

Comparing the Determinants of Persistence for First-Generation and Continuing-Generation Students

Mandy Martin Lohfink Michael B. Paulsen

In this study we examined and compared the determinants of first-to-second-year persistence for 1,167 first-generation and 3,017 continuing-generation students at four-year institutions, using data from the Beginning Postsecondary Students Longitudinal Survey (Wine, et al., 2002). Because first-generation students are overrepresented in the most disadvantaged racial, income, and gender groups, we used a critical theorist perspective to frame the research problem, guide inquiry, and interpret results.

Although the American system of post-secondary education may be among the most diverse, open, and accessible in the world, substantial inequities exist in educational attainment by race, income, and gender, and such disparities contribute to the perpetuation of socioeconomic stratification in American society (Gladieux & Swail, 1999). First-generation college students are disproportionately overrepresented in the most disadvantaged racial, income, and gender groups, and thereby inhabit intersecting sites of oppression that uniquely position them within this broader context of educational stratification (Choy, 2001; Horn & Nuñez, 2000; Nuñez & Cuccaro-Alamin, 1998; Warburton, Bugarin, & Nuñez, 2001). Moreover, being the first in one's family to experience the culture of college (London, 1989, 1992, 1996) and lacking the intergenerational benefits of information about college also make participation in college

a particularly formidable task for first-generation students.

Researchers have noted and lamented the inequities in educational experiences and outcomes for first-generation students (e.g., Pascarella, Pierson, Wolniak & Terenzini, 2004); however, few researchers have examined their persistence behaviors (e.g., Duggan, 2001, 2002; Ishitani, 2003; Somers, Woodhouse, & Cofer, 2000). The transition to college for first-generation students is particularly challenging, both academically and culturally (Choy, 2001; London, 1989, 1996; Nuñez & Cuccaro-Alamin, 1998), and first-generation students are at-risk for early departure from college, especially before the second year (Choy; Ishitani). In spite of these problems, there has been minimal research on the first-to-second-year persistence of first-generation college students at four-year institutions (Duggan, 2001, 2002), and very few studies have provided opportunities to explore possible differences in how various factors affect the persistence of first-generation and continuing-generation students (Duggan, 2001, 2002; Somers et al., 2000). A better understanding of differences in the first-to-second-year persistence behaviors of first-generation and continuing-generation students could lead to targeted programs and policies to promote the success of first-generation students.

The purpose of this study was to use data

Mandy Martin Lohfink is Adjunct Assistant Professor of Education at the University of New Orleans. Michael B. Paulsen is Professor of Higher Education at The University of Iowa.

from a national sample to examine and compare the determinants of first-year to second-year persistence for first-generation and continuing-generation students at four-year institutions. In this study, *first-generation* students were those whose parents had no type or quantity of postsecondary education (Choy, 2001; Nuñez & Cuccaro-Alamin, 1998) and *continuing-generation* students were those with at least one parent who had some type or quantity of postsecondary education (Somers et al., 2000). This study differs in several ways from previous studies using national data to examine the persistence behaviors of first-generation and continuing-generation students. First, we examined students' first-to-second-year persistence decisions as the behavioral outcome of interest instead of students' within-year persistence decisions (e.g., see Somers et al.). Second, we conceptualized and operationalized persistence in terms of institutional retention (i.e., first-to-second-year persistence at the same institution) instead of postsecondary system-wide retention (e.g., see Duggan, 2001, 2002). Additionally, because first-generation students are overrepresented in the most disadvantaged racial, income, and gender groups, we used a critical theorist perspective to frame the research problem, guide inquiry, and interpret results. Additional contributions of this study include the use of an extensive set of initial commitment variables—operationalized as academic, social, and financial reasons for choosing a particular institution—and an extensive set of in-college experience variables—operationalized as multiple indicators of students' academic, social, and financial experiences—to investigate institutional retention. In combination, these distinctive conceptual and methodological approaches characterize a study of important but underinvestigated aspects of the persistence of first-generation college students.

REVIEW OF RESEARCH AND THEORETICAL PERSPECTIVES

This study is informed by and grounded in extant models of persistence behavior and prior research testing the propositions that constitute those models. In addition, a number of prominent interdisciplinary (e.g., critical social theory) and disciplinary-based approaches from the social sciences (e.g., economics and sociology) provide useful theoretical perspectives that further guide inquiry in this study.

Overview of the Persistence Literature

Several well-established models of persistence—and the body of empirical research testing those models—inform this study. These include Tinto's (1993) model of student integration, Astin's (1975) model of student involvement, Bean's (1983) industrial model of student attrition, St. John's (1992) financial-impact model, and Paulsen and St. John's (1997) choice-persistence nexus model. Research by these and other scholars (e.g., Billson & Brooks-Terry, 1982; Cabrera, Nora, & Castaneda, 1993; Duggan, 2001, 2002; Ishitani, 2003; Nuñez & Cuccaro-Alamin, 1998; Pascarella & Terenzini, 1991; Pratt & Skaggs, 1989; Somers et al., 2000) form the theoretical and empirical basis for the identification of five sets of factors hypothesized to affect first-to-second-year persistence of first-generation and continuing-generation students in the current study. Specifically, prior persistence studies have demonstrated the importance of background characteristics variables (e.g., DesJardins, McCall, Ahlburg, & Moye, 2002; Paulsen & St. John, 1997, 2002); precollege achievement variables (e.g., Adelman, 1999; Astin; DesJardins et al.); students' academic, social and financial reasons for choosing a particular institution (Paulsen & St. John, 1997, 2002); institutional

characteristics (e.g., Allen, 1992; Astin; Pascarella & Terenzini); and academic, social, and financial in-college experience variables (e.g., Astin; Cabrera et al.; Pascarella & Terenzini; St. John, 1999).

