

# The Effects of Students' Self-Perceptions of Behaviors, Attitudes, and Aptitudes on their First-to-Second-Year Persistence

Rebecca Lambert and Ketevan (Kate) Mamiseishvili

*The study used the data from the Cooperative Institutional Research Program (CIRP) Freshman Survey to examine the effects of first-year students' perceptions of their behaviors, attitudes, and aptitudes on their first-to-second-year persistence at a small, private, faith-based institution. Logistic regression analysis revealed that attending a private high school, high school GPA, academic self-concept, and likelihood of college involvement positively influenced students' persistence, while being a first-generation college student was negatively related to persistence to the second year. Implications of these results for practice and policy are provided.*

Student persistence has been the focus of much research in higher education over the past 40 years (Berger & Lyon, 2005), yet institutions have not seen great improvements in their retention rates (Berkner, He, & Cataldi, 2002; Braxton, Brier, & Steele, 2007; Terenzini, Cabrera, & Bernal, 2001). Kezar (2004) stated that "retention of college students remains one of the key challenges and problems for higher education" (p. xi). Individual institutions are still often floundering with how to improve their student persistence rates, even though many of them have spent thousands of dollars every year on surveys, consulting firms, and other tools designed to help their students persist to graduation (Tinto, 2006).

As the emphasis on student persistence has continued and grown over the last 40 years, most institutions have put their primary focus on first-to-second-year persistence rates (Herzog, 2005; Reason & Terenzini, 2006). This focus on first-to-second-year persistence has been supported by two primary factors. First, most students have left college during or immediately after their first year (Crissman Ishler & Upcraft, 2004; Reason & Terenzini, 2006). Second, first-to-second-year persistence has had continuing effects on institutions. Students who did not persist through to the second year at an institution most likely did not complete their degree there, lowering not only the institution's first-to-second-year retention rates but graduation rates as well.

---

Rebecca Lambert (BLambert@jbu.edu) is the Associate Dean of Academic Services and Registrar at John Brown University.

Ketevan (Kate) Mamiseishvili (kmamisei@uark.edu) is an Associate Professor of Higher Education and Interim Department Head in the Department of Rehabilitation, Human Resources and Communication Disorders in the College of Education and Health Professions at the University of Arkansas.

According to ACT (2010), in 2010, BA/BS private institutions of all types of selectivity levels had a 68.7% first-to-second-year retention rate, which was the lowest reported rate for them since 1985. Even though these private baccalaureate institutions retained their first-year students at a slightly higher rate than similar public institutions (67.6%), many of them, especially smaller ones, are tuition-driven, making any loss of students and the revenue they bring a financial concern (ACT, 2010). Additionally, for private faith-based institutions, retention and student success have been a large part of the institution's mission. These institutions have viewed helping students succeed and persist (particularly to graduation) as a part of their ministry focus and mission. Kezar (2004) stated that "the moral commitment to students" (p. xi) ranked as important in retention as its effect on budgets and accountability did.

Despite the vast amount of research on students' persistence, some factors that might influence student persistence have not been as heavily studied. To date, limited research has focused on examining the relationship between students' self-perceptions of their abilities, skills, and dispositions and their likelihood of persistence in college. In a report by Reason (2009), students' self-perceptions were discussed as a concept that has not been explored by many researchers in the study of college student persistence in higher education. How students perceive themselves might influence how they behave in academic and social situations in college, how they interact with both faculty and other students, how they engage in academic and extra-curricular activities, and consequently, whether or not they persist toward their goals.

