Factors that Influence Student Attrition in Online Courses

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Abstract

Research was conducted to explore predictors for online higher education student attrition. This research was conducted using results from the SmarterMeasure Learning Readiness Indicator to track students in their degree programs. In addition, student outreach was conducted with an experimental group of at-risk students to determine if additional academic support promoted retention. Results demonstrated that verbal and physical learning styles and personal attributes such as procrastination increase the likelihood for attrition, while clear reasons for pursuing a degree and typing skills decrease the likelihood for attrition. Outreach to identified at-risk students did promote greater levels of student success and persistence. Recommendations for future research include comparing results from online and traditional student groups to determine if similar at-risk factors influence the likelihood of student withdrawal, and examining the characteristics of students who withdrawal before completing their first course. Moreover, qualitative research should be conducted to more deeply understand the reasons associated with online program attrition.

Introduction

Many online institutions are challenged to retain students beyond the first few courses. While the data are complex, most 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). Student retention is a noteworthy issue for higher education institutions and is closely tied to accountability (Eaton, 2011). 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), yet the growth of online education and the heightened focus on institutional accountability adds to the complexity of this issue. There is an urgency to understand the u student risk for attrition. More research is needed to identify the factors that may affect student persistence.

In a study of variables related to retention in online higher education, Dupin-Bryant (2004) found these factors were related to student retention: class rank, grade point average (GPA), previous online experience, internet training, technology training, and internet training. Higher education leaders need tools to allow for assessment of such factors. *SmarterMeasure* is a tool used by many institutions to evaluate the attributes, skills, and knowledge students possess that may contribute to their overall success in degree completion. The assessment allows for measurement of student self-motivation, time management skills, self-discipline, reading rates, reading recall, persistence,

availability of time, ability to use technology tools, typing speed, and typing accuracy (SmarterServices, LLC., 2016). The instrument is used by higher education institutions to provide indicators of student readiness for success in distance, hybrid, or technology-enhanced courses and programs. Using this tool, it is possible to correlate measured indicators with student retention. In this research, three questions were explored to better understand at-risk factors for student retention. The following questions guided the research:

1. What factors can institutions use to identify at-risk students?
2. What learning readiness factors are associated with online student retention?
3. What strategies can be used to promote student retention once at-risk students are identified?

Literature Review

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. Completing a degree is a well-earned accomplishment for students and the culminating experience following years of hard work. For the institution, it is evidence of meeting the mission of educating and graduating students. However, persistence and completion pose unique challenges in today's online and open enrollment universities. U.S. institutions of higher education that offer online programs have become a fast-growing segment (Carnegie Foundation for the Advancement of Teaching, 2011; Planty et al., 2008; U.S. Department of Education, 2011). Effective online learning is about providing students with a rich, engaging, professionally-relevant, and academically rigorous education. The individual's return on investment of an online education can be significant for career advancement, including career change, compensation, leadership development, and life quality intimations resulting from the attainment of the degree (Boud & Lee, 2009; Boud & Tennant, 2006). Yet, online program attrition rates continue to be a problem across programs and demographic considerations (Council of Graduate Schools, 2007, 2010, 2012). As the U.S. has emerged from a challenged economy and the 2008 recession, individuals with advanced degrees continued to hold the lowest unemployment rate (1.9%) and the highest median weekly income (Bureau of Labor Statistics, 2010), so there are compelling reasons to maximize student completion of online programs.

Student Retention

Kara and DeShields (2004) emphasized the importance of recognizing factors that contribute to student satisfaction in online educational institutions of higher learning. Gilliam and Kristonis (2006) recommend institutions examine and identify problems related to student attrition and retention. Wang, Shannon, and Ross (2013) suggested courses be designed to promote student self-regulated learning behaviors. In the online course, student self-regulation can occur when student receive effective feedback, which allows them to master content knowledge and increases satisfaction with the learning experience (Hattie & Temperly, 2007). In addition, course mastery is closely tied with degree completion and student retention (Scott, Bailey, & Kienzl, 2006). Helgesen and Nesset (2007) suggested student loyalty is another factor linked positively to student satisfaction. Tinto (2005) noted that integrative college experiences increase the likelihood of student persistence to degree completion. Fike and Fike (2008) concluded it is essential to use data to guide decisions supportive of retention and to provide insight into factors influencing student retention.