Theoretical Perspectives

Because we conceptualize first-generation students as inhabiting intersecting sites of oppression based on race, class, and gender, critical social theory serves as a useful theoretical foundation and overarching framework for this study. Critical social theory, an interdisciplinary perspective, considers how domination and exploitation are reproduced both systemically and through human agency (Agger, 1998) to deny certain populations (e.g., first-generation students) equitable opportunities to attain degree credentials (Lincoln, 1991). Social class reproduction theory provides another important theoretical framework for this study of the persistence decisions of first-generation and continuing-generation students. It emphasizes social class differences that are reproduced through social institutions, like colleges and universities (Berger, 2000; McDonough, 1997; Paulsen & St. John, 2002), and the Bourdieuan constructs of habitus and cultural capital emphasize the intergenerational transfer of resources, viewpoints, and information about education (Bourdieu, 1977). Status attainment theory is also relevant to this study because it supports the notion of social mobility and specifies how social background and intervening social psychological variables are linked to status outcomes such as educational attainment (Blau & Duncan, 1967; Pascarella & Terenzini, 1991; Sewell, Haller, & Portes, 1969). Finally, human capital theory informs the current study of the persistence of first-generation compared to continuing-generation students because of the potential importance

of intergenerational influences on the valuing of costs and benefits of investments in higher education, how these investment decisions are made, and what factors impact such decisions (Becker, 1993; Paulsen, 2001).

DATA SOURCES AND METHODS

Data and Samples

This study used data from a national sample—Beginning Postsecondary Students Longitudinal Survey-BPS: 96/01 (Wine, et al., 2002)—to study the persistence behaviors of first-generation and continuing-generation students separately and to answer the research question, “What are the determinants of first-to-second-year persistence for first-generation and continuing-generation students who begin at four-year institutions?” The BPS survey was designed by the National Center for Education Statistics specifically to collect data related to persistence in and completion of postsecondary education programs and the effects of postsecondary education on the lives of individuals. The BPS survey, with an initial population of over 10,000 beginning postsecondary students, is the longitudinal component of the 1996 National Postsecondary Student Aid Study (NPSAS 1995-96). The BPS: 96/01 cohort consists of students in the NPSAS 1995-96 sample that were identified as having enrolled in postsecondary education for the first time during the 1995-1996 academic year at any postsecondary institution in the United States or Puerto Rico. (See Wine et al., for more information about the BPS survey).

For the purposes of the current study, the effects of the independent variables on persistence were studied separately for first-generation students (FGS) and continuing-generation students (CGS) who began college at four-year institutions, based on samples of

size $n = 1,167$ for first-generation and $n = 3,017$ for continuing-generation students. In this study, a student was considered to be a first-generation college student if his or her parents had no type or quantity of education beyond high school (Choy, 2001; Nuñez & Cuccaro-Alamin, 1998). Conversely, a student was considered to be a continuing-generation student if at least one parent had any type or quantity of education beyond high school (Somers et al., 2000).

Variables

The current study examined the relationship between the dependent variable, first-to-second-year persistence at the same institution, and five sets of independent variables for students who began at four-year institutions. The dependent variable in this study was first-to-second-year persistence, defined as continuous enrollment at the same four-year institution from Fall 1995 to Spring 1996 and remaining enrolled the subsequent Fall (as of October 1996) exclusive of summer breaks. Students who attained a certificate or degree during the first year were also considered persisters. First-to-second-year persistence was coded as 1 = *persist*, 0 = *did not persist* (see Appendix).

Five categories of independent variables (IVs)—(a) background characteristics (10 IVs), (b) precollege achievement (5 IVs), (c) initial commitment (academic, social and financial reasons for choosing a particular institution; 8 IVs), (d) institutional variables (5 IVs), and (e) in-college experiences (academic, social, and financial) (14 IVs)—were identified that were likely to influence the first-to-second-year persistence of first-generation college students. Background characteristic variables in this study included a student's marital status, gender, primary language spoken in home when growing up, number

of nonspouse dependents, total income, race (with African American, Hispanic, and Asian students compared to White students as the base group), and degree expectations (with expectations of completing postbaccalaureate work and being undecided about degree expectations compared to expectations of completing a bachelor's degree or less as the base group). Precollege achievement variables in this study included rigor of high school coursetaking (with slightly rigorous, moderately rigorous, or highly rigorous coursetaking compared to not rigorous as the base group), standardized test scores (SAT or ACT), and delayed entry into postsecondary education. Three subsets of initial commitment variables were used to assess students' academic, social, and financial reasons for choosing a particular institution, and were particularly important because this was a study of first-to-second-year persistence at the same institution (i.e., institutional retention). Academic reasons for choosing a particular institution included faculty reputation and a good school reputation. Social reasons included a parent wanting the student to attend or a counselor recommending a school, friends or a spouse attending the school, and being able to live at home. Financial reasons included receiving more financial aid, tuition being low, and other living costs being less than at other institutions. Institutional variables in this study included institutional control, attending a historically Black college or university, institutional selectivity, institutional enrollment size, and attendance status. Finally, in-college experience variables in this study included measures of academic, social, and financial factors. Academic variables included an academic integration index, first-year grade point average, a student's satisfaction with a school's prestige, and a student's satisfaction with his or her own intellectual growth. Social

variables included the frequency with which a student participated in school clubs, the frequency with which a student went places with friends, a student's satisfaction with his or her own social life, and a student's satisfaction with overall campus climate regarding students of different racial or ethnic backgrounds. Financial variables included a student's satisfaction with the financial costs of attending the institution, total grant aid received, total loan aid received, total work-study aid received, hours worked per week while enrolled, and student's residence location. Table 1 shows descriptive statistics for all variables for the two samples, and the Appendix provides detailed information about the coding and description of the dependent and independent variables.

