Abualrub et al., 2013). By understanding perceptions of these environmental factors, researchers
 are in a better position to identify which environmental categories, factors, and variables at a given
 institution are contributing to the development, success, and retention of students. Perceptions of learning
 environments are discussed below.

**Students’ Perceptions of Their Learning Environment**

Research has consistently demonstrated that students’ learning, behavior, and retention are
 associated with their perceptions of the learning environment (Herrmann, 2014; Prosser & Trigwell,
 1999; Stes, De Maeyer, Gijbels, & Van Petegem, 2012). Such research has shown a positive correlation
 between students perceptions of their learning environment and grade point averages (Lizzio, Wilson, &
 Simons, 2002; Pimparyon, Caleer, Pemba, & Roff, 2000); a deeper approach to studying and learning
 (Dochy, Segers, Bossche, & Struyven, 2005; Jaeger & Adair, 2014; Lizzio et al., 2002; Stes et al., 2012);
 engagement in learning (Ryzin, 2010); test performance (Chu et al., 2014; Wayne, Fortner, Kitzes, Timm,
 & Kalishman, 2013); and motivation (Asiyai, 2014; Kember, Ho, & Hong, 2010).
Ryzin (2010) found that “students’ perceptions of the school environment were linked to engagement in learning, which, in turn, was linked to change in academic achievement and hope” (p. 1568). Similarly, Kember, Ho, and Hong (2010) found that a student’s motivation to learn was enhanced through a teaching and learning environment with specific supportive conditions, including establishing relevance, interest, learning activities, teaching for understanding, assessment of learning activities, close teacher-student relationships, and sense of belonging between students (Abualrub et al., 2013). Research further discovered that “regardless of prior academic ability, students who reported a positive perception of their school’s learning environment performed better on a standardized exam than did students who reported less positive perceptions” (Wayne et al., 2013, p. 376). Likewise, students who gave high marks to their school for its emotional climate and student-to-student interaction performed better than students who perceived these areas less favorably (Wayne et al., 2013).

Experiences in a learning environment shape the way students perceive themselves as part of an institution of higher education (Delpit, 1995; Lave, 1996; Roland, 2008). By exploring students’ perceptions, institutions of higher education can use their learning environment as a potential leverage point for educational reform as “interventions that target students’ perceptions of autonomy, teacher/peer support, and goal orientation may be able to promote engagement, hope, and academic achievement” (Ryzin, 2010, p. 1568). While researchers have explored students’ perceptions of their learning environment from all around the world (Bigdeli et al., 2015; Brittian & Gray, 2014; Chang & Chang, 2010; Couto, Bestetti, Restini, Faria-Jr, & Romão, 2015; Herrmann, 2014; Jaeger & Adair, 2014), research exploring the perceptions of Indigenous students, in particular Native Americans, is sparse (Garvey, Rolfe, Pearson, & Treloar, 2009; Gloria & Robinson-Kurpius, 2001). More specifically, research focusing on the specific Indigenous group, Paiute Indian students, and their perceptions of their learning environment at an institution of higher education is lacking.

Students’ positive perceptions of institutional learning environments not only increase academic performance and persistence, but such positive perceptions improve the way a student views him or herself. This positive view of ‘self’ (i.e. self-identity) has been linked to increases academic retention and persistence (Oyserman & Destin, 2010; Markus, Steele & Steele, 2001).

Self-Identity

Self-identity is an important quality for students to develop as “a strong self-identity means one has strong personal values and maintains a high sense of personal integrity while at the same time being openly accepting to those who are different, without feeling personally threatened” (Keeley, 2014, p. 68). Research has shown that a strong self-identity helps students engage in the leadership process, integrate new information without being threatened or overwhelmed, be open to integrating new information, be comfortable with views and practices that differ from their own, make psychological and sociocultural adjustments, and enable them to participate and display leadership skills in novel and challenging ways (Bird et al., 2010; Kealey, 1996; Keeley, 2014; Lange, 2015; Mendenhall, Stevens, Bird, & Oddou, 2010). People with high self-identity can adapt culturally, but will do it in a way that maintains a strong framework of personal values, thus allowing them to maintain a sense of their personal integrity (Mendenhall, Steven, Bird, & Oddou, 2010). In developing a strong self-identity, environmental influences play an important role. As discussed below, the learning environment at an educational institution can have a tremendous impact on whether a student develops a strong or weak self-identity.

