
Student Satisfaction as a Predictor of Retention in a Professional Online For-Profit Higher Education Institution

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Abstract

This study expanded on prior satisfaction and retention research by exploring this relationship within the online for-profit sector. An ex post facto design was utilized at an online for-profit undergraduate institution with programs in the creative arts to explore the relationship between student satisfaction as measured by the Priorities Survey for Online Learners (PSOL) and subsequent student retention status that was collected one year after completing the survey. Point-biserial correlation and binary logistic regression tests were conducted on a sample of 2729 students that completed the PSOL and found no significant relationships between overall satisfaction and satisfaction on subscales of the PSOL and subsequent retention status one year later. These tests were repeated at the item-level and the point-biserial correlation test found no significant relationships. However, the binary logistic regression test found that three items significantly predicted student retention one year later. Overall, the study concluded that student satisfaction is not a significant predictor of subsequent student retention. Implications for practice within the online for-profit sector are discussed.

Introduction

The growing predominance of online education has attracted increased attention to student retention issues within the online higher education sector. This is an especially sensitive issue in for-profit higher education where institutions are frequently criticized for admitting students that are not expected to graduate (Lynch, Engle, & Cruz, 2010). The National Center for Education Statistics (NCES; 2013) reports retention rates of private for-profit institutions are lower than different sectors of higher education, and other research suggests online programs have lower retention rates than face-to-face programs (Herbert, 2006; Simpson, 2004; Willging & Johnson, 2004). As leaders within higher education make key decisions regarding the adoption and implementation of online programs, it is important to examine their beliefs toward online education. Allen and Seaman (2013) conducted a survey of leaders in degree-granting institutions across the United States and revealed that 73.5% reported the low retention rates of online courses as a somewhat important to very important barrier hindering the adoption of online courses. Low retention rates damage the reputation of the institution, as well as online for-profit education as a whole, while creating debt without tangible gains for students (Chiyaka, Sithole, Manyanga, McCarthy, & Bucklein, 2016; Lynch et al., 2010). Therefore, increasing student retention is of utmost importance for both students and institutions.

One of the ways that institutions address and try to increase student retention is by increasing student satisfaction. Institutions regularly gather data on student satisfaction and use the information to improve their services, which will in turn increase both the satisfaction and retention of students (Bryant, 2006). However, much of the literature that is available focuses on face-to-face traditional and for-profit institutions, as well as online institutions in general (Edens, 2012; Herbert, 2006; Oja, 2011; Schreiner & Nelson, 2013). There is a lack of research that focuses specifically on student retention as it relates to student satisfaction in online for-profit undergraduate education.

The purpose of this study was to investigate the relationship between student satisfaction and retention in online for-profit undergraduate programs. Considering the increasing political pressure for students at for-profit institutions to successfully complete their programs and that online for-profit programs will not disappear anytime soon, research in this area is essential for the benefit of online for-profit students and institutions (Lynch et al., 2010). More specifically, this study determined the extent to which the student satisfaction subscales of the Priorities Survey for Online Learners (PSOL) predicted student retention status one year after the survey was administered.

Theoretical Framework

This study was based on a combination of student retention theories. Tinto's (1975) model of social and academic integration explains the interaction of these factors concluding: "a person will tend to withdraw from college when he perceives that an alternative form of investment of time, energies, and resources will yield greater benefits, relative to costs, over time than will staying in college" (p. 98). Although Tinto's (1975) research is limited to traditional undergraduate students, it underlines the need for institutions to provide support services and satisfying experiences that promote a sense of academic integration. Bean and Metzner's (1985) student attrition model built on Tinto's (1975) model and addresses the unique institutional, student, and environmental characteristics that result in academic and psychological outcomes that ultimately contribute to whether or not a nontraditional student (e.g., adults and students in technical training programs) is retained. This model was later modified by Rovai (2003) for application within the online environment, and most recently, Park (2007) expanded on Rovai's (2003) model to explain the complex interplay of internal and external factors have both direct and indirect impacts on a student's retention decision or outcome. Internal factors that are investigated within these models that influence a student's retention include student satisfaction, faculty instruction, academic counseling services, and broader student services (Tinto, 1975; Bean & Metzner, 1985; Rovai, 2003; Park, 2007). An overarching theme is that student satisfaction with a variety of factors that are internal to an institution will directly impact student retention.