Data Analysis

To examine the relationships between the dependent variable and the five sets of independent variables, logistic regression methods were used. All statistical analyses were conducted using SAS-PC version 8 and AM Statistical Software Beta version 0.06.00. For ease of interpretation, logistic regression coefficients were converted to delta-*p* statistics (Petersen, 1985). Multiple indicators of goodness of fit—log-likelihood, a Pseudo R^2 and an adjusted Wald test—were used in this study. Due to the complex sampling design used by the National Center for Education Statistics (NCES) to collect the data, appropriate BPS relative, strata, and cluster weights were used in conjunction with SAS and AM Statistical Software to correct for the potential bias in parameter estimates and to produce unbiased estimates of standard errors for hypothesis testing (Thomas & Heck, 2001).

Limitations

As with any study, assumptions and choices

were made in performing this research and this section discusses potential limitations of the study that readers should bear in mind when interpreting results. First, and foremost, this study was delimited to examining the persistence behaviors of students at four-year institutions. Therefore, generalizability of findings to persistence behavior of students at two-year institutions may be inappropriate. Instead, a particularly fruitful area for future research would be to explore differences in the persistence behaviors of first-generation and continuing-generation students at two-year institutions. Second, this study examined the effects of a range of measures of students' academic experiences in college, such as GPA, a set of measures of student-faculty contact combined in an index of academic integration, and students' levels of satisfaction with their own intellectual growth; however, this study did not include a variable to measure the effects of an individual student's major field of study on persistence. Although this is a possible limitation of the study, research evidence regarding the effects of different student majors on persistence and other forms of educational attainment has been inconsistent (Pascarella & Terenzini, 1991). Moreover, the effect of major field of study on the persistence of first-generation students has been largely unexamined and researchers should investigate this interesting area. Third, although previous research has suggested that tuition can be an important predictor of persistence, a tuition variable was not included in the final analysis because multicollinearity diagnostics revealed problematic tolerance values and variance inflation factors, and the bivariate correlations indicated that tuition was highly correlated with the private-public institutional control variable. The decision to retain the institutional control variable and exclude the tuition variable was made because

TABLE 1.
Descriptive Statistics for Dependent and Independent Variables

Variable	FGS mean/%	CGS mean/%
<i>Dependent Variable</i>		
1st-to-2nd year persistence—same institution	76.54%	82.17%
<i>Background Characteristics</i>		
Marital status—married	1.54 %	1.16 %
Gender—male	43.59 %	44.27 %
Primary language growing up—ESL	12.30 %	4.98 %
Race: White	69.55 %	81.18 %
Race: African American	13.34 %	8.34 %
Race: Hispanic	10.80 %	5.07 %
Race: Asian	6.32 %	5.41 %
Non-spouse dependents	0.00634	0.01213
Total income in 1994 (in thousands)	40.85013	68.31942
Expectations of bachelor's degree or less	25.49 %	16.44 %
Expectations of postbaccalaureate work	62.19 %	74.36 %
Undecided about degree expectations	12.32 %	9.2 %
<i>Pre-College Achievement</i>		
High school coursetaking: not rigorous	37.59 %	26.25 %
High school coursetaking: slightly rigorous	30.09 %	27.72 %
High school coursetaking: moderately rigorous	20.97 %	23.51 %
High school coursetaking: highly rigorous	11.37 %	22.52 %
Standardized test scores	875.37243	991.14548
Delayed entry into postsecondary education	7.34 %	6.19 %
<i>Initial Commitment: Reasons for Choosing an Institution</i>		
Faculty reputation	3.37 %	3.61 %
A good school reputation	33.36 %	40.00 %
Parent or counselor wanting student to attend	2.15 %	2.03 %
Friends or a spouse attending the school	6.22 %	5.38 %
Being able to live at home	6.10 %	4.59 %
Getting more financial aid	7.34 %	8.57 %
Tuition being low	7.36 %	5.45 %
Other living costs being less	9.86 %	11.10 %

table continues

although there was no alternate measure of institutional control (public vs. private) available, it was possible to control for some of the potential effects of tuition costs on persistence by using an available alternative variable measuring a student's level of satisfaction with the costs of attending a particular institution. This measure of satisfaction with costs of attending—in combination with measures of grant aid, loan aid, and work-

study aid received—constituted a reasonable set of controls for the potential effects of net costs of attendance on persistence.

RESULTS

Key findings from this study revealed substantial differences between the persistence-related characteristics, behaviors, and experiences of FGS and CGS. In this section we have presented the findings for the first-generation

TABLE 1. *continued*
Descriptive Statistics for Dependent and Independent Variables

Variable	FGS mean/%	CGS mean/%
<i>Institutional Variables</i>		
Control of institution—private	29.84 %	37.07 %
Historically-Black college or university	4.46 %	3.56 %
Selectivity of an institution	17.36 %	29.38 %
Institution enrollment size (in thousands)	15.66776	17.33239
Attendance status—fulltime	88.34 %	89.82 %
<i>In-College Experiences</i>		
Academic integration index	194.16122	199.28052
First-year grade point average	2.54359	2.76238
Satisfied with school's prestige	86.89 %	89.15 %
Satisfied with own intellectual growth	93.05 %	93.31 %
Frequency student went places with friends	1.55995	1.68982
Frequency student participated in school clubs	0.60986	0.82318
Satisfied with own social life	90.33 %	92.51 %
Satisfied with campus climate	88.91 %	85.86 %
Satisfied with the financial costs of attending	71.90 %	67.98 %
Total grant aid received (in thousands)	3.54594	3.08023
Total loan aid received (in thousands)	1.92051	1.39090
Total work-study aid received (in thousands)	0.28668	0.22247
Hours worked per week while enrolled	13.40468	11.03911
Student's residence location—on campus	61.77 %	74.64 %

student and continuing-generation student samples separately.