Environmental Influences and Self-Identity

Research has shown that there are multiple influences that can develop and prime identities (Helms, 1990; Markus & Wurf, 1987; Purdie, Tripony, Boulton-Lewis, Fanshawe, & Gunstone, 2000). Such influences involve private and personal factors, as well as public and social experiences (Brewer & Gardner, 1996; Hudspath & Williams, 1994; Lord & Brown, 2004; McDonald, Suls, & Brown, 2008; Purdie et al., 2000). These factors and experiences can include images (McKee et al., 2006), words (Bargh et al., 1996), identity-relevant cues (see Kettle, 2011 for a summary), objects (Berger & Fitzsimons 2008), or engagement in identity-relevant actions (Mussweiler, 2006; Schubert & Koole, 2000).
MacDonald et al. (2008) discovered that self-identity can be primed through verbal and nonverbal messages as well as through a myriad of additional ways (e.g., goals, feedback, policies, values, visions, performance evaluations, etc.) (Lord & Brown, 2004; Shamir, House, & Arthur, 1993).

In research performed by Oyserman, Smith, and Elmore (2014), it was found that simply reading a paragraph and circling first person singular versus plural pronouns or considering the ways one is similar versus different to family and friends is enough to prime and shift identities. Similarly, Oyserman, Sorensen, Reber, and Chen (2009) demonstrated that performance of participants from a variety of racial-ethnic and national groups was systematically influenced by whether an individual or a collective mindset was cued by priming students with either first person singular or plural pronouns. Similar studies reported that dramatic shifts in self-identity occur when individuals are exposed to individual focused pronouns (I/me) or collectively focused cues (us/we) in instructions to an experimental task (e.g., Brewer & Gardner, 1996; Gardner et al., 1999; MacDonald et al., 2008).

In sum, there are multiple influences in a learning environment, such as images, words, objects, and identity-relevant cues that prime a person’s self-identity. As situations change, each new context brings with it the potential of highlighting different identities. These highlighted or salient identities influence a person’s behavior, thinking, and choices, thereby impacting a person’s self-identity. For purposes of this study, two components of self-identity are addressed below, specifically racial-ethnic identity and future identity, both of which focus on an important characteristic of self-identity: “personally held beliefs, interpretations, and evaluations of oneself” (Proshansky, Fabian, & Kaminoff, 1983, p. 58).

Racial-Ethnic Identity

Racial-ethnic identity is just one component of a self-identity and it refers to a multifaceted construct composed of feelings of in-group belonging and perceived appraisals of group members and stereotypes held by out-group members (Ashmore, Deaux, & McLaughlin-Volpe, 2004; Corenblum, 2014; Quintana, 2007). As with self-identity, daily experiences in a learning environment bring numerous cues letting a student know whether his or her race/ethnicity belongs or is an outsider (Oyserman & Destin, 2010; Markus et al., 2001; Shih, Pittinsky, & Ambady, 1999; Wheeler & Petty, 2001). Research shows that these situational cues are powerful in priming how a student sees himself or herself and the manner in which the student feels about him or herself (Oyserman & Destin, 2010; Wheeler & Petty, 2001).

For example, research has found that simply bringing a negative stereotype to mind can lead to decreased academic attainment in minority students (Gonzales, Blanton, & Williams, 2002; Steele, 1997). Other research has shown that when a learning environment primes a student with a negative ethnic identity, the students’ academic performance declines (Oyserman, 2009). In particular, academic performance declines if the social group associated with the salient identity (e.g., American Indian) is stereotyped as not performing well in the academic domain of interest (e.g., reading) (Markus et al., 2001; Oyserman & Destin, 2010; Shih et al., 1999; Wheeler & Petty, 2001). In a study conducted by Oyserman, Kemmelmeier, Fryberg, Brosh, and Hart-Johnson (2003), students completed a math task before or after being reminded of their racial or ethnic group membership. The results from this study showed that being reminded of group membership improved or undermined math performance depending on content of racial-ethnic identity (Oyserman, 2009). In four studies performed by Fryberg, Markus, Oyserman, and Stone (2008), it was found that when exposed to Chief Wahoo, Chief Illinwek, Pocahontas, or other common American Indian images, American Indian students generated positive associations but reported depressed state self-esteem, and community worth, and fewer achievement-related possible selves.

The research further provides that students struggle academically when their racial-ethnic identities do not “fit in” with a particular environment (Landau et al., 2014; Walton & Cohen, 2007), or when they are stereotyped as being unable to succeed in school (Entwisle et al., 2005; Jackson, 2010; Kao & Thompson, 2003; Orfield et al., 2004; Oyserman & Destin, 2010; Steele et al., 2002). Oyserman, Gant, and Ager (1995) showed that African American students persisted more at math tasks if they believed that doing well in school was part of racial-ethnic identity. In another study, Oyserman et al. (2003) found that
the racial-ethnic minority academic disengagement decreased when African American, Hispanic, American Indian and Arab-Palestinian Israelis racial-ethnic identities contained both in-group and larger society (‘dual identity’) belongingness versus in-group only.