To address this gap in the existing research, the purpose of this study was to examine the effects of first-year students' perceptions of their behaviors, attitudes, and aptitudes on their first-to-second-year persistence at a small, private, faith-based institution. More specifically, the study investigated how incoming first-year students' demographic and background characteristics, as well as four constructs measured by the Cooperative Institutional Research Program (CIRP) Freshman Survey, (a) "Habits of the Mind," (b) "Academic Self-concept," (c) "Social Self-concept," and (d) "Likelihood of College Involvement," affected their likelihood of persistence to their second year of college. The CIRP Freshman Survey is developed and administered through the Higher Education Research Institute (HERI) at the University of California – Los Angeles (UCLA). There have been studies that examined the effects of these CIRP constructs on student persistence (e.g., Garrett, 2000; Harrison, Comeaux, & Plecha, 2006; Hawley & Harris, 2005; Hurtado, Newman, Tran, & Chang, 2010; Hurtado, Saenz, Santos, & Cabrera, 2008; Koch & Nelson, 1999; Rhee, 2008; Sax, 2000; Smith, Morrison, & Wolf, 1994), but none of them focused specifically on student populations from a small, private, faith-based institution.

Two primary research questions guided the study:

1. How did demographic and background characteristics of first-year students affect their persistence to the second year of college at a small, private, faith-based institution?
2. Did first-year students' perceptions of their Habits of the Mind, Academic

Self-Concept, Social Self Concept, and Likelihood of College Involvement affect their persistence to the second year of college at a small, private, faith-based institution?

## Theoretical Framework

The theoretical framework of this study was primarily based on a model of persistence developed by Bean and Eaton (2000) that draws on four theories from the discipline of psychology: a) Attitude-Behavior Theory (Fishbein & Ajzen, 1975), b) Coping Behavioral Theory (Lazarus, 1966), c) Self-Efficacy Theory (Bandura, 1977), and d) Attribution Theory (Weiner, 1986). Bean and Eaton's (2000) model applied to "both voluntary and involuntary leaving" from the institution (Bean & Eaton, 2000, p. 55), which made it attractive for use in a study that involved a population of first-time, full-time students, among which not all leaving was voluntary. Additionally, the model seemed to operate regardless of gender, age, or ethnicity, also adding to its attractiveness (Bean & Eaton, 2001). The model connected students' self-perceptions and attitudes to their persistence. Bean and Eaton (2001) stated, "We believe that the factors affecting retention are ultimately individual and that individual psychological processes form the foundation for retention decisions" (p. 73).

In their model, Bean and Eaton (2000) explained that "past behavior, beliefs, and normative beliefs affect the way a student interacts with the institutional environment" (p. 56). The self-beliefs students held when coming to college affected how they performed and how they perceived themselves in that first year of college. Bean and Eaton (2001) described self-efficacy as playing a very important role in their model and defined it "as an individual's perception of his or her ability to act in a certain way to assure certain outcomes" (p. 75). According to Bean and Eaton (2000), "if all goes well, students will gain in perceptions of their self-efficacy in academic and social situations... students will begin to perceive that they are in control of their academic and social destiny and be motivated to take action consistent with that perception" (p. 56). With these actions, the students were more likely to find both academic and social success, which led them to the desire to stay at the institution. That desire to stay at the institution then led, according to Bean and Eaton's (2000) psychological model, "to the behavior in question, persistence itself" (p. 56).

## Methods

The study was a non-experimental, predictive, correlational research study that used cross-sectional survey data. We used predictive correlational design "to identify variables that will predict an outcome or criterion" (Creswell, 2008, p. 359). More specifically, the study examined how demographic and background variables and students' perceptions of their behaviors, attitudes, and aptitudes predicted an outcome of persistence to the second year of college. However, it is important to note that correlational design, while showing a relationship

between variables, does not prove causation between them (Marczyk, DeMatteo, & Festinger, 2005).

## Data Sources and Measures

The sample of this study included 436 full-time, first-time incoming freshmen in fall 2007 and 2009 at a small, private, faith-based university. Table 1 includes the demographic and background information of the sample. The data came from two primary sources: CIRP Freshman Survey and an institutional database. Fall 2007 and 2009 incoming students participated in the *CIRP Freshman Survey* as a mandatory activity during their New Student Orientation. Members of the university's admissions staff proctored the administration of the paper-based *CIRP Freshman Survey* following the instructions provided by HERI.