Findings for First-Generation Students (FGS)

As indicated by the baseline probability for the model, 76.5% of students in the first-generation sample persisted at the same institution from the first to the second year, and 15 independent variables were found to be statistically significant in their relation to first-to-second-year persistence for FGS (see Table 2). The model fit statistics indicated an overall fit that was statistically significant; more specifically, the *F*-value for the Adjusted Wald Test was $F(42, 289) = 4.60$, significant at $p < .001$, and the Pseudo $R^2 = .2718$. Married FGS were 52.8% less likely than unmarried FGS to persist from the first to the

second year. Males were 9.4% more likely than females to persist. FGS whose primary language spoken at home when growing up was not English were 14.7% more likely to persist than those who grew up in homes where English was the primary language spoken. Hispanic FGS were 35.4% less likely than white FGS to persist. Each \$10,000 increase in family income was associated with a 2.0% increase in the probability of persistence for FGS. FGS who expected to complete more than a bachelor's degree were 7.3% more likely to persist than those who expected to complete a bachelor's degree or less. FGS who chose a particular institution because of the faculty reputation were 15.8% more likely to persist than those who did not indicate faculty reputation as a reason for choosing a particular institution. FGS who chose a particular

TABLE 2.
Logistic Regression Analysis: Delta p Statistics

Variable	FGS	CGS
<i>Background Characteristics</i>		
Marital status—married	−0.52800**	−0.04451
Gender—male	0.09375**	0.03696
Primary language growing up—ESL	0.14715*	−0.00730
Race: African American	0.00706	0.07112
Race: Hispanic	−0.35394**	0.05823
Race: Asian	0.12603	0.03405
Non-spouse dependents	0.14081	0.05454
Total income in 1994 (in thousands)	0.00203*	0.00023
Expectations of postbaccalaureate work	0.07251*	0.04683*
Undecided about degree expectations	0.07459	0.08490*
<i>Pre-college achievement</i>		
High School coursetaking: slightly rigorous	−0.00320	0.00302
High School coursetaking: moderately rigorous	−0.03368	0.03094
High School coursetaking: highly rigorous	0.07722	0.04331
Standardized test scores	−0.00013	−0.00002
Delayed entry into postsecondary education	−0.09872	−0.06725
<i>Initial Commitment: Reasons for Choosing an Institution</i>		
Faculty reputation	0.15840*	0.09135
A good school reputation	0.01365	0.05730**
Parent or counselor wanting student to attend	0.16547	0.03123
Friends or a spouse attending the school	−0.08295	−0.03671
Being able to live at home	0.18338**	0.03399
Getting more financial aid	−0.04895	0.05495
Tuition being low	0.03791	0.10871**
Other living costs being less	0.09221	0.05354
<i>Institutional Variables</i>		
Control of institution—private	−0.12287*	0.02094
Historically-Black college or university	0.11921	−0.07216
Selectivity of an institution	0.02684	0.01947
Institution enrollment size (in thousands)	0.00412*	0.00153
Attendance status—fulltime	−0.04123	−0.00345

table continues

institution because they could live at home were 18.3% more likely to persist than those who did not indicate being able to live at home was a reason for choosing a particular institution. FGS attending private institutions were 12.3% less likely to persist from the first to the second year than those attending public

institutions. For every 10,000-unit increase in enrollment size, FGS were 4.1% more likely to persist. Each 100-point increase in the academic integration index score was associated with a 16.0% increase in the likelihood of persistence for FGS. For every one-unit increase in GPA, FGS were 12.8% more likely

TABLE 2. *continued*
Logistic Regression Analysis: Delta p Statistics

Variable	FGS	CGS
<i>In-College Experiences</i>		
Academic integration index	0.00160**	0.00003
First-year grade point average	0.12833**	0.10203**
Satisfied with school's prestige	0.06201	0.05578
Satisfied with own intellectual growth	0.08342	0.08462**
Frequency student went places with friends	-0.04493	0.02264
Frequency student participated in school clubs	-0.00276	0.03979**
Satisfied with own social life	0.16667**	0.08694**
Satisfied with campus climate	-0.10318	0.06861*
Satisfied with the financial costs of attending	0.06257	0.03874
Total grant aid received (in thousands)	0.02715**	0.00124
Total loan aid received (in thousands)	0.00999	0.00219
Total work-study aid received (in thousands)	0.06354*	0.04377**
Hours worked per week while enrolled	-0.00214	-0.00140
Student's residence location—on campus	-0.06973	-0.00464
<i>Model Statistics</i>		
Baseline P	0.76538	0.82169
Model N	1167	3017
Log likelihood	-73052.9	-166065
Pseudo R^2	0.2718	0.2162
F -value for adjusted Wald test	4.58902***	8.65434***
df (numerator, denominator)	42, 289	42, 343

* $p < .05$. ** $p < .01$. *** $p < .001$.

to persist from the first to the second year. FGS who were satisfied with their social lives were 16.7% more likely to persist than those who were not satisfied. Each \$1,000 increase in grant aid was associated with a 2.7% increase in the probability of persistence from the first to the second year. For each \$1,000 increase in work-study aid, FGS were 6.4% more likely to persist.