Daily experiences in a learning environment bring numerous cues that help a student understand whether his or her racial-ethnic identity ‘belongs’ (Oyserman & Destin, 2010; Markus et al., 2001; Wheeler & Petty, 2001). These environmental cues are powerful in priming how a student sees himself or herself (Oyserman & Destin, 2010; Wheeler & Petty, 2001). Similar to racial-ethnic identity, future identity is another important component of self-identity, a competency needed to increase retention. Future identity and its link to academic success and self-identity are discussed below.

Future Identity

Future identity represents a picture of one’s possible future (Oyserman & Fryberg, 2006; Oyserman & James, 2009), and has been shown to steer an individual’s current self-regulation toward achieving future goals (Oyserman et al., 2004). In an academic setting, future identity has been found to help students overcome challenges and experience greater academic success. Eccles, Barber, and Jozefowicz (1999) found that students are more likely to be academically engaged when achievement is congruent with how they define themselves. In two studies of students (72% African American, 17% Latino, 11% White), Destin and Oyserman (2009) discovered that when education-dependent adult future identities are chronically salient, student’s school outcomes improve. Moreover, students who were guided to focus on a future identity that feels dependent on education were found to be more engaged in school than students led to focus on a future identity that feels independent of education (Destin & Oyserman, 2009).

Research also discovered that academic success is increased when the connection between one’s self-identity and one’s academic future identity is made (e.g. Ersner-Hershfield et al., 2009; Oyserman & Destin, 2010; Hershfield et al., 2011). Destin and Oyserman (2011) found that students who described their future career success as dependent on their present academic success studied more than students who did not. Similarly, students who studied more and turned in more homework were those who believed that present success in school was “an effective means of attaining financial success” in the future (Landau et al., 2014, p. 681). Nurra and Oyserman (2011) likewise discovered that students who felt a stronger connection between their current and future ‘adult’ identities were those who worked harder on school tasks.

In another study, Anderman, Anderman and Griesinger (1999) found that mostly white seventh graders with positive academic future identities had improved GPA from 6th to 7th grade, especially when their academic future identities were more positive than their current academic identities. Landau et al. (2014) discovered that freshmen students at the University of Kansas who were primed to frame their academic possible identity using the goal-as-journey metaphor reported stronger academic intention, and displayed increased effort on academic tasks, compared to students primed with a nonacademic future identity. In a separate study, Oyserman et al. (2004) established that low-income students improved grades, spent more time doing homework, participated in class more, and were referred less to summer school (controlling for fall grades and the dependent variable of interest) when academic future identities were plausibly self-regulatory. Likewise, Anderman, Anderman, & Griesinger (1999), in a mixed raced sample of 6th-8th graders, found positive academic future identities predicted higher endorsement of performance goals (i.e. wanting to do schoolwork in order to prove one’s competence or to appear more able or competent than other students).

In conclusion, academic success and persistence is increased when the connection between one’s self-identity and one’s academic future identity is made. Additionally, students who feel a stronger connection between their self and future identities are more likely to work harder on school tasks. Despite the existing studies, research exploring the perceptions of Indigenous students, in particular Native Americans at a university level, is sparse. Specifically, the researchers are unaware of any study exploring the connection between Native American students’ perceptions of their learning environment and their
development as leaders through the construction of self-identities, by focusing on two of its subcomponents: racial-ethnic and future identities.

**Theoretical Perspective**

The theoretical perspective for this research was designed to explore the connection between Native American students’ perceptions of their learning environment and self-identity. Two particular components of self-identity, namely racial-ethnic identity and future identity, were explored.

A strong self-identity helps students engage in the leadership process, integrate new information without being threatened or overwhelmed, be open to integrating new information, be comfortable with views and practices that differ from their own, make psychological and sociocultural adjustments, and enable them to participate and display leadership skills in novel and challenging ways (Bird et al., 2010; Kealey, 1996; Keeley, 2014; Lange, 2015; Mendenhall et al., 2010). Self-identity is a compilation of numerous sub-identities (Abrams, 1994; Burke, 2003; Cross & Cross, 2007; Oyserman, 2001; Oyserman & Destin, 2010). Two of these sub-identities are racial-ethnic and future, both of which have been linked to retention (ASHE, 2013; Ersner-Hershfield et al., 2009; Oyserman & Destin, 2010; Markus et al., 2001; Shih et al., 1999; Wheeler & Petty, 2001) and provide an invaluable framework to a strong self-identity (Bird & Osland, 2006; Bird et al., 2010; Chavez & Guido-DiBrito, 1999; Day et al., 2009; Mendenhall et al., 2010; Weinreich, 1986).

