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FRESHMAN ORIENTATION, PERSISTENCE, AND ACHIEVEMENT: A LONGITUDINAL ANALYSIS

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ABSTRACT

This longitudinal study (2001-2005) considers the impact of a freshman orientation course on the persistence of black and white students at a mid-southern university, as well its relationship with college achievement (GPA). Controlling for gender, race, high school GPA, and decided on major, logistic regression was used to assess persistence; multiple regression for evaluating college GPA. Though the orientation course had a positive impact on persistence to the second year and first year GPA (particularly for black students), it failed to have impact beyond the second year. Topical gaps in the course's content are considered as a possible influence in the lack of long-term persistence. Possible future research is discussed.

A major goal for both colleges and students should be the final attainment of a degree. However, degree attainment statistics are not encouraging. For example, looking at those freshmen who entered college in the Fall of 1995, by June 2001, only 55.3% had actually graduated (U.S. Department of Education, 2003). Indeed, the chances that students will even graduate in 4 years from a "four-year institution," may be less likely now than in the past. Wirt et al. (2004) found that, for both freshmen who started in the Fall of 1989 and the Fall of 1995, after 5 years, only about 53% had received a bachelor's degree. In another study, of students who started college in 1994, only 36.4% of them earned a

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bachelor's degree in 4 years, compared to 46.7% in the 1960s; moreover, only 58.8% of this 1994 cohort earned a degree in 6 years (Higher Education Research Institute, 2005).

BACKGROUND OF THE STUDY

College Student Persistence

There have been numerous studies which have tried to understand the nature of the student experience in college. Conceptually, Astin (1993) provides a basic foundation for understanding the effects of college on students. Specifically, this model views the effects of college students in terms of input ("I"), environment ("E"), and outcome ("O"), or "input-environment-outcome" (IEO). Each student brings with them their individual experiences and background (input), they receive/participate in a number of experiences while in college (environment), and from these experiences there should be a number of "outcomes," one of which is hoped to be a degree. However, in order to earn a degree, the student must persist.

Tinto (1975, 1987, 1993) provides a foundational model for understanding student persistence in college. In general, this model considers attributes of the student (e.g., family background, skills/abilities, school), as well as his or her initial intentions, goals, and commitments, prior to entering college. Once in college, the student experiences both *academic integration* (i.e., academic performance) and *social integration* (i.e., other students, extracurricular activities, interaction with faculty). According to Tinto, effective and positive interactions within the college environment should increase the student's intentions, goals, and commitments and, finally, have a positive outcome toward the student's decision to persist. Other variations of this integration model have also been studied (e.g., Pascarella, 1980; Pascarella & Terenzini, 1980). Another common model looks at *student attrition* (Bean, 1980; Bean & Metzner, 1985). In this model, a student's intent to persist/leave is a primary mediating variable toward dropping out of college. Along with background variables, there are academic and environmental variables that affect both academic and psychological outcomes. External variables (outside of college) are also considered in this model (e.g., family support, finances). Though the integration and attrition models may consider different variables, the merging of these models have been considered, which attempt to blend the "best" from both theories (Bean & Eaton, 2001; Cabrera, Castaneda, Nora, & Hengstler, 1992; Cabrera, Nora, & Castaneda, 1993).

In general, what are freshmen needs, relative to persistence? According to Choate and Smith (2003), freshmen need to build confidence, develop their skills, learn financial management, and receive social support. Student's may be more successful in their college development if they are full-time and reside

on campus; also, a smaller institution, which encourages student/peer and student/faculty interaction, should help (Pascarella & Terenzini, 1998). Indeed, several studies have stressed the importance of faculty/interaction for student persistence and college assimilation (e.g., Davig & Spain, 2004; Pascarella, 1980; Pascarella & Terenzini, 1980). A study by Kuh and Hu (2001) found that, particularly through smaller classes and/or smaller colleges, students' positive interactions with faculty produced more effort toward studies and other activities. Different types of students may require different needs. First-generation students may need programs that focus on academic achievement, as well as social interaction (Somers, Woodhouse, & Cofer, 2004). Minority students may experience greater feelings of isolation or loneliness (Daddona & Cooper, 2002). Perceiving a hostile environment within a predominantly white college, African Americans may require experiences that recognize their culture, while encouraging involvement/interactions in overall campus activities (Fidler & Godwin, 1994). Non-traditional students may also have a unique set of needs. Non-traditional students can be categorized by their age (i.e., older than 25 years), status (i.e., part-time), and living status (i.e., commuter, off-campus). These students may have fewer opportunities to interact with peers and faculty, as well as have pressures, which are outside of college (i.e., family, finances) (Bean & Metzner, 1985).