TABLE 1

### Students' Demographic and Background Characteristics

Variables	Total (N=436)	Persisters (n=344)	Nonpersisters (n=92)
<b>Gender</b>			
Males	182(41.7)	145(42.2)	37(40.2)
Females	254(58.3)	199(57.8)	55(59.8)
<b>Race</b>			
White	355(81.4)	283(82.3)	72(78.3)
Students of Color	78(17.9)	58(16.9)	20(21.7)
<b>First Generation College Students</b>			
First-Generation	38(8.7)	22(6.4)	16(17.4)
Not First-Generation	396(90.8)	321(93.3)	75(81.5)
<b>High School GPA</b>			
4.0 or above	100(22.9)	92(26.7)	8(8.7)
3.00-3.99	283(64.9)	218(63.4)	65(70.7)
2.00-2.99	43(9.9)	27(7.8)	16(17.4)
1.00-1.99	4(0.9)	4(1.2)	0
Below 1.00	6(1.4)	3(0.9)	3(3.3)
<b>Type of High School</b>			
Public High School	223(51.1)	173(50.3)	50(54.3)
Private High School	141(32.3)	121(35.2)	20(21.7)
Home School	71(16.3)	49(14.2)	22(23.9)

Note: Frequencies and percentages may not add up to 100% due to missing data.

The outcome variable in this study was a dichotomous, categorical variable indicating whether or not the students persisted to their second year of college as determined by reenrollment at the institution in the fall semester of their second year, coded as 1 for persisters and 0 for nonpersisters. Predictor variables in this study included selected demographic and background characteristics and four constructs from the *CIRP Freshman Survey*: (a) "Habits of the Mind," (b) "Academic Self-concept," (c) "Social Self-concept," and (d) "Likelihood of College Involvement."

"Habits of the Mind" was "a unified measure of the behaviors and traits associated with academic success" (HERI, 2009, p. 23). It was comprised of 11 items that measured the frequency (i.e., 1 = not at all; 2 = occasionally; 3 = frequently) in which students had engaged in such activities as revising papers, asking questions in class, seeking feedback, developing a logical argument to support opinions, viewing mistakes as a path to learning, taking risks in learning, evaluating the credibility of information, exploring topics of interest on their own, and looking for alternative solutions to problems. "Academic Self-concept" included students' self-ratings on a 5-point scale of academic ability, drive to achieve, mathematical ability, and intellectual self-confidence (HERI, 2009). "Social Self-concept" comprised of three variables on which students rated themselves using a 5-point scale on leadership ability, public speaking ability, and self-confidence in social situations (HERI, 2009). "Likelihood of College Involvement" consisted of five items that measured students' likelihood of involvement in campus life (1 = no chance, 2 = very little chance, 3 = some chance, and 4 = very good chance), including student government, volunteer or community service, student clubs, study abroad programs, and socializing with others from differing racial or ethnic backgrounds (HERI, 2009). Demographic and background characteristics, such as gender, race and ethnicity, first-generation student status, high school GPA, and type of high school attended were also included in the analysis.

## Data Analysis

We first analyzed the data descriptively and then conducted logistic regression analysis to address the primary purpose of this study. Logistic regression was an appropriate method of analysis because the outcome variable of this study was dichotomous, and predictor variables were a mix of continuous and categorical variables that did not have to be "normally distributed, linearly related or of equal variance within each group" (Tabachnick & Fidell, 2007, p. 437). Before conducting logistic regression analysis, we checked for appropriate assumptions. First, the sample size was determined to be appropriate for using logistic regression. Peduzzi, Concato, Kemper, Holford, and Feinstein (1996) recommended that the smaller of the classes of the dependent variable have at least 10 events per parameter in the model. In this study, the group of nonpersisters was just over 90 students, so we limited the number of predictors to nine variables. Second, the data were checked for multicollinearity. The correlations between each of the independent variables were all below .4, the lowest Tolerance value

was 0.722 and the highest Variance Inflation Factor (VIF) equaled 1.386 indicating that multicollinearity was not a concern (Field, 2009). Finally, the standardized residuals were examined to detect outliers. Field (2009) indicated that with standardized residuals, less than 5% of the cases should have absolute values above two and less than 1% should have values above 2.5, and “any case with a value above about 3 could be an outlier” (p. 293). The examination of standardized residuals in this study revealed seven with values above three. As a result, they were removed from the final logistic regression analysis.