Just as there are multiple dimensions or aspects of self, there are also multiple influences that can develop and prime identities (Helms, 1990; Markus & Wurf, 1987; Purdie et al., 2000). Such influences involve private and personal factors, as well as public and social experiences (Brewer & Gardner, 1996; Hudspith & Williams, 1994; Lord & Brown, 2004; McDonald et al., 2008; Purdie et al., 2000). As environments change, each new context brings with it the potential of highlighting different identities (Oyserman & Destin, 2010). Situations bring identities to mind in different ways, ranging from explicit priming to the identity’s distinctiveness in a particular situation to concerns that the identity may not be validated in the context (Oyserman & Destin, 2010).

Despite this knowledge, we are unaware of any study exploring the connection between Native American students’ perceptions of their learning environment and the development of a positive self-identity (racial-ethnic and future identities). We found only a handful of studies using a postcolonial indigenous research paradigm and indigenous methodologies when studying Indigenous students, regardless of the subject of inquiry. Indigenous paradigms become relevant to studies like this as they influence the choice of methods (i.e. why a particular method is chosen), how those methods are employed (i.e. how data is gathered), and how the data will analyzed and interpreted (Kovach, 2010). Kovach (2010) explained that using Indigenous paradigms guide the researcher as to how Indigenous knowledge is constructed as well as assumptions about what counts as knowledge (Kirby, Greaves, & Reid, 2006). Such paradigms also offer guidance for research methods, including sharing knowledge based in oral history and storytelling tradition (Hart, 2002; Henderson, 2000; Kovach, 2010). It assumes that knowledge is transferred through oral history and story (Archibald, 2008) and that knowledge is co-created within the relational dynamic of self-in-relation (Graveline, 1998; Kovach, 2010). In light of these gaps, this study was performed.

By understanding these perceptions, faculty and administration at institutions of higher education can develop curriculum and teaching methods that are relevant to the reality and worldviews of Indigenous students as well as better suitable to their learning styles. Moreover, institutions can enhance the development of leadership identity among Native American students through relevant experience (Moxley & Wilson, 1998), exposure to external stimuli (Van Knippenberg, Van Knippenberg, De Cremer, & Hogg, 2004), and Indigenous specific extracurricular and co-curricular programs (Kezar & Moriarty, 2000), as well as celebrations and rituals, developmental relationships, mentoring, and environments that facilitate self-awareness, self-assessment tools, feedback, reflection, and novel or new experiences (ASHE, 2013; Hall, 2004).
Methodology

The methods used in this phenomenological case study to collect data entailed using Indigenous methods of talking circles to conduct semi-structured interviews using identity stories and focused life stories (Chilisa, 2012; Kovach, 2009). Additionally, one-on-one interviews were conducted with the current and former directors of the institutions’ Center for Diversity and Inclusion; in addition, qualitative open-ended questionnaire interviews (Yin, 2014) were given to Paiute student participants. Documentation, direct observation, and participant observation were also used.

Findings

The findings from this study are too numerous to detail in this paper, but below is a simplified summation of some of the key findings as well as the practical implications stemming from these findings. This phenomenological case study explored the connection between Native American students’ perceptions of their learning environment and the development of their self-identity. Below (Figure 1) is the relational system of connecting case study concepts, themes, codes, and perceptions that emerged as part of this study:

![Relational System of Connecting Case Study Concepts, Themes, Codes, and Perceptions](image)

This study found that the concept of ‘self’ or ‘myself’ is important to Paiute participants and contains multiple sub-identities, two of which are racial-ethnic and future identities. Native American students perceive their racial-ethnic identity with a ‘small but mighty’ mentality that hinges on the
importance of family, community, culture, tradition, and values, such as helping and caring for others. In the learning environment at the university, Paiute students generally have positive perceptions of their racial-ethnic identities, but there are situational cues which often send the message that their ‘type’ is not wanted, including (a) a perceived unwillingness to help find scholarships, housing, and books for Paiute students; (b) half-time dances at sporting events; (c) light-hearted comments about ceremonial regalia; (d) working with cadavers; (e) working with certain animals; and (f) the naming of the Native American Student Association (NASA) room (the Chapter House – a Navajo term).

With regards to future identities, the Paiute participants perceived their future identities as being linked to education. The link between future identity and families was likewise high among Paiute students. Some Paiute students also perceive their future identity as being linked to their tribe and community. Notwithstanding these perceptions of their future identities, this study found that families’ perceptions of education can have a tremendous impact on whether or not the Paiute student achieves his or her academic related future identity. Additionally, the research found a strong connection between how a Paiute student perceives his or her ability to communicate and his or her perception of their leadership identity. The perception of leadership identity as being the one who is up front speaking consequently appears to be impacting Paiute participation in leadership roles across campus. Paiute students seem torn between being culturally quiet and their perceived need to be the center of attention with the ability to publically speak in order to be a leader. As shown below, these findings led the authors to create several new initiatives on their campus to help Native American students develop a stronger self-identity (racial-ethnic and future identities).