What can colleges do to improve student retention? Activities that institutions might attempt include recruitment/admission strategies, new student orientation or first-week activities, reading programs, academic advising and support, learning communities, residence educations, and first-year seminars (Hunter, 2006). Pascarella and Terenzini (2005) found that research in student persistence covered many areas, including: academic performance, first-year seminars, academic advising and support, financial aid, peer and faculty interactions, learning communities, academic/social integration, and intercollegiate athletics. According to Barefoot et al. (2005), first-year seminars are the most common programs for freshmen students. The focus of this study is first-year seminars or freshmen orientation courses.

First-Year Seminars

There are a number of topics that first-year seminars or freshman orientation courses may address toward increasing student retention. Specific topics may focus on *academic integration* (e.g., academic and study skills, critical thinking and problem solving, time management, note taking, test taking, reading, and using the computer), *personal development* (e.g., health needs/care and living skills, stress and anxiety management, psychological growth, career planning and development, academic planning and advising, financial management, decision making, goal setting, and values), and *social/campus integration* (e.g., campus, facilities, resources, and services, college regulations and procedures, transition and commitment to college, integration into the campus social system,

extracurricular activities, diversity and intercultural learning, faculty relationships, student or peer relationships, community service, understanding support/encouragement from others outside of the campus (Barefoot, Warnock, Dickinson, Richardson, & Roberts, 1998; Bean & Eaton, 2001; Boudreau & Kromrey, 1994; Choate & Smith, 2003; Clark, 2005; Cutright & Siegel, 2005; Daddona & Cooper, 2002; Davig & Spain, 2004; Fidler & Godwin, 1994; Fidler & Hunter, 1989; Gordon, 1989; Jarrell, 2004; Jewler, 1989; Morris & Cutright, 2005; Porter & Swing, 2006; Schnell & Doetkott, 2003; Schwartz & Swing, 2005; Strumpf & Hunt, 1993; Williford, Chapman, & Kahrig, 2001).

The Effectiveness of First-Year Seminars

There have been many studies that consider the effectiveness of first-year seminars/freshman orientation courses on retention. A common approach is to consider sophomore return rates, and several studies have shown that the first-year seminar explains higher return rates for the following Fall semester (Barefoot et al, 1998; Fidler, 1991; Fidler & Hunter, 1989; Fidler & Moore, 1996; Hoff, Cook & Price, 1996; Williford et al., 2001). Along with returning the following Fall, higher GPA has often been explained (Barefoot et al., 1998; Cone, 1991; Sidle & McReynolds, 1999). Specific groups and topics have also been considered for returning sophomores: for example, Fidler and Godwin (1994) found that that the freshman orientation course was particularly significant for African Americans; Ryan and Glenn (2004) argue that learning strategy topics had the most impact on returning sophomores. Pascarella, Terenzini, and Wolfe (1986) also found that a pre-enrollment orientation course could also impact sophomore return rates.

Different time studies have also shown increased retention. Some studies have shown greater retention into the following semester (e.g., Spring) (Barefoot et al., 1998; Davig & Spain, 2004). Tokuno (1993) showed higher retention for three subsequent *quarters,* as well as better grades resulting from the first-year seminar. For both blacks and whites, Strumpf and Hunt (1993) also found higher GPAs for three subsequent semesters. Overall, longitudinal studies, particularly those that attempt to consider the retention rate through the college experience (i.e., four years or beyond), are very few (Schnell & Doetkott, 2003; Williford, et al., 2001). Longitudinal studies have shown multi-year retention rates (Barefoot et al., 1998; Schnell & Doetkott, 2003), as well as increased graduation rates (Barefoot et al., 1998; Williford et al., 2001). Starke, Harth, and Sirianni (2001) found that, independent of race, the first-year seminar resulted in a higher GPA, as well as high graduation and retention rates. Not all studies have shown a consistent retention pattern: for example, Boudreau and Kromrey (1994) found a significant impact for the first and second years, but not necessarily into the third and fourth years of college. Though most studies tend to differentiate between those who took the first-year seminar versus those who did not, there are

studies that have shown that, for those who took the course, the course grade was a good predictor for both achievement and persistence (Barefoot et al., 1998; Hyers & Joslin, 1998).