Researchers note that it is always more cost effective to retain students than replace students (Flegle, Pavone, & Flegle, 2009). Researchers have linked high school GPA and college entry exam scores with student persistence in college courses (Astin, 1993). Yet, many online institutions allow students to enroll without test scores and with no minimum GPA. Tinto (1993) indicated that *least selective* institutions often have the low student retention rates. Tinto also linked lack of academic

preparedness to higher student attrition. Remediation is often required for students who enter college without requisite academic skills (Cabrera, Nora, Terenzini, Pascarella, & Hagedorn, 2006; Kuh, 2007). In addition, many online students come from nontraditional student groups at greater risk for attrition including older adults, military members, minorities, working adults, and parents.

Method

Quantitative correlational and experimental designs were used to assess at-risk factors and intervention techniques at an online, primarily graduate, institution located in the Southwestern United States. Quantitative data in the form of a college readiness assessment designed by *SmarterMeasure* were gathered from students prior to enrollment at the University and experimental studies were conducted prior to the start and during the first six months of the students' enrollment. *SmarterMeasure* scores for 2,400 students were used to identify factors related to student persistence and attrition. All students were enrolled in degree programs at the online institution. These students took the assessment prior to enrollment in their first courses. *SmarterMeasure* scores provided a diagnosis of several factors or domains including:

- Individual Attributes - motivation, procrastination, willingness to ask for help, etc.
- Life Factors - Availability of time, support from family and employers, finances, etc.
- Learning styles - Based on the multiple intelligences model
- Technical Competency - Skills using technology
- Technical Knowledge
- Typing Speed and accuracy
- On-screen Reading Rate and Recall (SmarterServices, LLC., 2016)

Scores for students on these factors were used to indicate early warning signs for student attrition. Each of these factors was correlated to student persistence in online programs. Then, students were tracked to determine rates of persistence. Students who withdrew or were dismissed from the programs were evaluated to compare scores on the *SmarterMeasure* assessment. Based on the students who were successful in completing their programs versus students who were not retained, it was possible to determine factors related to student persistence. Once this initial analysis was completed, experimental research was conducted to evaluate the effectiveness of interventions for identified at-risk students.

Results

To answer research question 1 (What factors can institutions use to identify at-risk students?), the researchers conducted a multiple regression analysis to predict the statistically significant effect of various life factors, learning styles, personal attributes, technology competencies, technology knowledge, typing speed, typing accuracy, and reading ability on the overall likelihood of withdrawal or dismissal. The results from the analysis demonstrated that verbal and physical learning styles and personal attributes such as procrastination increased the likelihood for attrition.

Table 1
Factors that Increase the Likelihood of Student Withdrawal or Dismissal

Predictor	Likelihood of Attrition	*p*-value	Amount Predictor Increases Likelihood of attrition
Physical learning style	Increases	0.04	14.40%
Verbal learning style	Increases	0.001	33.30%
Procrastination	Increases	0.035	15.00%

To answer research question 2 (What learning readiness factors are associated with online student retention?), the researchers conducted a multiple regression analysis to predict the statistically significant effect of the same factors to determine if any decreased the likelihood of student attrition. The results from the analysis demonstrated clear reasons for pursuing a degree, typing speed, and technology skills decreased the likelihood for attrition.

Table 2

Factors that Decrease the Likelihood of Student Withdrawal or Dismissal

Predictor	Likelihood of Attrition	*p*-value	Amount Predictor Decreases Likelihood of attrition
Reasons for enrolling	Decreases	<.001	27.20%
Readiness skills	Decreases	<.001	20.70%
Typing speed	Decreases	<.001	20.90%

In addition to the domains that influenced student attrition and retention, there were many measured factors that had no effect on student retention or withdrawal/dismissal. These included:

- Life factors – the place students devote to studying, the resources students have available like technology, and the time students planned to devote to their coursework did not have an effect.
- Learning style – aural, logical, social, solitary, and visual student learning styles did not have an effect.
- Personal attributes – academic, help seeking, locus of control, persistence, and time management factors did not have an effect.
- Technological – technical competency, technology knowledge, typing accuracy, and reading (words per minute) did not have an effect.