Findings for Continuing-Generation Students (CGS)

As indicated by the baseline probability for the model, 82.2% of students in the continuing-generation sample persisted at the same institution from the first to the second year,

and 10 independent variables were found to be statistically significant in their relation to first-to-second-year persistence for CGS (see Table 2). The model fit statistics indicated an overall fit that was statistically significant; more specifically, the F -value for the Adjusted Wald Test was $F(42, 343) = 8.65$, significant at $p < .001$, and the Pseudo $R^2 = .2162$. CGS who expected to complete more than a bachelor's degree were 4.7% more likely to persist from the first to the second year than CGS who expected to complete a bachelor's degree or less. CGS who were undecided about what level of education they expected to complete were 8.5% more likely to persist than those who expected to complete a bachelor's

degree or less. CGS who chose a particular institution because of the school's reputation were 5.7% more likely to persist than those who did not choose their college based on a school's reputation. CGS who chose a particular institution because tuition was lower than at other institutions were 10.9% more likely to persist. For every one-unit increase in GPA, CGS were 10.2% more likely to persist. CGS who were satisfied with their own intellectual growth were 8.5% more likely to persist than those who were not satisfied. For each one-unit increase in the degree of participation in school clubs, CGS were 4% more likely to persist from the first to the second year. CGS who were satisfied with their social lives were 8.7% more likely to persist from the first to the second year than those who were not satisfied. CGS who were satisfied with the overall campus climate were 6.9% more likely to persist than those who were not satisfied. For every \$1,000 increase in work-study aid, CGS were 4.4% more likely to persist.

DISCUSSION AND IMPLICATIONS

The findings of this study suggest important differences between the first-to-second-year persistence behaviors of first-generation and continuing-generation students. FGS are disproportionately non-White, low-income, and female (Choy, 2001) and the findings of this study support the contention that FGS inhabit intersecting sites of oppression based on race, class, and gender. In this study, being a Hispanic first-generation student, a lower-income first-generation student, or a female first-generation student, made first-to-second-year persistence more problematic. In contrast, none of these variables were related to persistence for CGS. For example, being Hispanic was negatively related to persistence

for FGS. Hence, being Hispanic and being first-generation is an example of how race and ethnicity intersect with parental education to negatively impact persistence. This finding is consistent with and supportive of concerns that researchers and student affairs professionals have expressed about Tinto's (1993) theory as it applies to minority student retention (Tierney, 1992). Specifically, some have questioned whether the reliance of Tinto's model on separation from one's native culture as a precondition for persistence is appropriate or applicable to the experiences of many minority students (Rendón, 1993; Rendón, Jalomo, & Nora, 2000). For example, in Hispanic cultures "separation is often not a viable option, as family is a source of rootedness and strength" (Rendón et al., p. 139). That is, separation is problematic because it suggests that minority students must disconnect from their past norms and cultural patterns and "turn over their loyalty to the conventions and practices of the academy which may have little or nothing to do with the realities from which [these] students come" (Rendón, p. 3). Therefore, to better address this problem, both in research and in the design of institutional retention policies and programs, minority students' perspectives need to be considered on their own terms, not in terms of their compatibility with dominant group values and behaviors (Rendón et al.).

In addition, FGS with higher incomes were significantly more likely to persist than those with lower incomes, suggesting that lower-income first-generation students are not only disadvantaged by their parents' lack of experience with and information about college, but also by other social and economic characteristics that constrain their educational opportunities. This finding indicates that FGS come from diverse social class backgrounds, have different amounts and types of cultural

and financial capital, and access and manipulate capital and financial resources differently in their persistence decisions (Berger, 2000; Paulsen & St. John, 2002). Class-based differences must be carefully considered both by researchers who design persistence studies and by retention specialists who develop and implement retention policies and programs at their institutions.

Finally, among the FGS in this study, females—who constitute the majority of first-generation students—were significantly less likely than males to persist. Even though women have entered higher education in greater numbers, gender-based inequities in educational opportunities still exist. This finding is cause for concern and calls attention to the need for further investigation.

The findings of this study also suggest that FGS and CGS make choices based on different habits—i.e., worldviews that may be unique to their own groups—thereby differentially framing what students see and value about college (Berger, 2000; Paulsen & St. John, 2002). For instance, among FGS in this study, persistence was more likely for those who grew up in a home where English was not the primary language spoken, and identified “living at home” and “faculty reputation” as their reasons for attending a particular institution. These findings suggest that FGS may connect more to the *local* ingredients and aspects of the family and school environments associated with their college-going behaviors. But among CGS, persistence was more likely for those who identified a school having a “good reputation” or a “lower tuition” compared to other schools as their reasons for choosing a particular institution to attend. These findings suggest that CGS may have a broader understanding of the range of college choices available to them and take a more *cosmopolitan* comparison-shopping approach

to their college-going decision making. In light of these findings, effective recruitment and retention programs would incorporate these key differences in what these two distinct groups of students see and value about college.

In this study, for FGS, attending a private institution was negatively related to persistence and institutional size was positively related to persistence, although neither was related to persistence for CGS. Viewed together, these findings seem more than coincidental. Rather, they suggest that private institutions, often smaller in size than public institutions, may not be optimally enhancing persistence for FGS. There are several possible explanations for this finding. For instance, higher tuitions at private colleges may be a cost burden for FGS. Another possibility is that attending college among wealthier peers at private institutions might burden FGS with the task of “living up to the Joneses” making college more difficult and more expensive. It is also possible that some private institutions continue to offer a campus academic and social life primarily designed to serve more traditional students, and FGS who live on campus at private institutions may become disconnected from their family support networks and native cultures. This possibility would also be consistent with the additional findings of this study that FGS who identified being able to live at home as a reason for choosing their particular institution were significantly more likely to persist, and that although it was not statistically significant ($p < .13$), the estimated effect on persistence of residing on campus was negative for FGS.