Though retention and/or achievement are the major outcomes considered for most studies, there are other outcomes which may reflect the original content of the course (e.g., student satisfaction, greater exposure to campus services) (Barefoot et al., 1998). Cases have also been presented that argue first-year seminars should be cost-justified because they can reduce drop-out rates (Barefoot et al., 1998; Murtuza & Ketkar, 1995). In summary (Goodman & Pascarella, 2006; Pascarella & Terenzini, 2005), all types of students (e.g., gender, race) can benefit by first-year seminars, not only because of persistence, but also higher grades, better interactions with peers/faculty, and overall, a more positive transition into college.

According to Pascarella and Terenzini (2005), few studies control for pre-college differences. Goodman and Pascarella (2006) advise that, in a longitudinal design, controls for pre-college characteristics be introduced. Reason (2003) suggests that *race* or *ethnicity* be used as a background variable for retention studies. Other studies (e.g., Barefoot et al., 1998; Fidler & Godwin, 1994; Reynolds & Weagley, 2003; Sidle & McReynolds, 1999; Starke, Harth, & Sirianni, 2001; Stumpf & Hunt, 1993) have considered race in explaining persistence. *Gender* is another variable that has been considered in explaining college student attrition (e.g., Barefoot et al., 1998; Bean, 1980; Leppel, 2002; Reynolds & Weagley, 2003). Reason (2003), suggests that High School GPA be considered, too; other studies have considered this variable (e.g., Barefoot et al., 1998; Bean, 1980; Higher Education Research Institute, 2005). In Tinto's model for persistence, goal and institutional commitment are also considered important input (as well as output) to the college experience. Goodman and Pascarella (2006) suggests that *degree aspirations* be considered as part of pre-college characteristics in building a model for explaining the impact of a first-year seminar on retention. Bean and Metzner (1985) considered "Major Certainty" in their study. As such, whether or not a student has decided on their major could be used as another control variable. In summary, control variables for this study were *race, gender, high school GPA,* and *decided on major*.

In 1990, the University of Memphis first offered "Introduction to the University" (ACAD1100) to improve student performance and retention by providing freshmen with an extensive introduction to the purposes of higher education in general and an introduction to the expectations, demands, and resources of the university in particular (The University of Memphis, 1994). A 4-year longitudinal study was designed that assessed the course in terms of persistence and academic achievement (Magun-Jackson, 1996). In 2001, 11 years later, the course was again assessed. Through review of the syllabus and discussions with faculty, it was determined that ACAD1100, in general, covered many of the topics, listed above. For the majority of the students who took the course, the

topic areas included *critical thinking and problem solving, communication and relationship skills* (i.e., presentations; assertiveness; some writing), use of the *computer,* introduction to the *library, personal development* (i.e., learning styles), *values, stress management, financial management, career planning and development, academic planning and advising,* and campus *diversity.*

In the 2001 cohort, only about 11.7% of the students had a full-time faculty member as an instructor, while most sections were taught by non-faculty instructors; as such, the course introduced very little student/faculty interaction for the majority of the students. Moreover, because there were few course standards and assessments, there was little or no consistency of topic coverage among the sections of the course.

The purpose of this study was to assess the impact of the freshman orientation course (ACAD1100) at the University of Memphis, longitudinally, on year-to-year persistence and academic achievement for both white and black students from 2001 to 2005. The primary research questions are: 1) are there significant differences in course participants/non-participants, relative to year-to-year persistence and college GPA; and 2) are there significant differences between blacks and whites?

METHODOLOGY

Description of the Data

Data for this study represents the total 2001 cohort of first-time entering freshmen ($N = 1382$) at the University of Memphis. From this group, 691 students voluntarily took the university orientation course (ACAD1100), "Introduction to the University." Table 1 compares the demographics for the students in the orientation course with the 2001 freshman population. Though this course was voluntary, the students who took this course were representative of the 2001 freshman population, in terms of Race, Gender, In-/Out-of-State, ACT Scores, High School GPA, Age, and if financial aid was offered to the student. More full-time students, as well as those who lived on campus, took the orientation course, while fewer students that had decided on their major took the course.

Because the representation within the ethnical groups other than white and black were small, only the white and black students were included in the final sample. The final sample consisted of 608 students who enrolled in the ACAD1100 course (360 white—l78 female, 182 male; 248 black—180 female, 68 male) and 585 students that chose not to take this course (413 white—213 female, 200 male; 172 black—104 female, 68 male).