**Practical Implications**

Based in part on this research and the desire to help all Native American students and other underrepresented students find greater success at their institution, the authors of this paper implemented a three-tiered programming initiative to enhance Native American students’ perceptions of their racial-ethnic and future identities, thereby increasing retention rates. In the first-tier (launched in 2015), pre-arrival questionnaires were created to help identify students who were first-generation, having financial restraints, concerned about fitting in or belonging, and many other red flags. Second, each incoming underrepresented student was assigned a peer-mentor who reached out several times over the summer to answer all questions and connect with each student. These peer-mentors also met regularly with each student during fall and spring semester to ensure each student was finding his or her place on campus and was succeeding both inside and outside the classroom. Third, we shifted the way our academic advisors treat each student (from academic based to a holistic approach) and now hand register all incoming students for their first semester. Fourth, we created a Parent and Family Service Office to ensure parents of these students have an advocate on campus to answer all their questions. Finally, we moved the Center for Diversity and Inclusion (CDI) to a larger, more visible space on campus and created safe spaces (separate rooms within the CDI) for the Native America Student Association (NASA) and other underrepresented groups on campus.

In the second-tier (launched in 2016), we invited the education director of the Paiute Tribe to speak at Welcome Week to our 1,600 new incoming freshmen about what it means to be a ‘Thunderbird’ (a Paiute mythological bird, which is also the mascot of our university) as well as tips on being culturally sensitive and accepting of all. Second, Paiute members also performed a drum circle to offer a blessing on and a welcome to all incoming students. This was a top highlight of Welcome Week and something we will incorporate into all future Welcome Weeks. Third, we worked with the Paiute Tribe to obtain permission to use a Paiute word (‘Tavi’) to explain a cultural shift we were making on campus. Tavi is an Aztec and Paiute word that means sun or brightness. At our university, the ‘Tavi way’ has been adopted as a rallying cry for us to light the way for all students and help them succeed (shine) in every way possible. Finally, we changed the name of the NASA safe space for the ‘Chapter House’ (a Navajo term) to that of something more universally applicable to all Native Americans.
In the third-tier (this year - 2017), we will offer personalized, in-depth visits to all incoming underrepresented students over the summer. We will also have a multicultural orientation (the day before our traditional Welcome Week) for Native American students and all other underrepresented students. Student government has been changed to now have designated multicultural representatives on governing committees. Our university is also in the process of hiring a Chief Diversity Officer and additional employee support was given to our Director of the Center for Diversity and Inclusion to provide additional academic support, tracking, and programming. We have enhanced online financial aid tutorials to help educate students and parents on all the ways to pay for college. We also plan to work with the professional development office at the university to conduct sensitivity training for all staff and faculty. Such training should center on how Paiute and other Native American students perceive particular situational cues (e.g. half-time dances at sporting events, lighthearted comments about ceremonial regalia, working with cadavers and certain animals, etc.). We are also implementing ways to create and cultivate leadership skills among Native American students through leadership workshops and seminars. This leadership seminar could be used to instruct these students on the various forms of leadership, including the more familiar tribal councils. We are exploring ways to also host more cultural celebrations on campus where Native American students are able to show case their traditions, culture, values, and history, thereby strengthening their racial-ethnic identity. We also want to provide specific outreach programs dedicated to working with local tribes and tribal bands to help families better understand the value of education. Too many Paiute students get caught between honoring familial obligations and pursuing their future educational goals. If families are more supportive of their students’ academic pursuits, perhaps more will realize their academic-related future identity, thereby strengthening their global leadership competency self-identity.

With each tier we implement, we are seeing positive results. For example, before 2015, we had a five-year average of only 79.14% of Native American students returning to our institution after their first semester (fall to spring). After implementing these initiatives, we saw an 11.36% increase in Native American students returning to our institution (fall 2015 to spring 2016). Additionally, we saw another bump in 2016 (fall 2016 to spring 2017) over the five-year average in Native American students returning. We are hopeful that the implementation of third-tier will likewise produce similar outcomes in retention and student persistence among these underrepresented students.

