

Academic Advising and First-Generation College Students: A Quantitative Study on Student Retention

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For this quantitative study, we used a multiple logistic regression technique to investigate the relationship between the number of meetings with an academic advisor and retention of first-generation students, as represented by enrollment status and academic standing at a large, public research institution in the Southeast. Consistent with previous studies and student retention literature, the number of advisor meetings (independent variable) was a significant predictor of student retention. Findings from this study suggest that for every meeting with an academic advisor, the odds that a student will be retained increase by 13%.

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The first year of college proves critical for the persistence of first-generation students. According to Choy (2001), "First-generation students were about twice as likely as those whose parents had bachelor's degrees to leave after the first year of school" (p. 22). Similarly, Ishitani (2006) noted that first-generation students were 1.3 times more likely than their peers whose parents experienced college to depart from the postsecondary institution during their initial year. With first-generation students representing approximately 30% of attendance at U.S. colleges and universities (Weaver, 2011), their attrition suggests a looming crisis in higher education.

Academic advising has consistently been reported as a positive influence on student retention (Baldridge, Kremerer, & Green, 1982; Crockett, 1985; Habley, 1981; Habley & McClanahan, 2004), and academic advisors are among the few individuals at the institution with whom students can obtain access and make a connection (Council for the Advancement of Standards in Higher Education, 2005). Furthermore, academic advising offers an effective retention strategy for individuals considered at most risk for dropping out, including first-generation students (Glennen & Baxley, 1985;

Schwebel, Walburn, Jacobsen, Jerrolds, & Klyce, 2008; Vander Schee, 2007).

In this study, we examine the relationship between advising and retention of first-generation college students as described in the student retention literature. We employed a multiple logistic regression technique to analyze the number of face-to-face meetings between first-generation students and an academic advisor during the first year of enrollment at a large, public research institution in the Southeast. Historical data were retrieved from reports generated by student academic fact sheets and an institutionally developed academic-advisor electronic tracking system.

Literature Review

First-Generation Students and Barriers to Success

As noted by Inkelas, Daver, Vogt, and Leonard (2007), the definition of first-generation students in the research literature varies based on the levels of college experience and degree completion of the enrollee's parents and siblings. For the purposes of this research, we identify first-generation students as individuals whose parents experienced little or no time in college and consequently did not graduate from college with a 4-year degree (Pike & Kuh, 2005). First-generation students are often considered at risk of leaving an institution due to the following attributes noted in the literature: lack of academic preparation, little parental involvement, racial/ethnic demographics, and socioeconomic status (Ishitani, 2006; Lohfink & Paulsen, 2005; McCarron & Inkelas, 2006; Vuong, Brown-Welty, & Tracz, 2010).

As the first in their families to attend college, first-generation students typically lack the traditional support networks available to their peers whose parents earned degrees (Pascarella, Pierson, Wolniak, & Terenzini, 2004). Compounding lack of information from familial role models, first-generation students may not possess the necessary knowledge and skills to negotiate the complex bureaucracy of an academic institution

(Brown & Burkhardt, 1999; Thayer, 2000), manage conflicting family expectations (Hayes, 1997), and balance the competing commitments of school and work (Kaufman, Alt, & Chapman, 2004).

Retention

According to Braxton, Brier, and Steele (2007), retention relates closely to the issues of student departure, persistence, and attrition. *Retention* is defined as the continuous enrollment of students from one fall semester to the following fall semester (Braxton et al., 2007; U.S. Department of Education, 2010). Student retention involves multiple, often overlapping, components including campus culture, institutional type and characteristics, student profile, and admission criteria (Pascarella & Terenzini, 1991; Tinto, 1997), making it a complicated issue. Furthermore, experts agree that no one-size-fits-all retention solution accommodates the variability in individual and institutional traits (Caison, 2007; Davidson, Beck, & Milligan, 2009; Tinto, 2006); however, some agree that the number of advisor-advisee meetings may positively influence rates of student persistence and academic standing (Ishitani, 2006; Kirk-Kuwaye & Nishida, 2001; Tinto, 1997).

In previous studies, social and academic integration has played a significant role in influencing a student's desire to stay at an institution (Astin, 1984; Bean & Eaton, 2000; Strauss & Volkwein, 2004). Further, the experiences, perceptions, and interests of first-generation students may differ from those of peers with college-experienced family members, which, in turn, may lead to a first-year student's early departure (Ishitani, 2006; Thayer, 2000; Tinto, 1993).