Variables

Six measures or independent variables were included in the study, representing five distinct blocks: *Student Background, High School Achievement, Freshman*

Table 1. Demographics of Freshmen Who Took the Orientation Course, versus the University 2001 Freshman Population

Variables	Orientation course	Population
Race		
White	52.10%	55.93%
Black	35.89%	30.39%
Hispanic	0.72%	1.16%
Indian	0.29%	0.36%
Oriental	2.75%	3.11%
Other	8.25%	9.04%
Gender		
Females	60.06%	57.02%
In-state/out-of-state		
In-state	94.58%	95.10%
Full-time/part-time**		
Full-time	92.91%	88.42%
Offered financial aid		
Offered aid	74.67%	70.77%
Decided/undecided on major**		
Decided	53.69%	59.77%
Lived on campus***		
On campus	46.90%	36.50%
ACT scores	$M = 21.13$ ($SD = 3.76$)	$M = 21.89$ ($SD = 3.84$)
High school GPA	$M = 2.98$ ($SD = 0.60$)	$M = 2.99$ ($SD = .63$)
Age	$M = 18.86$ ($SD = 2.76$)	$M = 19.09$ ($SD = 2.99$)

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

Student's Commitment to Major, Freshman Orientation, and College Achievement. The first block of variables (*Student Background*) is comprised of two measures: the gender and race of the student. The second block of variables (*High School Achievement*) is comprised of one measure: high school grade point average (GPA). The third (*Freshman Student's Commitment to Major*) is composed of one dichotomous measure: whether or not the student had decided on their major. The fourth (*Freshman Orientation*) block is composed of one dichotomous measure: whether or not they took the Freshman Orientation course (ACAD1100). The fifth and final block (*College Achievement*) is the GPA for each Fall semester (2001-2004) that the student earned. In explaining persistence, the dependent variable was derived based on whether the student returned the following Fall semester (2002-2005) or if they graduated. Table 2 presents the full information regarding the composition of all variables used in this analysis.

Table 2. Variable Definitions

Variables	Definitions
Block 1: Student Background Characteristics	
Gender	1 = "Male" 2 = "Female"
Race	1 = "White" 2 = "Black"
Block 2: High School Achievement	High School Grade Point Average (GPA)
Block 3: Freshman Student's Commitment to Major	Whether or not the student had selected a major. 1 = "Decided" 2 = "Undecided"
Block 4: Freshman Orientation	Whether or not the student took the freshman orientation course. 1 = "Yes" 2 = "No"
Block 5: College Achievement	GPA earned for the previous Fall semester being analyzed (2001-2004).
Dependent Variable for Persistence	A dichotomous variable which reported whether or not the student returned for the next Fall semester (2002-2005) or graduated. 0 = "No" 1 = "Yes"

Analysis

A logistic model was built upon previous theories in the area of student persistence/retention (e.g., Bean & Eaton, 2001; Bean & Metzner, 1985; Pascarella, 1980; Pascarella & Terenzini, 1980; Tinto, 1975, 1987, 1993). Moreover, the model assessed year-to-year persistence over a 4-year period. Because persistence is a dichotomous variable, logistic regression was used to assess year-to-year retention. Because of problems with using ordinary least squares (OLS) regression for binary responses (e.g., residuals interpretation), logistic regression is recommended (Austin, Yaffee, & Hinkle, 1989). Peng, So, Stage, and St. John (2002) found 52 higher education research articles/studies that used logistic regression. Tinto (1975) suggested the use of longitudinal and logistic analysis for studies in persistence. Though some studies of student persistence have used logistic regression (e.g., Hu & St. John, 2001; Hyers & Joslin, 1998; Leppel, 2002; Ryan & Glenn, 2004), this approach is still not often used for persistence models (Glynn, Sauer, & Miller, 2003). Some longitudinal studies have been made regarding the impact of freshman orientation/seminars (e.g., Boudreau & Kromrey; 1994; Schnell & Doetkott, 2003; Williford et al., 2001), but according to Schnell and Doetkott (2003), longitudinal studies are lacking in freshman orientation assessments, and few go beyond 1 year (Williford et al., 2001). This analysis consisted of five sets of variables: student background, high school achievement, freshman student's commitment to major, participation in ACAD1100, and college academic achievement (GPA). These variables were added to the persistence model sequentially from step 1 to step 5. The model was repeated for 4 years (2002-2005). College achievement, used as an independent variable in the logistic model, was also evaluated longitudinally over the same time period as a dependent variable within the context of multiple regression. The significance level of the beta (β) for each variable and its corresponding delta-p statistic is presented. The delta-p statistic represents the change in probability and is a good way for estimating change in the dependent variable (Petersen, 1985). However, Peng et al. (2002) warn about comparing the delta-p across independent variables. See Cabrera (1994) for further information about delta-p.