## Results

Descriptive analysis of data revealed that of the total sample (N = 436), 344 (78.9%) students persisted and 92 (21.1%) did not persist through the second year in college. As indicated in Table 1, the nonpersisters group included a larger share of students of color (21.7%) compared with the total sample (17.9%) and persisters (16.9%). Furthermore, a larger percentage of first-generation college students were in the nonpersisters group (17.4%) than in either the overall sample (8.7%) or among persisters (6.4%). Additionally, a smaller percentage of private high school students were part of the nonpersisters group (21.7%), while the percentage of home-schooled students was higher among nonpersisters (23.9%) than in the total sample (16.3%) or among persisters (14.2%). As illustrated by mega standardized scores for the four CIRP constructs in Table 2, persisters consistently rated themselves higher than nonpersisters on all four constructs in the study, including “Habits of the Mind,” “Academic Self-concept,” “Social Self-concept,” and “Likelihood of College Involvement,” which demonstrated that they had more confidence in their abilities and aptitudes than nonpersisters. The descriptive examination of the data revealed that the construct with the biggest disparity in ratings between persisters and nonpersisters was “Academic Self-concept” (49.42 and 44.81, respectively).

TABLE 2

### Standardized Mega Scores for CIRP Constructs

Construct	Total N=436	Persisters n=344	Nonpersisters n=92
Means (SD)			
Habits of the Mind	48.90(8.01)	49.49(8.01)	46.64(7.76)
Academic Self-concept	48.50(8.42)	49.41(8.45)	44.81(7.24)
Social Self-concept	48.84(8.27)	49.30(7.92)	47.04(9.39)
Likelihood of College Involvement	49.60(7.27)	50.15(7.09)	47.17(7.52)

Finally, as illustrated by the Wald Statistic tests in Table 3, logistic regression analysis revealed that five variables were significantly related to persistence to the second year of college for first-time, full-time students in the study: a) being a first-generation college student, b) type of high school attended, particularly attending a private high school, c) high school GPA, d) "Academic Self-concept," and e) "Likelihood of College Involvement." The type of high school attended, GPA, "Academic Self-concept," and Likelihood of College Involvement all were positively related to persistence. More specifically, for every one point increase in the GPA, the odds of a first-time, full-time student persisting to the second year of college increased by a factor of 1.904, with all other predictors holding constant. For every one unit increase in the rating of "Academic Self-concept," the odds of a first-time, full-time student persisting to the second year of college increased by a factor of 1.044. For every one unit increase in the rating of "Likelihood of College Involvement," the odds of a first-time, full-time student persisting to the second year of college increased by a factor of 1.047. Finally, students who attended a private high school were three times more likely to persist than students who attended a public high school. On the other hand, being a first-generation college student was negatively related to persistence. Being a first-generation college student decreased the likelihood of persistence by a factor of .416. None of the other predictors held significant in the final model.

## Discussion

Several important conclusions can be drawn from the results of this study. First, the findings revealed that being a first-generation college student negatively affected students' first-to-second-year persistence at a small, private, faith-based institution in this study. While the existing research supports the finding that persistence is more difficult for first-generation students than for students with college-educated parents (DeAngelo, Franke, Hurtado, Pryor, & Tran, 2011; Engle & Tinto, 2008; Saenz, Hurtado, Barrera, Wolf, & Yeung, 2007), many would expect that the setting of a small, private, faith-based institution would be a more fitting place for first-generation college students to succeed; however, this study revealed that first-generation students were at risk for non-persistence even at small institutions.