Consumer-oriented models of student attrition have developed alongside Tinto's (1975) model of social and academic integration and Bean and Metzner's (1985) student attrition model. Pate (1993) and Schertzer and Schertzer (2004) developed models that show how student satisfaction with various facets of the institution result in positive institutional outcomes, including increased retention. For example, Schertzer and Schertzer (2004) explained student retention as a function of academic fit. The first component of academic fit is student-institution congruence, which is primarily comprised of student satisfaction with the program of study, characteristics of the institution, and student relationships with its employees. The other component of academic fit is student-faculty congruence: the similarity of values and goals between students and faculty. These factors ultimately contribute to the outcome level of student satisfaction, commitment to the institution, and retention decision. Unlike prior student attrition models, consumer-oriented theories look at student satisfaction as the focal point of retention decisions. Therefore, through a combination of student attrition and consumer-oriented theory, this research investigated how student satisfaction with a variety of institutional services influenced student retention.

Online For-Profit Education

While for-profit education began as a small sector of higher education that focused on limited vocational training, it has since expanded to serve working adults and first generation college students that public and non-profit institutions have not been able to support due to their restrictive class schedules and reliance on face to face classes (Tierney, 2011). As a result, the for-profit sector of higher education has experienced substantial growth in the past decade (Allen & Seamen, 2013; Chau, 2010). For-profit institutions, more sensitive to market demands, acting with the agility of a private business, and unencumbered by the bureaucracy of public and non-profit institutions, were able to quickly adapt to the needs of students. They offered programs that students were able to finish quickly and efficiently at numerous locations at a variety of times (Deming, Goldin, & Katz, 2013). Noteworthy criticisms of for-profit education include the division of resources between the interests of students and shareholders, high tuition costs, and consequently, high student debt loads (Belfield, 2013; The Education Trust, 2010). Further, Nash (2015) warns that it is essential to increase the academic rigor of online education lest it lead to the discrediting of postsecondary education in the United States.

With the advent of the digital age, higher education rapidly evolved an online sector that has become increasingly prominent over the past couple decades. Less than 10% of students in higher education took at least one online course in the fall of 2002 compared to 32% of students in the fall of 2011 (Allen & Seamen, 2013). Online courses are advantageous to the institution as well as the student; they allow institutions to stretch beyond geographical confines to spur increased enrollment. Unlike face-to-face institutions, online institutions may use fixed, standardized curricula that faculty are unable to modify or change. While this reduces the time faculty spend making preparations, Blair and Monske (2003) warn that this minimizes the role of faculty. As courses are prepackaged for faculty in advance, they have limited ownership in the courses and serve in the reduced capacity of facilitators, rather than the creators of the material. Students may sense that the educational experiences of online courses are not as genuine as face-to-face classes, and this may harm their satisfaction and retention decisions.

Alongside the growth of for-profit and online higher education, online for-profit higher education has emerged as a burgeoning sector within the past decade. There is limited aggregate data available on this specific sector as some of the most reputable sources for education statistics focus on the dichotomies of public and nonprofit education as opposed to for-profit education, and face-to-face education versus online education (NCES, 2013; Allen & Seaman, 2013). Similarly, with the exception of research in nuanced facets of online for-profit education, there is a lack of research that targets and holistically discusses the nature of the online for-profit sector. As such, the assumption must be made that the online for-profit sector is best described as a convergence of the research on for-profit and online sectors of higher education. It is probable that online for-profit education likely has an amalgamation of the quality of education and retention issues at for-profit and online institutions.

Student Satisfaction and Retention

Student satisfaction is one of many factors that impacts student retention. Student satisfaction has been defined as the response to the quality of a deliverable or service (O'Leary & Quinlan, 2007). Prior research using the Noel-Levitz Student Satisfaction Inventory (SSI) found that student satisfaction as measured by the SSI is a weak predictor of student retention one year later within a study of approximately 30,000 students across 61 four-year public and private institutions (Schreiner & Nelson, 2013). Satisfaction with the campus climate and student services both resulted in higher student retention. Satisfaction with academic advising and quality of instruction predicted retention for students in their second and third years of study, but not for students in their first year of study.