Model statistics for each logistic analysis are also provided. These statistics assess the *goodness of fit* for each logistic model (Cabrera, 1994). The G^2 statistic refers to the maximum likelihood function and indicates how well the parameter estimates in the model fit the data. Moving from one step to the next, lower G^2 values indicate a better fit (Aldrich & Nelson, 1984; DeMaris, 1992). A G^2/df ration less than 2.5 is recommended for model acceptance (Cabrera, 1994). Based on a formula recommended by Aldrich and Nelson (1984), a pseudo "R^2" was calculated, which represents the proportional reduction in error in relation to the null model; the larger the value for the pseudo "R^2," the greater the error reduction.

College achievement, used as an independent variable in the logistic model, was also evaluated longitudinally over the same time period as a dependent variable within the context of multiple regression. The independent variables for each analysis were background, high school achievement, commitment to major, and participation in the orientation course. The impact of the freshman orientation course on college GPA was assessed. The standardized beta (β) coefficients, *t*-values, and significance levels are presented, along with the R^2 and the model's overall significance, which are also reported.

RESULTS

First, for each year, ordinary least squares regression procedures were used to do exploratory analysis. This exploratory analysis indicated no problems with multicollinearity, and examination of the possibility of outliers of influential data points indicated that there were no subjects who individually influenced the regression results.

Persistence

Persistence to Year Two

Of the 2001 cohort of 1,193 first-time freshman (773 white; 420 black), 806 (67.6%) students persisted to year two with a significant difference due to race (542-70.1% white; 264-62.9% black), χ^2 (1) = 6.544, $p < 05$. The rate of persistence for students that participated in the freshman orientation course (437/608, 71.9%) was significantly higher than for the students that did not choose to participate (369/585, 63.1%), χ^2 (1) = 10.53, $p < .01$.

Gender differences in persistence were not significant for the white students but were significant for the black students. Black females (195/284, 68.7%) were more likely to persist than were black males (69/136, 50.7%), χ^2 (1) = 12.66, $p < .001$.

Differences in persistence due to race were not significant for those who took ACAD1100 (264/360, 73.3% white; 173/248, 69.8% black), but were significant for those who did not take the course (278/413, 67.3% white; 91/172, 52.9% black), χ^2 (1) = 10.819, $p < .01$. Both blacks and whites benefited by their participation in ACAD1100. However, the differences in benefit between participation and non-participation reached statistical significance for the black freshmen, χ^2 (1) = 12.35, $p < .001$.

Table 3 gives the beta (β) coefficients and delta-p statistics (ΔP) for each of the variables and the model statistics for each sequential analysis. At each step the model was improved as evidenced by the reduction in G^2 and the higher the log likelihood function from –709.60 to –566.93.

In considering only background variables (i.e., step 1), both gender and race were significant in explaining persistence. Both females and whites were 8% more

Table 3. Analysis of Persistence to Year Two (2002)

	Step 1		Step 2		Step 3		Step 4		Step 5	
	B	ΔP	B	ΔP	B	ΔP	B	ΔP	B	ΔP
Variables										
Gender	.40**	.08	.25	.05	.24	.05	.23	.05	.20	.04
Race	–.36**	–.08	–.34*	–.08	–.37**	–.08	–.43**	–.10	–.08	–.02
GPA high school			.56***	.11	.55***	.11	.54***	.10	–.02	–.004
Decided					–.15	–.03	–.22	–.05	–.29	–.07
Orientation course							–.47***	–.11	.01	.002
GPA for Fall 2001									1.09***	0.18
Model Statistics										
G^2	1419.19		1391.64		1390.40		1377.61		1133.86	
df	1191		1190		1189		1188		1187	
G^2/df	1.19		1.17		1.17		1.16		0.96	
Pseudo "R^2"	.0118		.0338		.0348		.0447		.2007	
χ^2, *df*	14.208,2**		41.764,3***		43.002,4***		55.795,5***		299.545,6***	
Log likelihood	–709.60		–695.82		–695.20		–688.80		–566.93	

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

likely to return the second year. However, after the introduction of step 2, gender was no longer significant in this model. Whites continued to have an 8-10% higher likelihood of returning. High school GPA had a very significant relationship to persistence to the second year. Each unit change in high school GPA increased the probability of persistence 10-11%. Whether or not a student had decided on their major was not significant in this model. However, controlling for all other variables, students that participated in ACAD1100 were significantly more likely to persist to the second year, 11% more likely than those who did not take the course.