Conclusion

In conclusion, this research discusses how situational cues (i.e. images, words, objects, etc.) influence a student’s racial-ethnic and future identities, and how these in turn can impact student persistence. This research also addresses what our university learned from performing a situational cue analysis on Native American students and steps we are taking to correct negative situational cues. This research provides practitioners with an understanding that if institutions of higher education want to enhance the likelihood of increased retention rates among minority students, a concerted effort must be made to understand the connection between situational cues and self-identity.
References


Wrangling Data, Technology, and Managing the Unexpected in Support of Student Success: The Ongoing Process at Bowling Green State University 2011-2017

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Abstract: This tutorial paper outlines Bowling Green State University’s (BGSU) ongoing efforts to create and maintain a creative and iterative reconsideration how we use student data in light of emerging technology, new uses of existing technology, and changing organizational structures and priorities; all in support of student success. BGSU began this process in 2011-12 by creating our first Access database, a cross departmental effort to capture from various key offices and people across campus what we know about our incoming students and creating a central repository for this information. As our organizational structure and strategic goals evolved, we placed this document on SharePoint to open new avenues of information sharing and collaboration. As we became more sophisticated, made mistakes, and stumbled, our questions changed and our approach evolved. Session participants will consider BGSU’s efforts from 2011-17, and then be offered the structured opportunity to consider their own institutions’ parallel efforts. Participants will take away from this session ideas and examples of how they may leverage technology, people, and data in support of student success.

Introduction

In 2011-12 a cross-divisional office dedicated to student academic success and persistence was created and charged with monitoring student academic success and persistence, including the start-up of a new software platform purchased to replace a home-grown Early Alert system. As part of this office, in collaboration with Registration & Records, an Access database was created, lovingly entitled the “OGRE” (due to its size). At its inception, the OGRE contained 45+ columns of data points determined at that time to be critical to our knowledge of our incoming cohort of first-year students. Our original charge was, simply, to gather as much salient data as we could about our incoming first-year cohort, and to store it in a central repository where we could utilize it to guide our efforts in determining which students might be at risk for academic success and persistence. Further, we were to design targeted outreach and support early enough in the academic year to make a difference in outcomes.

By 2013, the OGRE contained close to 80 columns of data points, gathered from Admissions, Registration & Records, Institutional Research, academic departments, academic support offices, and other units across campus. In 2013, academic advising underwent a reorganization, and the efforts of the OGRE’s original home office became absorbed under the newly-formed Office of Undergraduate Advising and Academic Services. As our original office grew to include the new model of academic advising, it became clear that the OGRE would need to evolve as well, as it was of limited use to academic advisors in its nascent form. While managing the sheer volume of information concerning our first-year students has always been an ongoing obstacle to providing truly efficient and timely outreach, follow-up, and support of our students, upkeep and maintenance of our homegrown OGRE was cumbersome, required frequent updates, and access was limited to academic advisors in the college offices. Information sharing between college advisors and program advisors was often random, ad hoc, and incomplete.

As a result of a strong collective effort across campus, retention of first-year students increased from just under 70% in 2011 to nearly 76% in 2015 (See Table 1). While these gains can be attributed to
Institutional leadership has acknowledged the key role academic advising plays in retention, and has committed additional resources, training, and technology, to improve academic advising practices and outcomes. The creative use of SharePoint helped improve the efficiency and satisfaction of the outreach efforts of advisors and by doing so, helped retention; contributed positively to student success by decreasing time-to-degree and excess credit hours; and improved graduation rates. The use of SharePoint as an advisor communication and collaboration tool directly addressed one of BGSU’s strategic goals – to grow the student body to 25,000 and to sustain a retention rate of 80%.

Table 1: Fall to fall cohort retention rates

<table>
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<tr>
<th>Cohort</th>
<th>Fall/Fall Retention</th>
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<tbody>
<tr>
<td>Fall 2011</td>
<td>69.52%</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>70.12%</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>75.86%</td>
</tr>
<tr>
<td>Fall 2014</td>
<td>75.52%</td>
</tr>
<tr>
<td>Fall 2015</td>
<td>77.86%</td>
</tr>
<tr>
<td>Fall 2016 (as of 5-30-17)</td>
<td>78.50%</td>
</tr>
</tbody>
</table>

We learned from our early attempts at outreach and intervention that to have a direct and positive impact on student success, the entire advising community (college advisors, program advisors, and others working with at-risk populations) needed access to student data, to allow them the ability to share advising notes, retrieve reports, monitor progress of populations based on identified criteria, and assess student success. Bowling Green State University has adopted intrusive outreach to academically and other at-risk students as a best practice in higher education. Our operating philosophy was, and continues to be, that the earlier at-risk students are identified and engaged, the greater the likelihood of issue remediation, academic success, and persistence. When considering technology-based solutions, the purchase of a Customer Relationship Management (CRM) to support student success was not an option.