Edens (2012) investigated student satisfaction as measured by the SSI for over 5,000 students across 21 for-profit institutions and found it to be a weak predictor of student retention one semester and one year later. While he found that student satisfaction is a weak predictor of retention, he

concluded that student retention is difficult to predict due to the numerous variables that influence a retention decision. Similarly to one of Schreiner and Nelson's (2013) conclusions, Edens (2012) pointed out that attitudes, such as student satisfaction, may not be the most accurate predictor of subsequent actions. Both of these studies primarily investigated the relationship between student retention and satisfaction in face-to-face classroom settings.

The PSOL was previously used to explore the relationship between student satisfaction and retention in a study that surveyed 122 students taking online courses in an average sized state university in the Midwest (Herbert, 2006). Satisfaction with faculty interaction and support were found to be significantly related to course retention as those who completed courses had higher levels of satisfaction with almost all measured variables than those who did not. However, this study was restricted to predicting retention in just one course instead of overall program enrollment. The design of the study was not longitudinal and also relied on students to self-report whether or not they passed the course. Given these limitations, the results of the study may not be generalizable to programmatic retention trends or to different types of institutions.

A review of recent research shows that while student satisfaction has its limitations as a predictor of student retention; it is a contributor and at least a weak predictor of student retention. None of this research, however, took place in an online for-profit institution. This study filled this gap in the literature utilizing a comparable methodology to the studies above using the PSOL, a survey derived from the SSI and specifically designed for online students, to investigate the relationship between student satisfaction and retention within an online for-profit institution.

Method

The purpose of this study was to investigate the relationship between student satisfaction and retention in online for-profit undergraduate programs. It examined these research questions:

1. What subscales and items of the PSOL are correlated to student retention one year after the PSOL is administered?
2. What subscales and items of the PSOL predict student retention one year after the PSOL is administered?

A correlational ex post facto design was selected for this research. A point-biserial correlation test was utilized for research question one as it aimed to distinguish if a relationship between student satisfaction and subsequent retention status was present. A point-biserial correlation test is appropriate as student satisfaction is a continuous variable while subsequent enrollment status is a dichotomous variable. For the same reason, a binary logistic regression was suitable to observe the odds ratios of predictor variables for research question two. Lastly, as all of the necessary data to complete this research had already been gathered by the Online Institution, an ex post facto design was appropriate.

Population and Sampling Procedures

The Online Institution is an online for-profit undergraduate institution in the United States that offers certificate, associate, and bachelor level programs. The scope of its programs is limited to professional training in design, media, and other artistic areas that prepare students for careers in commercial or creative fields. While the Online Institution was established in the early 1900s, the online branch was not established until the early 2000s and now has over 5,000 active students throughout the United States.

All actively enrolled students in March of 2013 at the Online University were invited to complete the PSOL. Rather than using a representative sample, all students at the Online University were

eligible to participate and invited to complete the PSOL with the expectation that many would abstain from responding. Students were invited to participate in the survey via email invitations and classroom announcements with a link to the survey. Students entered their unique student number to access the survey and were only permitted to submit it once. The data set included 3302 student PSOL responses in March of 2013. Lastly, a list of all actively enrolled students on March 1, 2013 and their subsequent enrollment statuses on March 1, 2014 was retrieved from an online data management system at the Online Institution.

Instrumentation

The survey used for this study was the PSOL, an instrument used to measure student satisfaction in online institutions. The PSOL includes 26 Likert-scale questions that measured student satisfaction in five key subscales: institutional perceptions, academic services, instructional services, enrollment services, and student services (Noel-Levitz, 2013). The PSOL provided mean scores for each of these subscales as well as a combined overall student satisfaction score. This instrument was chosen over others as it was specifically designed to measure the student satisfaction of online learners (Noel-Levitz, 2013).