The addition of college achievement (GPA for the Fall of 2001) had a very significant impact on persistence. Indeed, in step 5, college GPA becomes the only significant (.001) variable in the model. Each unit change in college GPA increased the probability of persistence 18%. Students with higher grades persisted, while those with lower grades did not. College GPA was also considered in this study as an additional dependent and consequential outcome indicator of the effectiveness of participation in the freshman orientation course and was analyzed separately within the context of multiple regression.

Persistence to Year Three

Of the 806 students who persisted to year two (542 white; 264 black), 595 (73.8%) students persisted to year three with an insignificant difference due to race (397-73.2% white; 198-75% black). Participation in the freshman orientation course was not significantly related to persistence (332/437, 76% participants; 263/369, 71.3% non-participants). Gender differences in persistence were also not significant (241/332, 72.6% male; 354/474, 74.7% female).

Differences in persistence due to race were not significant for those who took ACAD1100 (198/264, 75% white; 134/173, 77.5% black), nor for those who did not take the course (199/278, 71.6% white; 64/91, 70.3% black). Both blacks and whites benefited by their participation in ACAD1100, though neither race's benefit was statistically significant.

Table 4 gives the beta (β) coefficients and delta-p statistics (ΔP) for each of the variables and the model statistics for each sequential analysis. At each step the model was improved, as evidenced by the reduction in G^2 and the higher the log likelihood function from –359.59 to –332.44.

For steps 1-4, high school GPA was the only variable that had a significant relationship to persistence for the third year. Each unit change in high school GPA increased the probability of persistence 9%. The addition of college achievement (GPA for the Fall of 2002) had a very significant impact on persistence; college GPA became the only significant (.001) variable in the model. Each unit change in college GPA increased the probability of persistence 12%.

Table 4. Analysis of Persistence to Year Three (2003)

	Step 1		Step 2		Step 3		Step 4		Step 5	
	B	ΔP	B	ΔP	B	ΔP	B	ΔP	B	ΔP
Variables										
Gender	.04	.008	−.10	−.02	−.10	−.02	−.10	−.02	−.12	−.02
Race	.13	.02	.15	.03	.16	.03	.10	.02	.36	.06
GPA high school			.53**	.09	.53**	.09	.55**	.09	.23	.04
Decided					.07	.01	.02	.003	−.004	−.00008
Orientation course							−.27	−.06	−.26	−.05
GPA for Fall 2002									.77***	.12
Model Statistics										
G^2		719.18		708.15		708.03		706.06		664.89
df		804		803		802		801		800
G^2/df		0.89		0.88		0.88		0.88		0.83
Pseudo "R^2"		.0006		.0141		.0142		.0166		.0636
χ^2, *df*		.494,2		11.52,3**		11.646,4*		13,616,5*		54.786,6***
Log likelihood		–359.59		–354.08		–354.02		–353.03		–332.44

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

Persistence to Year Four

Of the 595 students (397 white; 198 black) who persisted to year three, 483 (81.2%) students persisted to year four with an insignificant difference due to race (321-80.9% white; 162-81.8% black). Participation in the freshman orientation course was not significantly related to persistence (274/332, 82.5% participants; 209/263, 79.5% non-participants). Gender differences in persistence were also not significant (189/241, 78.4% males; 294/354, 83.1% females).

Differences in persistence due to race were not significant for those who took ACAD1100 (162/198, 81.8% white; 112/134, 83.6% black), nor for those who did not take the course (159/199, 79.9% white; 50/64, 78.1% black). Both blacks and whites benefited by their participation in ACAD1100, though neither race's benefit was statistically significant.

Table 5 gives the beta (β) coefficients and delta-p statistics (ΔP) for each of the variables and the model statistics for each sequential analysis. At each step the model was improved, as evidenced by the reduction in G^2 and the higher the log likelihood function from –239.01 to –206.67.

For steps 1-4, high school GPA was the only variable that had a significant relationship to persistence for the fourth year. Each unit change in high school GPA increased the probability of persistence 5%. The addition of college achievement (GPA for the Fall of 2003) had a very significant impact on persistence; college GPA becomes the only significant (.001) variable in the model. Each unit change in college GPA increased the probability of persistence 12%.

Persistence to Year Five

Of the 483 students (321 white; 162 black) that persisted to the fourth year, 389 (80.5%) students persisted to year four with an insignificant difference due to race (258-80.4% white; 131-80.9% black). Participation in the freshman orientation course was not significantly related to persistence (223/274, 81.4% participants; 166/209, 79.4% non-participants). There was a significant difference for gender. Females (246/294, 83.7%) were more likely to persist than males (143/189, 75.7%), χ^2 (1) = 4.71, $p < .05$.