Narrative

The restructuring of our undergraduate advising model in 2013 provided the perfect opportunity to reconsider our approach, as our internal research echoed national research on the intimate connection between academic success, systematic and documented intervention, and persistence. A review of the relationship between our alert system, our student information system, internal methods to manage student data, and the persistence and retention of our students resulted in the launching of the SharePoint informal pilot in spring of 2015 as a way to reach out and record outreach to unregistered students.

Bowling Green State University’s advising system is intentionally described as Centrally Coordinated, De-centrally Delivered. The organizational advising model at BGSU respects the culture of each academic college, and reflects our mid-sized campus, which includes:

- Daily administration and delivery of advising services within an advising center, with students being assigned an academic advisor within their respective college or department
- Central advocacy, coordination, and support of advising assessment and technology, advisor training, development and recognition, and sharing of best-practices in academic advising

In 2013, an Assistant Vice Provost and Director of Advising was hired to serve in a newly created position to develop this coordinated system, which also included the hiring of nine additional professional advisors. In our advising model, professional and program advisors, housed in college units and collaborating with faculty mentors, provide the primary advising for all first-and second-year
students. During their junior and senior years, students transition to faculty mentoring as their primary source of advising. Although we have had an early alert system in place for several years, we have recently implemented Student Success Collaborative (SSC) software, which gives all advisors greater access to student data, predictive analytics, and improved systems for student tracking and communication. As a result, advisors are now more proactive in identifying and providing timely outreach to student populations who may be most in need of advising and intervention. Most recently, we have introduced Microsoft’s SharePoint application to collaborate across and among Academic and Student Affairs units in support of our students; to share best practices, track and report retention concerns, create a holistic view of students with input from professionals across campus; and provide professional development of advising teams. We continue to seek to better collaborate with our colleagues in program (non-college) advising offices to support student success and persistence. Using SharePoint as a Customer Relationship Management (CRM) tool has helped to bring advising goals to fruition.

**SharePoint Adoption by College Advising Offices and Expansion to Selected Program Offices**

Throughout 2015 and into 2016, we expanded our creative use of SharePoint to collaborate with our program offices and advisors who serve underrepresented students; namely, TRIO Student Support Services and Nontraditional and Military Student Services (NTMSS). Using SharePoint allowed us to expand our outreach and advising of at-risk populations. By including the unique characteristics of these special populations and engaging program advisors, we were able to incorporate their specialized knowledge, skills, and techniques, and in turn, shared that information across BGSU’s entire advising community. We now were charged with growing our efforts to include the accumulation, storage, and sharing of information from advisor/student interactions not simply during a registration cycle, but throughout the academic year, as we knew this would assist us even further in identifying and reaching at-risk students at the earliest possible juncture.

Integration of SharePoint Team Collaboration Software allowed us to enhance inter-and intradepartmental communication as well as project management and retention intervention services of TRIO SSS and Nontraditional and Military Student Services (NTMSS).

The use of SharePoint as a collaborative advising system resulted in more purposeful student success monitoring, a function critically important to first-year, veteran, and SSS populations. When program advisors posted unique information to the SharePoint document, it informed professional advisors and others across campus regarding the status and individual needs of our student populations. It provided others with a greater understanding of underrepresented, nontraditional and veteran students and their unique barriers to success. This understanding translated into more informed outreach and better-targeted conversations with our students, and gave them direct and reliable access to the comprehensive support and guidance they needed to complete their degrees in a timely fashion.

Table 2 highlights the benefits of SharePoint versus our previous student academic outreach and support efforts.
Table 2: Pre-SharePoint/Post-SharePoint comparison

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<thead>
<tr>
<th>Pre-SharePoint</th>
<th>SharePoint</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekly summer distribution of Excel spreadsheets to colleges to communicate and collect information on students’ registration (retention) status</td>
<td>Daily updates of one comprehensive and individually customizable spreadsheet that maximizes information and allows advisors to remove extraneous information from their personal views</td>
</tr>
<tr>
<td>Multiple calls, emails, texts to students from various stakeholders regarding same information</td>
<td>Ability to better coordinate outreach efforts across campus to avoid duplication of efforts and to identify and remediate barriers to success earlier</td>
</tr>
<tr>
<td>Outreach notes recorded on Excel spreadsheet and routed among staff</td>
<td>Fewer hands touching data means fewer opportunities for error</td>
</tr>
<tr>
<td>Advising notes maintained within colleges and programs locally</td>
<td>One centralized spreadsheet assures better coordination of efforts and cohesive methodology in outreach across multiple advising offices</td>
</tr>
<tr>
<td>Limited reporting ability</td>
<td>Excel files are downloadable and easier to work with now that the data is manageable</td>
</tr>
<tr>
<td>Advisor information limited to their own interactions with students</td>
<td>Case management/holistic student approach based upon input from a variety of sources across campus</td>
</tr>
<tr>
<td>Data used for outreach efforts were outdated before they began</td>
<td>Problem identification and issue remediation within 1-2 business days</td>
</tr>
<tr>
<td>Dispersed and unshared student advising information between and among Academic and Student Affairs units</td>
<td>Collaboration between Academic and Student Affairs advisors on the creation and update of one student central information repository</td>
</tr>
<tr>
<td>Use of software not nimble enough to meet needs</td>
<td>Use of software meeting our needs with the potential to grow to further functions and service areas</td>
</tr>
</tbody>
</table>