The PSOL invited participants to report their level of satisfaction on 26 statements that used a 7-point Likert-scale. On each item, participants were asked to select a score between 1 and 7 (1= not satisfied at all, 4 = neutral, 7 = very satisfied). The scales of the PSOL are reliable and have a Cronbach alpha of 0.77 (Noel-Levitz, 2013). Further, the PSOL is derived from the SSI, a survey that has been substantiated and found to have a strong correlation ($r=.71$) with the College Student Satisfaction Questionnaire, a reliable and widely accepted survey instrument (Noel-Levitz, 2013).

Data Screening

Prior to conducting the analyses, much of the data needed to be ruled out of the final data set for a variety of reasons. The initial data set contained 3302 students that completed the PSOL. First, 530 cases were removed as the identifying information submitted by the student (email address) on the PSOL did not match the identifying information within the online data management system at the Online Institution. This prevented the researchers from making the essential connection between the survey result and subsequent student retention status. Second, 30 cases were removed because the survey was submitted without answering any of the items that measured student satisfaction. Third, seven cases were removed because the student was non-degree seeking: i.e., the student does not intend to pursue a degree. As students who do not intend to pursue a degree choose to withdraw from the institution at their leisure, they cannot be retained. Fourth, five cases were removed because the student's admission to the institution was rejected after already being matriculated. Lastly, one case was removed because the student was deployed on active military duty and forced to withdraw from the institution after taking the survey and prior to measuring subsequent retention. This datum was excluded since student satisfaction had no bearing on the retention decision. After screening the data, there were a total of 2729 student survey responses with corresponding retention statuses remaining that were used in the analyses.

Procedures

The extent of the relationship between student satisfaction and subsequent retention was measured through a variety of statistical tests. A point-biserial correlation test was conducted to determine the correlations between student satisfaction with institutional perceptions, academic services, instructional services, student services, enrollment services, and overall satisfaction as measured by the PSOL and student retention one year after the PSOL was administered. Next, a binary logistic regression measured the extent that student satisfaction with institutional perceptions, academic services, instructional services, student services, enrollment services, and overall satisfaction as measured by the PSOL predicted student retention one year after the PSOL was administered. The

results of the regression were analyzed by converting the logits into odds ratios. Odds ratios are more intuitive as they reflect the change in the chances of a student retention outcome based upon a one-unit change in the independent variable, satisfaction. The Hosmer-Lemeshow Goodness-of-Fit test was conducted to estimate a logistic regression model to predict subsequent retention status and ensure that the estimated model adequately fit the data.

Results

Correlation Analyses

A point-biserial correlation test was conducted to determine the relationship between overall satisfaction and the five subscales of the PSOL and student retention status one year after the PSOL was administered. The test was conducted at $\alpha = .05$. There were no statistically significant relationships between overall satisfaction or any of the subscales of the PSOL and retention status one year after completing the survey. It should be noted that all of the independent variables, overall satisfaction, and the five subscales of the PSOL, shared a strong to very strong correlation at a minimum $r = .675$ and all p levels $< .001$. In other words, if a student was satisfied or dissatisfied with one facet of the institution, the student was highly likely to respectively be satisfied or dissatisfied with all other facets of the institution as well. Although considerably increasing the risk of Type I error, the point-biserial correlation test was subsequently conducted on all individual survey items to see if any items were significantly correlated to student retention status one year after taking the PSOL. No statistically significant correlations were found between retention status and any of the survey items.

Logistic Regression Analyses

A binary logistic regression was conducted to determine which measures of satisfaction of the PSOL, overall satisfaction, and the five subscales, can be considered predictors of student retention one year after the PSOL was administered. The Hosmer-Lemeshow Goodness-of-Fit test was conducted to estimate a logistic regression model to predict subsequent retention status. The result of the model was $\chi^2(8) = 11.868$, $p = .157$, and the estimation was terminated at the third iteration because the changes in parameter estimates were no longer significant. This suggests that the estimated model adequately fits the data. The model explained 0.3% (Nagelkerke R^2) of the variance in student retention. None of the results of the binary logistic regression were statistically significant at $\alpha = .05$ with academic services being the closest to approach significance, $p = .230$. However, the standard error for the enrollment services and student services subscales was nearly three times the corresponding B value.