The findings of this study also confirmed the findings from prior research that suggest that students who had higher self-perceptions about their academic abilities persisted at higher rates (Brown-Robinson & Kurpius, 1997; Davidson & Beck, 2006; Gloria & Robinson Kurpius, 2001). In a study by Davidson and Beck (2006), the researchers reported that one's belief in one's own ability to accomplish academic tasks was a significant predictor of persistence, which is consistent with the findings of this study.

"Likelihood of College Involvement" was also found to be statistically significant in predicting persistence to the second year of college for first-time, full-time students at this small, private, faith-based institution. Even though this construct measured only students' likelihood of getting involved on campus, it

TABLE 3

**Results of Logistic Regression Analysis**

Variables	B	S.E.	Wald	df	Sig.	Exp(B)
Female	-.400	.300	1.782	1	.182	.670
White	.178	.354	.254	1	.614	1.195
First-generation student*	-.876	.407	4.643	1	.031	.416
Type of high school***			15.978	2	.000	
Home school	-.577	.341	2.862	1	.091	.562
Private High School**	1.148	.367	9.786	1	.002	3.151
High School GPA**	.644	.231	7.794	1	.005	1.904
Habits of the Mind	.012	.019	.385	1	.535	1.012
Academic Self-concept*	.043	.019	5.109	1	.024	1.044
Social Self-concept	-.013	.019	.481	1	.488	.987
Likelihood of College Involvement*	.046	.021	4.661	1	.031	1.047

Note: \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

is still consistent with the overwhelming support in the existing research that showed that involvement in college and social integration were strongly linked to persistence (e.g., Berger & Milem, 1999; Kim, 2009; Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008; Swenson, Goguen, Hiester, & Nordstrom, 2010). Affirming this conclusion is also Bean and Eaton's (2000) psychological model of persistence. Bean and Eaton believed that persistence was determined, in large part, by students' desire to stay at an institution. In order to develop that desire, students must have had both academic and social success at the institution. Students who become involved may more likely feel the sense of social success, and thus persist, than students who do not engage socially in college.

On the contrary, "Social Self-concept" was not found to be significant in predicting persistence in this study, which seems to contradict some of the existing research about student persistence (Kim, 2009; Swenson Goguen et al., 2010). However, there have been at least two studies (i.e., Boulter, 2002; McGaha & Fitzpatrick, 2005) that are more in line with the findings of this study concerning



students' "Social Self-concept." Specifically, Boulter's (2002) study found no relationship between students' perceptions of their social competence and persistence, while McGaha and Fitzpatrick (2005) actually found that students' social self-concept was negatively related to persistence.

## Implications for Research and Practice

This study made several important contributions to research. To date, studies that used the *CIRP Freshman Survey* as a predictor of persistence primarily focused on specific populations of students such as athletes (Garrett, 2000; Harrison et al., 2006), minorities (Hurtado et al., 2008), and STEM students (Hurtado et al., 2010; Sax, 2000). This study broadened that focus by examining one institution's entire sample of first-time, full-time students rather than specific segments of student populations. Furthermore, most studies conducted using the *CIRP Freshman Survey* utilized national CIRP data sets (Rhee, 2008; Sax, 2000; Smith, Morrison, & Wolf, 1994) or were completed at large public institutions (Hawley & Harris, 2005; Koch & Nelson, 1999). By focusing on a small, private, faith-based institution, the study more closely examined how *CIRP Freshman Survey* data could inform retention efforts at the institutional level.

The results of this study also provide several important implications for practice. As indicated earlier, students who were first-generation college students were significantly less likely to persist than students who had at least one parent with a bachelor's degree. As institutions of higher education continue to attract first-generation students, faculty and administrators must intentionally reach out to them, as well as their parents, to assist in the transition to college. More information must be given to these students and their parents in order to help them understand the policies and procedures of college and make them aware of services and assistance programs that are available to them. One possible practice would be having special sessions at new student orientation for first-generation college students and parents, which many institutions are already implementing. Faculty and administrators could be available in these sessions to explain some of the policies and procedures that are second nature to those who are familiar with the context of higher education but most likely seem foreign to first-generation students and their parents.