Differences in persistence due to race were not significant for those who took ACAD1100 (139/173, 80.3% white; 101/136, 74.3% black), nor for those who did not take the course (144/194, 74.2% white; 48/67, 71.6% black). Both blacks and whites benefited by their participation in ACAD1100, though neither race's benefit was statistically significant.

Table 6 gives the beta (β) coefficients and delta-p statistics (ΔP) for each of the variables and the model statistics for each sequential analysis. At each step the model was improved, as evidenced by the reduction in G^2 and the higher the log likelihood function from –209.29 to –206.04.

No variables were significant until step 4. In step 4, gender was the only variable that had a significant relationship to persistence for the fifth year. Females were

Table 5. Analysis of Persistence to Year Four (2004)

	Step 1		Step 2		Step 3		Step 4		Step 5	
	B	ΔP	B	ΔP	B	ΔP	B	ΔP	B	ΔP
Variables										
Gender	.10	.01	−.001	−.0002	−.001	−.0002	−.001	−.0002	−.15	−.02
Race	−.05	−.01	−.03	−.005	−.03	−.004	−.03	−.004	.43	.06
GPA high school			.40*	.05	.40*	.05	.40*	.05	−.14	−.02
Decided					.03	.004	.03	.004	−.23	−.04
Orientation course							−.006	−.001	−.05	−.01
GPA for Fall 2003									1.13***	.12
Model Statistics										
G^2		478.03		473.97		473.96		473.96		413.34
df		593		592		591		590		589
G^2/df		0.81		0.80		0.80		0.80		0.70
Pseudo "R^2"		.0003		.007		.007		.007		.10
χ^2, *df*		.20,2		4.26,3		4.27,4		4.27,5		64.89,6***
Log likelihood		−239.01		−236.99		−236.98		−236.98		−206.67

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

Table 6. Analysis of Persistence to Year Five (2005)

	Step 1		Step 2		Step 3		Step 4		Step 5	
	B	ΔP	B	ΔP	B	ΔP	B	ΔP	B	ΔP
Variables										
Gender	.38	.05	.33	.05	.33	.05	.32*	.04	.27	.04
Race	–.10	–.02	–.09	–.02	–.09	–.02	–.15	–.02	.01	.001
GPA high school			.23	.03	.23	.03	.25	.03	.14	.02
Decided					.002	.0003	–.07	–.01	–.80	–.15
Orientation course							–.31	–.05	–.28	–.05
GPA for Fall 2004									.30*	.04
Model Statistics										
G^2		418.57		417.42		417.42		415.99		412.07
df		481		480		479		478		477
G^2/df		0.87		0.87		0.87		0.87		0.86
Pseudo "R^2"		.005		.007		.007		.009		.02
χ^2, *df*		2.24,2		3.38,3		3.38,4		4.82,5		8.73,6
Log likelihood		–209.29		–208.71		–208.71		–208.00		–206.04

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

4% more likely to persist than males. The addition of college achievement (GPA for the Fall of 2004) had a significant impact on persistence; college GPA becomes the only significant (.05) variable in the model. Each unit change in college GPA increased the probability of persistence 4%.

College Academic Achievement

College GPA was found to be highly predictive of persistence into the following Fall. A continuous variable, it was investigated for those people who persisted or graduated over a 4-year period within the context of multiple regression. The dependent variables continued to be the background variables (gender and race), high school GPA, whether the freshman student had decided on a major, and participation in the freshman orientation course. First, for each year, ordinary least squares regression procedures were used to do exploratory analysis. This exploratory analysis indicated no problems with multicollinearity, and examination of the possibility of outliers of influential data points indicated that there were no subjects who individually influenced the regression results. Table 7 gives the standardized beta (β) coefficients, their *t*-value, and two-tailed level of significance for 2001-2004 college GPA.

College GPA: First Year

For the first year's (2001) Fall GPA, race, high school GPA, and participation in the freshman orientation course were all significant beyond the .001 two-tailed level. Gender and decided on major were not significant. Controlling for all other variables, the following students had higher GPAs: whites had a higher GPA than blacks; students with higher high school GPAs had a higher college GPA; students who took the orientation course had higher college GPAs.

In addition to these main effects, there was a significant interaction effect between race and the first-year college GPA. Regressions were run separately for race. Table 8 gives the standardized beta (β) coefficients, their *t*-value, and two-tailed significance, separately for the black and the white students. For both races: high school GPA and participation in the orientation course were both significant beyond the .001 two-tailed level, while gender and decided on major were not significant. Controlling for all other variables, the following students had higher GPAs: students with higher high school GPAs had a higher college GPA; students who participated in the orientation course had higher GPAs. However, there were some significant differences between the samples. For whites, high school GPA was the most significant variable, while for blacks, participation in the orientation course was the most significant variable. Also, in reviewing the R^2 for both models. while 14.8% of the variance in college GPA is explained by the independent variables for whites, 21.5% of this variance is explained for blacks.