Due to the high standard error, the binary logistic regression was conducted a second time with the enrollment services and student services subscales removed. The Hosmer-Lemeshow Goodness-of-Fit test was conducted to estimate a logistic regression model to predict subsequent retention status. The result of the model was $\chi^2(8) = 13.430$, $p = .098$, and the estimation was terminated at the third iteration because the changes in parameter estimates were no longer significant. This suggests that the estimated model adequately fits the data. The model explained 0.2% (Nagelkerke R^2) of the variance in student retention. While none of the results were significant at $\alpha = .05$, academic services was the closest to approach significance, $p = .057$.

Although considerably increasing the risk of Type I error, the binary logistic regression test was subsequently conducted on all individual survey items within the institutional perceptions, academic services, and instructional services subscales to see if any items significantly predicted subsequent retention status one year after taking the PSOL at $\alpha = .05$ (see Table 1). The Hosmer-Lemeshow Goodness-of-Fit test was once again conducted to estimate a logistic regression model to predict subsequent retention status. The result of the model was $\chi^2(8) = 9.382$, $p = .311$, and the estimation was terminated at the third iteration because the changes in parameter estimates were no longer significant. This suggests that the estimated model adequately fits the data. The model explained

1.8% (Nagelkerke R²) of the variance in student retention.

Three items of the PSOL were found to be statistically significant predictors of student retention status one year later. Odds ratios were calculated using the B values in Table 1 in order to more accessibly portray the effect sizes of the logistic regression. The results are listed below:

- Item 7: Program requirements are clear and reasonable. Each one-unit increase in satisfaction increased a student's odds of being retained by 15.7% when controlling for all other items within the institutional perceptions, academic services, and instructional services subscales, $p = .021$.
- Item 8: Student-to-student collaborations are valuable to me. Each one-unit increase in overall satisfaction decreased a student's odds of being retained by 12% when controlling for all other items within the institutional perceptions, academic services, and instructional services subscales, $p = .015$.
- Item 13: The frequency of student and instructor interactions is adequate. Each one-unit increase in satisfaction increased a student's odds of being retained by 14.7% when

Table 1

<i>Binary Logistic Regression: Survey Items for the Institutional Perceptions, Academic Services, and Instructional Services Subscales</i>									
		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	SAT1	0.09	0.06	2.49	1	.115	1.099	0.977	1.235
	SAT6	-0.04	0.05	0.75	1	.388	0.958	0.868	1.057
	SAT2	-0.03	0.06	0.26	1	.610	0.970	0.864	1.089
	SAT5	0.08	0.05	2.59	1	.107	1.087	0.982	1.203
	SAT7	0.15	0.06	5.33	1	.021	1.157	1.022	1.309
	SAT12	-0.07	0.06	1.11	1	.293	0.936	0.828	1.059
	SAT16	0.07	0.06	1.42	1	.233	1.072	0.957	1.200
	SAT21	0.00	0.06	0.00	1	.967	0.998	0.895	1.112
	SAT24	-0.01	0.06	0.05	1	.816	0.986	0.877	1.109
	SAT3	-0.13	0.07	3.58	1	.059	0.881	0.772	1.005
	SAT4	-0.04	0.06	0.39	1	.530	0.962	0.853	1.085
	SAT8	-0.11	0.05	5.92	1	.015	0.893	0.816	0.978
	SAT11	-0.02	0.06	0.16	1	.691	0.977	0.873	1.095
	SAT13	0.14	0.07	4.20	1	.040	1.147	1.006	1.308
	SAT17	-0.05	0.07	0.64	1	.423	0.948	0.831	1.081
	SAT20	0.07	0.07	1.16	1	.282	1.075	0.942	1.228
	SAT25	-0.12	0.06	3.34	1	.068	0.889	0.783	1.009
	Constant	0.55	0.35	2.46	1	.117	1.735		

Note. a. Variable(s) entered on step 1: SAT1, SAT6, SAT2, SAT5, SAT7, SAT12, SAT16, SAT21, SAT24, SAT3, SAT4, SAT8, SAT11, SAT13, SAT17, SAT20, SAT25.

controlling for all other items within the institutional perceptions, academic services, and instructional services subscales, $p = .040$.