An additional recommendation would be for institutions to provide students with assistance in strengthening their academic self-concept. Institutions should consider providing instruction in learning strategies to all first-time students through first-year seminars or peer mentoring. With increased knowledge of learning strategies, the students' confidence in their academic abilities may increase. Remedial or developmental courses should also focus both on teaching content and building students' academic self-confidence. Currently, developmental education courses focus primarily on improving students' understanding of content knowledge and skills in areas like math, writing, and reading. While improving students' knowledge base may help students succeed in further coursework, Bean and Eaton's (2000) theoretical framework for persistence would also suggest that

improving students' self-perceptions about their academic abilities is also vital to their persistence in college. As some students have to take multiple developmental level courses before being allowed to take credit-bearing courses, improving the students' self-beliefs about their ability to do college-level work may actually help them persist as much or more than simply improving content knowledge.

Higher education institutions can also incorporate more opportunities for involvement on campus into prospective student visit days and in materials that are distributed to prospective students. Helping students understand the wide variety of college activities that will be available to them when they matriculate might help them plan to become involved before they ever get to campus. This could be accomplished through an activities fair as part of prospective student visit days. An activities fair would allow campus clubs and organizations to have representatives available to speak with prospective students and to distribute information. Since "Likelihood of College Involvement" was the second CIRP construct that was statistically significant in predicting student persistence, institutions should help prospective students start thinking and dreaming about ways to be involved on campus before they even start college.

A final recommendation is for institutions to develop more intentional and systematic ways to make use of the data from the *CIRP Freshman Survey*, which are available very early after students' matriculation, in making policy decisions that affect first-year students and in making programmatic changes that could influence persistence. Knowing characteristics of students who are less likely to persist can provide a starting point for college faculty and administrators to offer support and early interventions to at-risk students. Too often, institutions wait until students are already struggling and thinking about dropping out to intervene, and often by that point, it is too late to do anything meaningful to help the students and change their plans.

Persistence is of critical importance to both institutions and the students they serve. As the cost of attendance at colleges and universities continues to rise, potential students are weighing those costs against their opportunities for success and measuring those opportunities, at least in part, by retention and graduation rates. In an atmosphere of increasing competition for students, faculty and administrators in higher education need to understand what factors influence the persistence decisions of their students and find ways to strategically use those factors to promote persistence, leading to greater student success and improved graduation rates.

## References

- ACT, Inc. (2010). *National collegiate retention and persistence to degree rates*. Retrieved from [http://www.act.org/research/policymakers/pdf/retain\\_2010.pdf](http://www.act.org/research/policymakers/pdf/retain_2010.pdf)
- Bandura, A. (1977). *Social learning theory*. Upper Saddle River, NJ: Prentice Hall.