The adoption of SharePoint as a tool in our outreach to students has saved BGSU time and money and created new efficiencies in our outreach, but most importantly, it has improved our service to our students. Preliminary evidence indicates it has had a positive effect on student success and persistence. Further, in collaboration with other existing software utilized by advisors, including Student Success Collaborative, we now have the ability to know more much earlier, and thus identify and remediate even complex issues early enough to make a difference. Further, we can now share, prioritize, and categorize outreach efforts and results more efficiently than with our previous methods.

One of the strengths of SharePoint is that, as a Microsoft product, it is fairly ubiquitous and accessible. The functionality we have put in place at BGSU is easy to access and manage. Further, it does not require any specific or detailed Information Technology Support, and requires minimum training. Therefore, its adaptability to other functions within BGSU and implementation by other institutions is doable.

At the onset of this project, we created a training video and written instructions to place on the SharePoint site, and followed up with additional small and large group training sessions. Additionally, we provided informal check-ins throughout the outreach period, by visiting all advising offices individually. We also provided ongoing phone and individual support throughout the outreach process.

**Moving Forward**

**Spring 2017: Expansion of Advising Notes in Student Success Collaborative**

In early 2017, the President and Provost asked us again to reconsider our efforts in light of new questions: WHO were we missing? WHOSE VOICES were we not hearing in our earlier efforts? Although always focused in the margins at the individual level, we redoubled our work in that
direction. No longer was it more salient to focus the lion share of our efforts on WHAT we were missing (data). At the same time, through 2015 and 2016, we continued to monitor and refine our existing ways of data collection, sharing and analysis, and exploring additional methodologies and vehicles to help us do even better in identifying, targeting, and reaching out with earlier, more targeted and effective interventions to students at risk for academic success and persistence. At the request of our advising staff, we pulled the SharePoint OGRE from advisor view, and pursued a new note type and note reason in SSC. They had seen some of the work on the SharePoint OGRE as redundant and confusing in light of our strategic move to adopt more functionality of Student Success Collaborative and expand our users beyond advisors and program offices to Residence Life, Bursar, Student Financial Aid, and Scholarships. The new SSC functionality offered us exciting possibilities, particularly in the area of Advisor Notes, and new areas for data collection and sharing. It also gave us the opportunity to engage more offices and individuals across campus into our student 360 view, where they could read, learn, and contribute. Particularly exciting at this juncture was our ability to upload Residence Life outreach notes into SSC. These notes allowed us to gain key information from the interactions of Residence Assistants. It also allowed us to move our long term student academic success and persistence strategies forward in a direction that did not compromise any of the gains we had made in the OGRE SharePoint.

Spring 2017: The Advent of the War Room

In early spring of 2017, we began to strategize about more ways to strengthen our partnerships in data collection and outreach to identify and provide specific and targeted outreach to subpopulations we identified as specific priority populations (Commuter Students, Students of Color, Students with Unmet Financial Need, First Generation Students). Once initial data discovery led us to the targeted populations, we began work to set fall/fall retention goals for each subgroup, create outreach strategies, and identify responsible outreach offices, initiatives, and/or individuals. The engine behind the War Room (a fond term for a meeting room where a small subgroup met daily to review emergent retention data) is the “OGRE +”, an enhanced OGRE with even more data columns, including pre-college characteristics, academic performance indicators in college, key courses taken or not taken, benchmark grades received (or not), and predictive modeling data that our own internal data team has created. Throughout spring, a small “War Room” group met 2-3 times weekly, and distributed new prioritized lists of unregistered students. Although at this time it is too early in summer 2017 to predict final retention, our initial reads continue to reveal positive trends upward.

Conclusion

We continue our work to utilize existing technology in new and innovative ways to bridge gaps in functionality, workflow, people, and processes to realize our vision of academic support and persistence at BGSU. What began for us as an innovative use of existing technology grew into much more than that, and culminated in a reconsideration of our processes, our organization, and how we approach our work with students. In fall 2017, as results of our latest adaptations become clear, we are ready to begin the iterative process again; asking new questions, and seeking new answers for how we can best identify, target, design, and implement early, effective, and ongoing support for our students.