These results suggest that satisfaction with PSOL items 7 and 13 positively predict student retention while PSOL item 8 negatively predicts student retention.

Discussion

While no statistically significant correlations were found, an important observation is that all of the subscales, as well as overall satisfaction from the initial set of analyses, were significantly correlated to each other at the $p < .001$ level. The result suggests that a student who is satisfied or dissatisfied with one aspect of the institution is likely to respectively be satisfied or dissatisfied with all other aspects of the institution. It is difficult to discern if students truly hold similar opinions across all of the observed institutional variables, if their judgment for many variables may be clouded and unduly influenced by a few key experiences, or if students hastily selected the same values for all test questions without reading them. Noel-Levitz may consider implementing reverse scoring on some PSOL test items to offer researchers an opportunity to screen for students that do not put forth a good-faith effort to complete the survey.

After completing the initial predictive analyses, the final regression model predicted 1.8% of the variance and found that three PSOL survey items were statistically significant yet weak predictors of student retention one year after taking the PSOL. The overall variance predicted by the model is still rather insignificant at 1.8%, but much improved when compared to the prior regressions based on the subscales and overall satisfaction scores of the PSOL. The findings are consistent with Eden's (2012) result that satisfaction accounted for .8% of the variance in a student's retention status one year later, but 3.2% of the variance in retention status at the end of the current term.

As one might expect, increased satisfaction with clear and reasonable program requirements and adequate frequency of student and instructor interactions are both significant predictors of student retention one year later. On the other hand, it was surprising to find that increased satisfaction with the value of student-to-student collaborations negatively predicted the subsequent student retention status. The implications of this result are counterintuitive as one may suppose that satisfaction with collaborations between students would improve a student's chances of being retained. However, this result suggests this is a false assumption. A recent meta-analysis concluded that in addition to intelligence serving as a strong correlate to student grade point average (GPA), performance self-efficacy has a strong positive correlation while conscientiousness, locus of control, critical thinking, concentration, and goal commitment have weak positive correlations to GPA (Richardson, Abraham, & Bond, 2012). One might conclude that students possessing these characteristics are consequently better equipped to persevere throughout their program of study. If so, a plausible explanation for the increased retention of students who are less satisfied with peer collaborations and thus are more likely to be retained is that they possess the above aptitudes. It is possible that these students are less likely to take interest and find meaning in the thoughts, work, and discussions of other students, and therefore find peer collaboration to be less satisfying. On the other hand, students that are less likely to be retained are more likely to lack the above aptitudes, and therefore be more satisfied with peer collaboration as they would more likely find them to be insightful, helpful, and beneficial to their learning process at the institution. Interesting, Schroeder, Baker, Terras, Mahar, and Chiasson (2016) found that online graduate students' desired and experienced less connectivity with their peers and more connectivity with their faculty. Future research may further explore the experiences and characteristics of students as they relate to retention status at online for-profit institutions.

Limitations

This study had a number of limitations that should be considered. First, while all active students at the Online Institution were invited to complete the PSOL, not all were required to complete it. The characteristics of students who opted to complete the PSOL and subsequent extrapolation of the

results to the full student population may not accurately represent the true satisfaction of the complete student body. Second, the sampling procedure required students to accurately input their email addresses. While unlikely, it is possible students could have input the email addresses of their peers, which would compromise the connection between their satisfaction survey responses and subsequent retention statuses. Third, the assessment of student satisfaction was limited to the efficacy of the instrumentation, the PSOL. It also hinged on the assumption that students honestly and diligently answered all of the survey items. Fourth, this study did not gather demographic data and assumed that the demographic of the students that volunteered to complete the survey approximated the demographic of the full student population. Fifth, student satisfaction only accounted for a small portion of the variation in student retention. A myriad of other factors that are internal and external to online for-profit institutions contribute to the complex issue of student retention that were not investigated within this study. Sixth, the study only investigated one for-profit online institution. Expanding this research across a variety of institutions would increase the generalizability of the results. Seventh, the Online Institution only offers programs limited to the arts. The characteristics of the student population at the Online Institution embodies a specific niche of higher education and may not be representative of institutions with other niche populations or a more diverse set of programs. Lastly, while the Online Institution offers certificate, associates, and bachelor's programs, it does not offer graduate programs. This research may not be applicable to graduate programs.