- Bean, J. P., & Eaton, S. B. (2000). A psychological model of college student retention. In J. M. Braxton (Ed.), *Reworking the student departure puzzle* (pp. 48-61). Nashville, KY: Vanderbilt University Press.
- Bean, J. P., & Eaton, S. B. (2001). The psychology underlying successful retention practices. *Journal of College Student Retention*, 3(1), 73-89.  
doi:10.2190/6R55-4B30-28XG-L8U0
- Berger, J. B., & Lyon, S. C. (2005). Past to present: A historical look at retention. In A. Seidman (Ed.), *College student retention: Formula for student success* (pp. 1-29). Westport, CT: American Council on Education/Praeger.
- Berger, J. B., & Milem, J. F. (1999). The role of student involvement and perceptions of integration in a causal model of student persistence. *Research in Higher Education*, 40(6), 641-664.
- Berkner, L., He, S., & Cataldi, E. F. (2002). *Descriptive summary of 1995-96 beginning postsecondary students: Six years later* (NCES Publication No. 2003-151). Retrieved from <http://nces.ed.gov/pubs2003/2003151.pdf>
- Boulter, L. T. (2002). Self-concept as a predictor of college freshman academic adjustment. *College Student Journal*, 36(2), 234-246.
- Braxton, J. M. (2000). Introduction. In J. M. Braxton (Ed.), *Reworking the student departure puzzle* (pp. 1-8). Nashville, KY: Vanderbilt University Press.
- Brown-Robinson, L. L., & Kurpius, S. E. (1997). Psychosocial factors influencing academic persistence of American Indian college students. *Journal of College Student Development*, 38, 3-12.
- Creswell, J. W. (2008). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. Upper Saddle River, NJ: Pearson.
- Crissman Ishler, J. L., & Upcraft M. L. (2004). The keys to first-year student persistence. In M. L. Upcraft, J. N. Gardner, & B. O. Barefoot (Eds.), *Challenging and supporting the first-year student: A handbook for improving the first year of college* (pp. 27-46). San Francisco, CA: Jossey-Bass.
- Davidson, W. B., & Beck, H. P. (2006). Survey of academic orientations scores and persistence in college freshmen. *Journal of College Student Retention*, 8(3), 297-305. doi:10.2190/H18T-6850-77LH-0063
- DeAngelo, L., Franke, R., Hurtado, S., Pryor, J. H., & Tran, S. (2011). *Completing college: Assessing graduation rates at four-year institutions*. (Research Report). Los Angeles, CA: Higher Education Research Institute, UCLA.
- Engle, J., & Tinto, V. (2008). *Moving beyond access: College success for low-income, first-generation students*. Retrieved from [http://www.pellinstitute.org/downloads/publications-Moving\\_Beyond\\_Access\\_2008.pdf](http://www.pellinstitute.org/downloads/publications-Moving_Beyond_Access_2008.pdf)
- Field, A. P. (2009). *Discovering statistics using SPSS* (3rd ed.). Thousand Oaks, CA: Sage.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- Garrett, M. D. (2000). *Predictors of academic success for male student-athletes: A comparison of traditional measures, noncognitive variables, and type of sport participation* (Research Report). Retrieved from <http://0-www.eric.ed.gov.library.uark.edu/PDFS/ED448670.pdf>

- Gloria, A. M., & Robinson Kurpius, S. E. (2001). Influences of self-beliefs, social support, and comfort in the university environment on the academic non-persistence decisions of American Indian undergraduates. *Cultural Diversity and Ethnic Minority Psychology, 7*(1), 88-102. doi:10.1037/1099-9809.7.1.88
- Harrison, C. K., Comeaux, E., & Plecha, M. (2006). Faculty and male football and basketball players on university campuses: An empirical investigation of the "intellectual" as mentor to the student athlete. *Research Quarterly for Exercise and Sport, 77*(2), 277-283.
- Hawley, T. H., & Harris, T. A. (2005). Student characteristics related to persistence for first-year community college students. *Journal of College Student Retention: Research, Theory, and Practice, 7*(1-2), 117-142.
- Herzog, S. (2005). Measuring determinants of student return vs. dropout/stopout vs. transfer: A first-to-second year analysis of new freshmen. *Research in Higher Education, 46*(8), 883-928. doi:10.1007/s11162-005-6933-7
- Higher Education Research Institute. (2009). *CIRP construct technical report appendix: 2009 construct parameters*. Retrieved from <http://www.heri.ucla.edu/PDFs/constructs/Appendix2009.pdf>
- Hurtado, S., Newman, C. B., Tran, M. C., & Chang, M. J. (2010). Improving the rate of success for underrepresented racial minorities in STEM fields. In S. R. Harper, & C. B. Newman (Eds.), *New directions for institutional research: Students of color in STEM, 148*, (pp. 5-15). Hoboken, NJ: John Wiley & Sons. doi:10.1002/ir.357
- Hurtado, S. H., Saenz, V. B., Santos, J. L., & Cabrera, N. L. (2008). *Advancing in higher education: A portrait of Latina/o college freshmen at four year institutions, 1975-2006*. Los Angeles: Higher Education Research Institute, UCLA.
- Kezar, A. J. (2004). Forward. In J. M. Braxton, A. S. Hirschy, & S. A. McClendon (Eds.), *Understanding and reducing college student departure* (pp. xi-xii). San Francisco, CA: Jossey-Bass.
- Kim, E. (2009). Navigating college life: The role of peer networks in first-year college adaptation experience of minority immigrant students. *Journal of the First-Year Experience & Students in Transition, 21*(2), 9-34.
- Koch, G. E., & Nelson, K. H. (1999). Assessing trends in student attitudes using CIRP data, 1985-1994. *Journal of the First Year Experience and Students in Transition, 11*(1), 7-24.
- Kuh, G. D., Cruce, T. M., Shoup, R., Kinzie, J., & Gonyea, R. M. (2008). Unmasking the effects of student engagement on first-year college grades and persistence. *The Journal of Higher Education, 79*(5), 540-563.
- Lazarus, R. S. (1966). *Psychological stress and the coping process*. New York, NY: McGraw-Hill.
- Marczyk, G., DeMatteo, D., & Festinger, D. (2005). *Essentials of research design and methodology*. Hoboken, NJ: John Wiley & Sons.
- McGaha, V., & Fitzpatrick, J. (2005). Personal and social contributors to dropout risk for undergraduate students. *College Student Journal, 39*(2), 287-297.