Similarly, there are several possible explanations for the finding that persistence is enhanced for first-generation students who attend larger institutions. Perhaps, larger institutions have greater resources to provide programs targeted at helping FGS, or perhaps

larger enrollments are linked to being able to commute, allowing FGS opportunities for dual socialization (Rendón et al., 2000)—that is, both the connection to their native cultures, family life, and family support as well as to those aspects of college life that serve to benefit them. Another possibility may be that larger institutions may have more diverse student populations, thereby providing increased opportunities for FGS to find meaningful affiliations with fellow students from similar backgrounds, whereas on smaller, private college campuses the characteristics FGS bring with them to college may cause them to stand out—as outsiders perhaps—in ways that might hinder their persistence.

It seems clear that both the nature and the extent of the roles of control and size of institution in promoting or constraining the persistence of FGS merit further study. However, given the findings of this study, there are some implications to guide effective policy and practice for high school counselors and others who are responsible for preparing first-generation students for attendance at the institutions of their choice and being successful both in their transition to college and in their academic performance in college. High school counselors, college counselors, and other professionals should make a special effort to provide first-generation students with the kinds of information and experiences that allow them to envision, perceive, or even observe real opportunities for success regardless of the type of institution or the size of institution they choose to attend. Helping students discover and understand opportunities for success in terms of the academic, the social, and the financial dimensions of different types of institutions are equally important and mutually reinforcing. For example, understanding the various funding possibilities for financing higher education at

a private institution can allow first-generation students to see ways to manage the higher costs often associated with attending such an institution. Additionally, in terms of understanding the academic and social climates of the campus, counselors can encourage students to spend extended, productive time on campus (e.g., making both daytime and overnight visits, participating in campus activities, attending classes, and interviewing current first-generation students at the campus of their choice) to gain a clearer picture of the realities of campus life at a particular institution.

In-college experiences related to social and academic integration play an important role in the persistence decisions of both FGS and CGS (e.g., Braxton, Sullivan, & Johnson, 1997). However, the findings of this study suggest that the roles of students' involvement in social activities relative to academic activities in college may be different for FGS and CGS. For instance, based on both sound research and practice, many in the higher education community understandably expect that being involved in campus clubs translates into increased time, effort, and commitment on campus that correlates with enhanced student retention (Astin, 1975; Gardner, 1996; Tinto, 1993). However, in this study, participating often in school clubs was significantly and positively related to persistence only for CGS, but not for FGS. This does not necessarily mean that FGS do not benefit from participation in campus clubs. Instead, it could mean that institutions might not have arranged student activities in ways that contribute to and benefit FGS and thereby promote their persistence. For example, campus clubs and activities may be set up in ways that reinforce the values and priorities of CGS as well as in ways that better accommodate their schedules. However, FGS who work more hours per week and have more family commitments may find

it difficult to take part in campus clubs because of the times at which events occur or because of the duration of time necessary to become involved. In light of the findings of this study, student affairs personnel on campuses with large first-generation student populations might want to reevaluate their club and other student activity offerings to ensure that first-generation students have opportunities for participation that might enhance their persistence as well.

Although frequent participation in campus clubs and social activities may be one avenue for integrating students into campus life, the results of this study suggest that participation and involvement in academic activities may be more important to FGS than social activities. In this study, the academic integration index was unrelated to persistence for CGS, but had a positive effect on persistence for FGS. As indicated in the Appendix, most of the items that constitute the index used to assess students' engagement in academic activities are clearly based on frequency of faculty-student interactions. This finding suggests that faculty may have a particularly important influence on the college experiences and the first-to-second-year persistence of FGS. Tinto (2000) suggests that models of persistence need to be reconstructed so as to consider the classroom and the faculty as important persistence-promoting parts of the academic environment. However, prior research indicates that although traditional students tend to see involvement in academic development activities as self-initiated, nontraditional students such as FGS are more likely to have a need for "validation" (Rendón, 1993; Terenzini et al., 1994). Validation is most effective early in the college experience and it occurs when faculty actively seek to reaffirm first-generation students "that they can do college-level work, that their ideas and

opinions have value, that they are worthy of the attention and respect of faculty, staff and peers alike" (Terenzini et al., 1994, p. 70). Student affairs professionals can promote validation by training faculty to foster validation in the classroom and to foster validating experiences outside the classroom and by incorporating faculty into new student orientation programs (Rendón; Terenzini et al.).

In this study, grant aid was unrelated to the persistence of CGS, but grant aid had a significant positive effect on the persistence decisions of FGS (Bettinger, 2004; Paulsen & St. John, 2002). Over the last several decades, there has been a shift away from need-based grant aid to loans and merit aid in providing students with financial support for college (Hearn, 2001). This shift in aid policy is particularly problematic for FGS because research indicates that they are far more likely than CGS to drop out in the face of accumulated debt associated with loans (Somers et al., 2000). The findings of this study provide another reason for caution in the movement from need-based to merit-based state grant funding, and encouragement for continued and expanded funding of federal Pell grants.

Finally, there are several sets of findings from this study that are noteworthy because they indicate that several factors have similar effects on persistence of FGS and CGS. First, for both FGS and CGS in this study, academic performance (i.e., first-year GPA) was positively related to first-to-second-year persistence, consistent with prior research on persistence (Duggan, 2001; Pascarella & Terenzini, 1991; Somers et al., 2000). Second, both FGS and CGS with high educational aspirations were more likely than their peers to persist from the first to the second year, consistent with existing research (e.g., Adelman, 1999; DesJardins et al., 2002; Somers et al.).

However, because FGS have lower educational aspirations than CGS (Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996) this finding could be problematic. It certainly calls attention to the importance of understanding more about factors that promote aspiration formation such as early home and school habitus (McDonough, 1997), and the need to invest more in programs that promote the development of educational aspirations, such as early intervention, postsecondary encouragement, and information dissemination (Gladieux & Swail, 1999).