Implications for Practice

A number of recommendations can be made to online for-profit institutions at large as a result of this study. Echoing the research of Edens (2012), measuring student satisfaction is most useful as an indication of institutional performance rather than a predictor of student retention. The results of the PSOL offer insight into areas of the student experience to distinguish where and if there is room for improvement or not. While results of the PSOL may not forecast student retention one year after the survey, research has substantiated that satisfaction is associated with success in individual courses that students are enrolled in at traditional, for-profit, and online institutions (Edens, 2012; Herbert, 2006; Oja, 2011). Although this has not yet been examined in online for-profit institutions, it would be wise to generalize these results in the interim until research on this subject is available.

Recalling the consumer-oriented model of student retention, improved student satisfaction will increase the chances that a student will positively contribute to an institution (Pate, 1993). Considering benefits other than retention, satisfied students may positively influence the perception of an institution's reputation. Administrators may find that the PSOL is useful in targeting issues within the student experience as they pertain to specific departments of the institution and in turn offer a pathway to improve institutional outcomes.

The strongest predictor for student satisfaction in Schreiner and Nelson's (2013) study for first and second year students was campus climate. Each one-unit increase in satisfaction with the campus climate increased a student's odds of being retained by 67% for first year students and 40% for second year students. In online education, there is no campus. Considering that a student's favor of campus climate has such a profound influence on a student's retention decision, it is possible that the lack of a campus climate in online education drastically decreases a student's chances of being retained. Online institutions should do what they can to increase the student sense of a campus community. It is possible that live presentations hosted by the institution, active student social networks, and a predominate sense of an invitation to contact faculty, staff, and other students may help to improve this perception. Future research should explore the nature and effect of campus climate on student retention within online education.

Administrators of online for-profit institutions may use the results of this study as a starting point to make similar efforts as those that may benefit the Online Institution. First, the Online Institution should ensure that program requirements are clear and reasonable. Beyond the actual requirements

themselves, academic counselors and admissions representatives should be carefully trained to accurately interpret and communicate program requirements to students. Second, the frequency of student and faculty interactions should be increased to the greatest extent possible. This recommendation could be especially taxing on faculty, so any efforts to streamline student-faculty interactions through large-scale communication processes may enable faculty to more efficiently address this need. For example, developing reusable video lectures may amplify faculty presence for all students with limited effort on behalf of the faculty member. Lastly, the Online Institution may search for a way to improve the value of student-to-student collaborations for students with stronger aptitudes that are more likely to be retained. This may require increasing the focus on class discussions and interactions, or perhaps making broader changes to the nature of student-to-student collaborations to ensure that they are more meaningful. However, administrators of other institutions should proceed with caution as the effect sizes were small, the results have not been replicated, and the results may not be generalizable to other student bodies given the artistic nature of students investigated at the Online Institution. The ability of the PSOL to predict student retention is very limited, but remains a helpful tool to assess student satisfaction with various facets of an institution and make modifications to promote a more positive student experience.

Conclusion

The results of the regression in this study are generally consistent with results found among other research. While this study did not find that satisfaction with academic advising services was a significant predictor of retention, it appears to be an emerging theme within other research (Anderson, 2011; Schreiner & Nelson, 2013). This study did find that satisfaction with the frequency of student-instructor interactions significantly predicts retention and matches Schreiner and Nelson's (2013) results. The results did offer two new findings that differed from prior research: a positive association between satisfaction with clear and reasonable program requirements and subsequent retention, and a negative association between satisfaction with the value of student-to-student collaborations and subsequent retention. Lastly, this study found that student satisfaction predicts a similar amount of variance in the retention of students one year later at an online for-profit institution as other studies that focused on face-to-face public, nonprofit, and for-profit institutions. Online for-profit institutions and their leaders should recognize that student satisfaction with institutional variables only plays a small part in the confluence of factors that contribute to student retention.

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