In reviewing student retention literature, Thayer (2000) noted that retention models "recognize that students bring a number of characteristics, experiences, and commitments to their college entry, including academic preparedness levels, parent education attainment and aspirations for their children, socioeconomic levels, and aspirations for learning and degree attainment" (p. 2). Thayer (2000) also suggested that colleges and universities focus attention on practical retention solutions, such as academic advising, to increase the persistence of first-generation and low-income students to achieve maximum retention results.

Academic Advising

Described in the literature as a systematic and developmental process, academic advising involves a student and an academic advisor establishing a relationship to facilitate decision making, resource identification, problem solving, and goal setting in the advisee's personal, professional, and academic endeavors (Crookston, 1972/1994/2009; National Academic Advising Association, 2003; O'Banion, 1972/1994/2009; Steinberg, 1984; Winston, Ender, & Miller, 1982). The research literature illustrates seemingly endless examples of academic advising as a critical strategy for increasing student satisfaction and retaining students (Baldrige et al., 1982; Blimling & Whitt, 1999; Crockett, 1985; Habley, 1981; Habley & McClanahan, 2004; Lowe & Toney, 2000; Tinto, 2006). According to Light (2001), "Good advising might be the single most underestimated characteristic of a successful college experience" (p. 81).

Because first-generation students often rely on information and assistance from individuals outside of their immediate families (e.g., teachers, counselors, and others) (Horn & Nunez, 2000), some researchers recommend that proactive (formerly called *intrusive*) advising be used with at-risk students because it places the responsibility on the advisor, rather than the student, for making the initial contact and establishing the advising relationship (Glennen, 1975; Glennen & Baxley, 1985; Schwebel et al., 2008; Vander Schee, 2007). In a study of academically at-risk students, Kirk-Kuwaye and Nishida (2001) found that high-involvement strategies of academic advisors proved more effective than low-involvement responses for improving outcomes for students on academic probation. The findings from previous studies on first-generation students indicate that academic advising may be strongly correlated to student retention; however, few have developed empirical data on the institutional value of academic advising (Choy, 2001; Hicks, 2002; Nutt, 2003). To address this gap in the literature, the following research question guided our study: What is the relationship between academic advising and the retention of first-generation students at a 4-year, public, research institution in the southeastern United States?

Methodology

Population and Sample

We conducted the study at a 4-year, comprehensive research institution in the Southeast

because of the institution's significant enrollment of first-generation students and our access to student records. In Fall 2009, approximately 10,500 undergraduates were enrolled at the university with gender and racial compositions as follows: 58% female and 42% male; 60% Caucasian, 25% African American, and 15% other. First-generation students comprised approximately 30% of the incoming 2009 freshman class.

Research Design

We used a multiple logistic regression technique to investigate the relationship between the number of meetings with an academic advisor and retention rates for first-generation students. For the purposes of this study, we defined *retention status* as a student enrolled and in good standing. Additional variables (gender, race, major) were included in the original investigation but did not prove to be significant predictors of retention. However, to maintain the integrity of the multiple regression design, we report on these variables to a limited extent in the Results section.

Data Collection and Analysis

Data collection consisted of historical data retrieved from reports generated by student academic fact sheets stored in the student registration system. We drew additional data from an institutionally developed academic-advisor electronic tracking system designed to manage advisor-advisee interactions with numerical values ranging from 0 to 10. Reports generated by a university information-technology staff member included data for all first-time, full-time, first-generation students ($N = 437$) who matriculated in Fall 2009.

Exclusions. We reviewed the data for anomalies and eliminated 11 student records from the initial dataset based on the following predetermined criteria: two contained incomplete information, three failed to report race, and six indicated student was enrolled part-time (i.e., was not taking 12 or more hours per term). Once we purged incomplete records from the dataset, we analyzed univariate outliers for dichotomous variables, removing any with a percentage split of less than 90:10 because of truncated correlation coefficients within these categories (as per Rummel, 1970). As a result, academic majors within the Arts and Humanities as well as Business were excluded from the study. The final sample consisted of 363 records.