- Peduzzi, P., Concato, J., Kemper, E., Holford, T. R., & Feinstein, A. (1996). A simulation of the number of events per variable in logistic regression analysis. *Journal of Clinical Epidemiology*, *99*, 1373-1379.
- Reason, R. D. (2009). An examination of persistence research through the lens of a comprehensive conceptual framework. *Journal of College Student Development*, *50*(6), 659-682. doi:10.1353/csd.0.0098
- Reason, R. D., & Terenzini, P. T. (2006). First things first: Developing academic competence in the first year of college. *Research in Higher Education*, *47*(2), 149-175. doi:10.1007/s11162-005-8884-4
- Rhee, B. S. (2008). Institutional climate and student departure: A multinomial multilevel modeling approach. *The Review of Higher Education*, *31*(2), 161-183. doi:10.1353/rhe.2007.0076
- Saenz, V. B., Hurtado, S., Barrera, D., Wolf, D., & Yeung, F. (2007). *First in my family: A profile of first-generation college students at four-year institutions since 1971*. Los Angeles, CA: Higher Education Research Institute, UCLA.
- Sax, L. J. (2000). Undergraduate science majors: Gender differences in who goes to graduate school. *Review of Higher Education*, *24*(2), 153-172. doi:10.1353/rhe.2000.0030
- Smith, D. G., Morrison, D. E., & Wolf, L. E. (1994). College as a gendered experience: An empirical analysis using multiple lenses. *Journal of Higher Education*, *65*(6), 696-725.
- Swenson Goguen, L. M., Hiester, M. A., & Nordstrom, A. H. (2010). Associations among peer relationships, academic achievement, and persistence in college. *Journal of College Student Retention*, *12*(3), 319-337. doi:10.2190/CS.12.3.d
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston, MA: Allyn and Bacon.
- Terenzini, P. T., Cabrera, A. F., & Bernal, E. M. (2001). *Swimming against the tide: The poor in American higher education* (College Board Research Report No. 2001-1). Retrieved from [http://professionals.collegeboard.com/profdownload/pdf/rdreport200\\_3918.pdf](http://professionals.collegeboard.com/profdownload/pdf/rdreport200_3918.pdf)
- Tinto, V. (2006). Research and practice of student retention: What next? *Journal of College Student Retention*, *8*(1), 1-19. doi:10.2190/4YNU-4TMB-22DJ-AN4W
- Weiner, B. (1986). *An attributional theory of motivation and emotion*. New York, NY: Springer-Verlag.