To answer research question 3 (What strategies can be used to promote student retention once at-risk students are identified?), an experimental study was conducted to provide outreach to students with low readiness scores on any of the statistically significant at-risk factors. Researchers placed students with similar scores and demographics into two separate groups. The first group served as the control group and received no additional outreach. The second group, the experimental group, received an outreach call prior to the first day of the first course. During that call, a representative from the school shared school-specific information and resources to support the students' areas of low readiness. In addition, the representative demonstrated how to access the library, academic success center, time management support program; and provided students with guidance on how to schedule time with an academic coach. The conversations were followed up with emails that included links to all of the support resources available. Additionally, school representatives ensured students understood the *SmarterMeasure* assessment scores and were able to use the resources provided as part of the assessment tool.

After six months, the experimental group had an 11% greater level of retention than the control group. Additionally, there were observable differences in the performance of the two groups. The control group had more dropped courses, more failing grades and course withdrawals, and tended to have more students who were two or more assignments behind the course due dates. The experimental group showed greater persistence, fewer failing grades and course withdrawals, and submitted more on-time assignments.

Discussion

In this study, at-risk factors were identified from students enrolled at an online higher education institution. *SmarterMeasure* was used as a diagnostic tool to determine factors that influence student persistence and attrition. In addition, at-risk students were identified and then an experimental group

received an outreach and additional support. Findings showed that students who received this additional support were better retained and had greater levels of success as measured by course completions with passing grades and on-time assignment submittals.

Following this study, and based on the assumption outreach was part of the reason the experimental group experienced higher levels of success, researchers created an early alert system pilot. Faculty teaching first courses in two programs with highest student attrition were asked to submit an e-mail-based alert directly to the students' academic advisors if they were concerned about student progress or performance. There was an overwhelming response, with an average of 20-25 alerts completed each week by faculty involved in the pilot. Reasons for alerts included lack of timeliness in assignment submissions, low academic performance, concerning student life circumstances, and poor student writing.

Focus groups, following this pilot, revealed advisors were able to intervene much earlier with at-risk students. Moreover, advisors perceived they were able to provide much more specific support and retain students who might have otherwise withdrawn from the University. Faculty also appreciated the system and expressed they were able to *partner* with the advisor to provide more holistic support for their at-risk students. Early course persistence of these two groups improved by 1% during the pilot.

Conclusions

Based on the findings and the literature review, several potential interventions are available, which may play a significant role to play in student success. It is recommended that:

- Students articulate their motivation for engaging in their program early in the enrollment process. *SmarterMeasure* data included significant findings for students who had a clear understanding of why they were enrolling in a degree. These students had lower attrition than students who could not articulate reasons for enrolling. As such, effort should be made to assist the student in specifying educational goals and the rationale for enrolling in the first place.
- Students develop college readiness skills. Because of the influence of readiness on student success, institutions should provide resources for and remediation to students who do not possess fundamental readiness skills.
- Online institutions promote students' technology readiness. While many technology factors were not indicators of student retention, typing speed was. More research is needed to understand the meaning of this finding. Typing speed may be correlated with higher levels of computer fluency, so more research is needed relative to this success factor.
- Institutions address the needs of students with various learning styles. If students identify as having a physical or verbal learning style preference, greater levels of support may need to be provided to ensure online success.
- Faculty should develop a mentoring skill set to best support student progress. While this recommendation did not arise directly from the results of this study, researchers clearly connect effective teaching with student success (Bégin & Gérard, 2013; Salter-Dvorak, 2014; Willis & Carmichael, 2011). As such, efforts should be taken to promote faculty mentoring skills.
- A quality student-faculty relationship and healthy communication should be fostered. The literature (Bitzer, 2011; Salter-Dvorak, 2014; Spaulding & Rockinson-Szapkiw, 2011; Stallone, 2011) and the experimental aspect of this research study demonstrated that proactive faculty, who are attuned to student needs are more likely to intervene to promote retention.
- Students are provided with regular feedback to help them master content knowledge (Hedge, 2013). While this study did not address faculty feedback, because of the prominence of this factor as an influencer of student success in the literature, this recommendation should be heeded.

Recommendations for further research include replication of this study in traditional institutions to determine if at-risk factors are similar for traditional and online students. Moreover, examining the characteristics of students who withdraw before completing their first course would both inform enrollment policies and promote strategies to support students at the earliest stages in their program.
  In addition, qualitative research should be conducted to more deeply understand the reasons associated with online program attrition. In particular, research should be conducted to explore student reasons for withdrawal at various degree levels to provide a more complete picture of the interventions needed to support these students. Finally, long-term quantitative, experimental research should be conducted to determine if interventions provided to students on low scoring factors on the *SmarterMeasures* assessment result in greater persistence to degree completion.

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