Third, in this study the amount of work-study aid received was positively related to first-to-second-year persistence for both FGS and CGS, which is consistent with prior research on within-year persistence of these two groups (Somers et al., 2000). It is possible that work-study aid provides students with both monetary benefits (i.e., wages to help cover college costs) and other benefits, such as personal relationships with campus staff from whom they could receive assistance and support. Additionally, student affairs professionals can help staff members across campus become better informed about interacting with student workers in ways that validate students' experiences and enhance their persistence.

Fourth, students' satisfaction with their social life was positively related to persistence for both FGS and CGS in this study. However, interpreting the potential causal role of this factor is problematic. Being satisfied with one's social life could be partly, or even largely, independent of campus experiences, especially for many FGS. This possibility is supported by the findings of this study that FGS who chose a college because they can live at home and those for whom English was not the primary language spoken in their homes were more likely than their peers to persist from the first to the second year. In combination,

these findings suggest that the value and roles of connections to home, family, and native cultures might be very influential among FGS when it comes to determining what constitutes a satisfying social life. Moreover, although CGS were more likely to persist if they participated frequently in student activities such as campus clubs, FGS were more likely to persist if they were engaged in academic activities, especially those involving interactions with faculty. Given these findings, the sources of a satisfying social life for FGS compared to CGS clearly merit further study.

Finally, none of the precollege achievement variables (i.e., high school course taking practices and college entrance test scores) were significantly related to first-to-second-year persistence for either sample in this study. These findings are consistent with those of Duggan (2001, 2002) in his recent study of retention in the overall system of post-secondary education (as opposed to retention at the same institution as in the current study), and they are partly consistent with the findings of Somers et al., (2000) in their recent study of within-year persistence (i.e., they found that although test scores had a positive effect on within-year persistence of CGS, they were unrelated to persistence for FGS). This is another area that calls for further research to more clearly reveal the ways in which pre-college achievement influences persistence—especially for FGS.

In conclusion, the findings of this study indicate important differences between FGS and CGS in their persistence characteristics, behaviors, and experiences. Enrolling and leaving without a degree has negative monetary, occupational, and other consequences for FGS (Choy, 2001). However, first-generation students who do persist to complete bachelor's degrees earn comparable salaries and are employed in similar occupations as their

continuing-generation counterparts (Nuñez & Cuccaro-Alamin, 1998). Hence, findings from this study can be used to better understand the first-to-second-year persistence of first-generation students at four-year institutions and to inform theory, research, policy, and effective professional practice in student affairs—all with the goal of transforming the higher education enterprise in ways that make

opportunities to achieve educational goals more equitable for first-generation students.

Correspondence concerning this article should be addressed to Michael B. Paulsen, Professor of Higher Education, Educational Policy & Leadership Studies, College of Education, N499 Lindquist Center, The University of Iowa, Iowa City, IA 52242; michael-paulsen@uiowa.edu

APPENDIX.

Description and Coding of Dependent and Independent Variables

Variable	Description and Coding
<i>Dependent Variable</i>	
First-to-second year persistence at the same institution	Indicates continuous enrollment at the same four-year institution from fall 1995 to spring 1996 and remaining enrolled the subsequent fall (as of October 1996) exclusive of summer breaks. The variable was coded as 1 = persist, 0 = did not persist.
<i>Background Characteristics</i>	
Marital status	A dichotomous variable coded as 1 = Married, 0 = Not married.
Gender	A dichotomous gender variable coded as 1 = Male, 0 = Female.
Primary language spoken in home when growing up	A dichotomous variable indicating whether or not English was the primary language spoken in the student's home when growing up, coded as 1 = English was not the primary language, 0 = English was the primary.
Race: White	A dichotomous variable dummy coded as 1 = White, 0 = not White; White is the base group. The base group White included not only White, but also included the very small numbers who identified as American Indian/Alaska Native (0.8%) and as Other (0.7%).
Race: African American	A dichotomous variable dummy coded as 1 = African American, 0 = not African American.
Race: Hispanic	A dichotomous variable dummy coded as 1 = Hispanic, 0 = not Hispanic.
Race: Asian	A dichotomous variable dummy coded as 1 = Asian, 0 = not Asian.
Non-spouse dependents	A continuous variable indicating the student's number of non-spouse dependents.
Total income in 1994	A continuous variable indicating the total income in 1994 for independent students and parents of dependent students, measured in \$1,000 units.
Expectations of bachelor's degree or less	Aspirations/Expectations was coded as a design set of dichotomous variables (each coded 1,0) with expectations of completing a bachelor's degree or less as the base or comparison group. The question posed to respondents was "What is the highest level of education you ever expect to complete?"

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APPENDIX. *continued*
Description and Coding of Dependent and Independent Variables