Independent and dependent variables. In this investigation, first-generation status and number of individual face-to-face meetings with academic advisors served as the independent variables. Student retention rates of those who matriculated in Fall 2009 and were enrolled and in good standing at the institution in Fall 2010 served as the dependent variable. We analyzed data using SPSS 19.0 software.

Limitations

Some aspects of this study may limit its generalizeability. Specifically, data for the study came from fact sheets compiled at the time of student admission to the institution. Once enrolled, students self-reported all updates to the fact sheets.

Meetings, not contacts by phone, e-mail, or other means, were solely used as a unit of measure because face-to-face meetings were consistently included in academic-advisor tracking notes. Furthermore, with the exception of two faculty academic advisors in math and engineering, research was limited to student interactions with professional academic advisors.

Finally, we looked at the interactions between first-generation students and academic advisors within specific schools at one public research institution in the southeastern United States. Generalizations to other institutions may be difficult to justify due to the unique characteristics of this single institution.

Results

Descriptive Statistics

Table 1 shows an analysis of the 363 first-year student cases by number of advising meetings as well as rates of retention from Fall 2009 to Fall 2010 for students in good standing. The mean number of advising meetings was 3.4 ($SD = 2.02$). The skewness statistic was calculated at .608 ($SE = .128$), and the Kurtosis statistic was .290 ($SE = .255$).

Testing for Assumptions

Testing for linearity of the logit. Testing for linearity of the logit, we created a natural log (ln) for the number of advisor meetings, and we subsequently conducted a binary logistic regression and a review of variable significance. The level of significance for both the number and ln of advisor meetings was $p < .05$. We found that, based on this level of significance, the linearity of the logit could not be assumed. Therefore, we

Table 1. Number of advisor meetings and retained students from Fall 2009 to Fall 2010, $N = 363$

Number of Advisor Meetings for the Year	Frequency	%
0	16	4.4
1	45	12.4
2	64	17.6
3	73	20.1
4	65	17.9
5	49	13.5
6	22	6.1
7	13	3.6
8	11	3.0
9	2	.6
10	3	.8
Retention		
Retained	83	22.9
Not Retained	280	77.1

undertook a log linear transformation prior to completing the regression.

Testing for multicollinearity. To test for multicollinearity and its potential effect on model results, we used a linear regression analysis (as per Field, 2009). The tolerance values for the variable were all greater than .1. The variance inflation factor (VIF) values were all less than 10. With these results, the predictor variables passed the test for collinearity. See Table 2 for the tolerance and VIF values for each predictor variable.

Regression Analysis

Results of the binary logistic regression analysis are displayed in Table 3. Data show a significant relationship between the number of meetings and the retention of first-generation college students. While the variables of gender, race, and major showed no significance in relation to retention, the variable of number of advisor meetings proved to be a reliable indicator of student retention. The significance value for number of advisor meetings for the year was .000 with a Wald value of 13.28.

With log linear transformation, the odds ratio of Exp.(B) for the number of advisor meetings was 13.557 with the 95% confidence interval (CI) [3.336, 55.090] (Table 3). When ln was used, the Exp.(B) was 1.13 with a 95% CI [.523, 1.74] (data not shown). Exp.(B) values indicate a 13% increase in the odds of retaining students for every additional meeting with an advisor. As the

Table 2. Test for multicollinearity

Variable	Collinearity Statistics	
	Tolerance	Variance Inflation Factor
Number of advisor meetings in year	.984	1.016
Race	.962	1.039
Major	.921	1.086
Gender	.941	1.063

number of advisor meetings increased, the greater the odds percentage that the student was retained. The mathematical model for this equation is as follows:

$$\text{Log}(P/1 - P) = -2.611 + .216(\text{gender}) + -.329(\text{Race } 1) + -.930(\text{Race } 2) + .318(\text{Major } 1) + .033(\text{Major } 2) + -.112(\text{Major } 3) + 2.607(\text{Number of Advisor Meetings})$$

Discussion

Significance of Advising

The study illustrated the significance of advising in the retention of first-generation college students. The data suggest that for every meeting with an advisor the odds that a student is retained increases by 13%. Furthermore, the findings support key elements of higher-education retention theories, specifically that student interaction, engagement, and involvement prove instrumental in keeping students enrolled. As previously demonstrated, a student's perceptions of institutional fit as well as his or her sense of academic and social integration can influence the likelihood to persist. Therefore, advising appointments may be one of the few institutional mechanisms that consistently connect students to the academic institution in meaningful ways.