Variable	Description and Coding
Expectations of postbaccalaureate work	Those who expected to complete postbaccalaureate work included those who expected to complete a masters, doctorate, first professional degree, or other postbaccalaureate work.
Undecided about degree expectations	A control variable to represent those who were undecided about level of education to complete.
<i>Pre-College Achievement</i>	
High school coursetaking: not rigorous	The rigor of high school coursetaking was a design set of dichotomous variables (each coded 1,0). The rigor of the coursetaking was ranked by NCES according to curriculum standards denoted as New Basic — 4 years of English, and 3 years each of social science, math, and science. The variable notrig (not rigorous coursetaking) was defined as not meeting New Basics standards and was the base or comparison group.
High school coursetaking: slightly rigorous	Taking a minimum of 4 years of English, 1 year of foreign language, 3 years each of math and science as well as taking 2 of the following: biology, chemistry, physics.
High school coursetaking: moderately rigorous	Taking a minimum of 4 years of English, 2 years of foreign language, and 3 years each of math and science and all of the following: Algebra 2, biology, chemistry, physics.
High school coursetaking: highly rigorous	Taking a minimum of 4 years each of both English and math, 3 years each of foreign language, science, and social science, 1 AP or honors class or having an AP test score in any subject, and taking all of the following: pre-calculus, biology, chemistry, physics.
Standardized test scores	A continuous variable based on a student's SAT combined score or ACT composite score converted to an estimated SAT combined score scale by NCES.
Delayed entry into postsecondary education	A dichotomous variable coded as 1 = delayed entry, 0 = did not delay entry indicating whether the student delayed entry into postsecondary education by one or more years.
<i>Initial Commitment: Reasons for Choosing an Institution</i>	
Faculty reputation	A dichotomous variable indicating whether faculty reputation was a reason the student reported choosing a particular institution and coded 1 = yes, 0 = no.
A good school reputation	A dichotomous variable indicating whether the school had a good reputation was a reason for choosing a particular institution and was coded 1 = yes, 0 = no.
Parent or counselor wanting student to attend	A dichotomous variable combining whether parents wanting the student to attend the school or whether a teacher or counselor recommending the school was a reason for choosing a particular institution, and was coded 1 = yes, 0 = no.
Friends or a spouse attending the school	A dichotomous variable indicating whether friends or spouse attending the school was a reason for choosing a particular institution, and was coded 1 = yes, 0 = no.
Being able to live at home	A dichotomous variable indicating whether being able to live at home was a reason for choosing a particular institution, and was coded 1 = yes, 0 = no.

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APPENDIX. *continued*

Description and Coding of Dependent and Independent Variables

Variable	Description and Coding
Getting more financial aid	A dichotomous variable indicating whether getting more financial aid was a reason for choosing a particular institution, and was coded 1 = yes, 0 = no.
Tuition being low	A dichotomous variable indicating whether tuition being low was a reason for choosing a particular institution, and was coded 1 = yes, 0 = no.
Other living costs being less	A dichotomous variable indicating whether other living costs being less was a reason for choosing a particular institution, and was coded 1 = yes, 0 = no.
<i>Institutional variables</i>	
Control of institution	A dichotomous variable indicating the control of the institution where the student was enrolled and was coded 1 = private and 0 = public. For-profit institutions were excluded.
Historically-Black college or university	A dichotomous variable indicating whether the institution was considered a historically black college or university and was coded 1 = HBCU, 0 = not an HBCU.
Selectivity of an institution	A dichotomous variable coded 1 = selective and 0 = not selective. Selective meant the 25th percentile of SAT/ACT scores of incoming freshman exceeded 1000.
Institution enrollment size	A continuous variable indicating enrollment at the NPSAS institution during 1995-96 (sum of undergraduate, graduate, and first professional students), in 1000-student units.
Attendance status	A dichotomous variable indicating whether or not the student was enrolled fulltime in fall AND spring at the institution during 1995-96, coded 1 = fulltime and 0 = not fulltime.
<i>In-College Experiences</i>	
Academic integration index	An NCES index based on four BPS items indicating how frequently the student had social contact with faculty, met with an academic advisor, talked with faculty about academic matters outside of class, or participated in study groups during the 1995-96 academic year. Response options for the items were never = 1, sometimes = 2, often = 3 and the 4-item average response was multiplied by 100 to yield an index value. Cronbach alphas were .63 for first-generation students and .54 for continuing-generation students.
First-year grade point average	A continuous variable indicating the students' 1995-1996 cumulative GPA standardized into a 4.0 scale by dividing by 100. The division by 100 was necessary because the NCES variable was standardized to a 4.00-point scale and multiplied by 100.
Satisfaction with school's prestige	A dichotomous variable indicating whether the student indicated satisfaction with the prestige of the school and was coded 1 = yes, 0 = no.
Satisfaction with own intellectual growth	A dichotomous variable indicating whether the student was satisfied with his or her own intellectual growth and was coded 1 = yes, 0 = no.
Frequency with which student went places with friends	A continuous-appearing, Likert scale variable indicating the frequency with which the student went places with friends from school during 1995-1996. The response options for the original items were never = 0, sometimes = 1, or often = 2.

appendix continues

APPENDIX. *continued*
Description and Coding of Dependent and Independent Variables

Variable	Description and Coding
Frequency with which student participated in school clubs	A continuous-appearing, Likert scale variable indicating the frequency with which the student participated in school clubs. The response options for the original items were never = 0, sometimes = 1, or often = 2.
Satisfaction with own social life	A dichotomous variable indicating whether the student was satisfied with his or her social life and was coded 1 = yes, 0 = no.
Satisfaction with campus climate	A dichotomous variable indicating the student's satisfaction with the overall campus climate regarding students of different racial or ethnic backgrounds, coded 1 = yes, 0 = no.
Satisfaction with the financial costs of attending	A dichotomous variable indicating whether the student was satisfied with the financial cost of attending the institution and was dummy coded 1 = yes, 0 = no.
Total grant aid received	A continuous variable indicating the total amount of all grants and scholarships: federal, state, institutional, and other received during 1995-96, in \$1000 units.
Total loan aid received	A continuous variable indicating the total amount of all loans: federal, state, institutional, and private sector, exclusive of PLUS loans, received during 1995-96, in \$1000 units.
Total work-study aid received	A continuous variable indicating the total amount of all work-study awards received during 1995-96, in \$1000 units.
Hours worked per week while enrolled	A continuous variable indicating average hours worked per week during 1995-96. Those with no jobs were coded to 0 and those with hours greater than 60 were coded to 60.
Student's residence location	A dichotomous variable coded as 1 = on campus, 0 = not on campus—based on the BPS item “While enrolled during 1995-1996, where did you live?”

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