Recommendations and Implications for Practice

As reported in the literature, academic advising has long been considered one of the leading resources related to student retention in higher education, especially among first-generation matriculants (Baldrige et al., 1982). We employed a quantitative analysis technique to investigate the potential relationship between advising and retention of first-generation students based on the number of advising appointments. Consistent with student retention literature, our results

Table 3. Regression of variables

Variable	B	Wald	<i>p</i>	Exp.(B)	95% CI
Gender	.216	.611	.435	1.242	[.722, 2.131]
Race (White)		5.246	.073		
Race 1 (Black)	-.329	.709	.400	.720	[.335, 1.547]
Race 2 (other)	-.930	4.382	.036	.394	[.165, .942]
Major		1.727	.631		
Major 1	.318	.605	.437	1.374	[.617, 3.058]
Major 2	.033	.005	.942	1.034	[.427, 2.500]
Major 3	-.112	.063	.802	.894	[.375, 2.135]
Log number of advisor meetings	2.607	13.281	.000	13.557	[3.336, 55.090]
Constant	-2.611	12.096	.001	.073	

indicate that the number of advising meetings related significantly to student persistence.

Of the 363 first-generation students who initially enrolled in Fall 2009, only 83 remained in good standing in Fall 2010. This 23% return rate was significantly lower than the institution's overall freshman-to-sophomore persistence rate of 82% in 2009 (U.S. Department of Education, 2010) and the national freshman-to-sophomore retention rate for full-time students at public, 4-year institutions of 78% during this same period (Baum & Ma, 2007). Based on these findings, as well as a review of the first-generation literature, we advocate that colleges and universities recognize the unique needs of first-generation students and make academic advising a priority for them.

Institutional leadership can emphasize advising by increasing the number of personnel available to meet with first-generation students or by formatting advising delivery so that a core group of advisors can work specifically to meet the unique challenges and needs of these students. However, for successful implementation of this recommendation, institutions must intentionally apply their efforts to this end and increase the capacity for advisors to reach out and spend time with first-generation students in efforts to help them more actively engage in the life of the institution.

We also suggest that institutional stakeholders implement proactive advising as the preferred style of working with first-generation students. Described as a direct, caring, proactive approach, this delivery method helps advisors establish and maintain a professional relationship with advisees (Varney, 2007). First-generation students may matriculate without knowing the importance of or procedure for initiating contact with academic

advisors, and the proactive model works by shifting the responsibility for this first step to the advisor. Based on the literature, this approach makes sense for establishing necessary rapport with first-generation students (Earl, 1987; Frost, 1991).

Finally, institutions should support and encourage professional development and training activities for all academic advisors and specifically address the needs of first-generation students. Partnerships and potential opportunities for information sharing may exist between current advising units and federally funded TRIO academic service programs.

Future Research

To gain a better understanding of the needs of first-generation students and implement strategies for student retention, future researchers could incorporate longitudinal data for multiple cohorts of students. Trend analysis could aid in determining whether specific relationships or support mechanisms particularly assist first-generation students during their first postsecondary year. In addition, studies comparing the number of first-generation students retained and graduated against those who were not retained within a specified period of time may prove informative.

Policymakers may also benefit from a qualitative analysis that provides explanatory data regarding retention of first-generation students. Data from our study suggest the number of advising meetings as significant predictors of student retention; however, the content of advising meetings was beyond the scope of this investigation. Interviews with current and graduated first-generation students could provide key insights regarding their decisions to stay or leave the institution. Interviews with advisors and key administrators

could also yield valuable information about best practices and policies related to the retention of first-generation students.

Summary

For this study, we employed a multiple logistic regression technique to explore the relationship between advising and retention of first-generation college students. Consistent with previous studies and student-retention literature, the number of advisor meetings proved a significant predictor of student retention. Findings from this study suggest that for every meeting with an advisor the odds of retention increase by 13%.

The literature on student retention has consistently demonstrated that academic advising is an effective strategy for retaining students, including those first in their families to attend college. By connecting first-generation students with the resources necessary to persist, colleges and universities create environments conducive to student satisfaction and thereby capitalize on their retention efforts.

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