Table 7. Coefficient of College GPA (2001-2004)

	2001		2002		2003		2004	
Variables	B	t	B	t	B	t	B	t
Gender	.07	1.93	.024	.37	.13	1.75	.16*	1.97
Race	–.38***	–5.91	–.36***	–5.55	–.43***	–5.70	–.52***	–6.18
GPA high school	.57***	11.63	.46***	9.08	.44***	7.54	.38***	5.75
Decided	–.005	–.08	.02	.35	.16*	2.25	.04	.54
Orientation course	–.48***	–7.86	–.03	–.42	.06	.82	–.11	–1.41
N		1149		706		544		457
R^2		.175***		.145***		.173***		.149***

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

Table 8. Coefficients of College GPA: White versus Black (2001-2003)

	2001		2002		2003	
Variables	B	t	B	t	B	t
White						
Gender	.03	.45	.02	.24	.03	.33
GPA high school	.62***	10.05	.53***	8.704	.59***	8.30
Decided	–.005	–.74	.09	1.22	.18*	2.08
Orientation course	–.33***	–4.45	.03	.42	.09	1.07
N		746		477		360
R^2		.148***		.151***		.186***
Black						
Gender	.12	1.05	–.01	–.12	.31*	2.28
GPA high school	.46***	5.53	.28**	3.23	.15	1.44
Decided	.16	1.41	–.11	–1.01	.18	1.32
Orientation course	–.78***	–7.46	–.17	–1.62	–.05	–.40
N		403		229		184
R^2		.215***		.06**		.053*

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

College GPA: Second Year

For the second year's (2002) Fall GPA, race and high school GPA were both significant beyond the .001 two-tailed level. Gender and decided on major were not significant; participation in the orientation course was no longer significant. Controlling for all other variables, the following students had higher GPAs: whites had a higher GPA than blacks; students with higher high school GPAs had a higher college GPA.

In addition to these main effects, there was significant interaction effect between race and the second-year college GPA. Regressions were run separately for race. Table 8 gives the standardized beta (β) coefficients, their *t*-value, and two-tailed significance, separately for the black and the white students. For both races high school GPA was significant: for whites, beyond the .001 two-tailed level; for blacks, beyond the .01 two-tailed level. Gender, decided on major, and participation in the orientation course were not significant. Controlling for all other variables, students with higher high school GPAs had a higher college GPA. However, in reviewing the R^2 for both models, while 15.1% of the variance in college GPA is explained by the independent variables for whites, only 6% of this variance is explained for blacks.

College GPA: Third Year

For the third year's (2003) Fall GPA, race and high school GPA were both significant beyond the .001 two-tailed level. Decided on major was now significant beyond the .05 level. Gender and participation in the orientation course continued to not be significant. Controlling for all other variables, the following students had higher GPAs: whites had a higher GPA than blacks; students with higher high school GPAs had a higher college GPA; those students who were undecided on their major entering their freshman year had a higher college GPA for the third year.

In addition to these main effects, there was significant interaction effect between race and the third-year college GPA. Regressions were run separately for race. Table 8 gives the standardized beta (β) coefficients, their *t*-value, and two-tailed significance, separately for the black and the white students. For whites, high school GPA was significant beyond the .001 two-tailed level, and decided on major was significant beyond the .05 level. Gender and participation in the orientation course were not significant. Controlling for all other variables, the following white students got a higher college GPA: students with higher high school GPAs had a higher college GPA; students who had not decided on a major in their freshman year got a higher GPA. In reviewing the R^2 for the white sample, 18.6% of the variance in college GPA is explained by the independent variables.

For blacks, gender was significant beyond the .05 two-tailed level. All other variables were not significant. Controlling for all other variables, black females

earned a higher GPA than black males. In reviewing the R^2 for the black sample, 5.3% of the variance in college GPA is explained by the independent variables.

College GPA: Fourth Year

For the fourth year's (2004) Fall GPA, race and high school GPA continued to be significant beyond the .001 two-tailed level. Gender was also significant beyond the .05 two-tailed level. Decided on major and participation in the orientation course were not significant. Controlling for all other variables, the following students had higher GPAs: whites had a higher GPA than blacks; females had a higher GPA than males; students with higher high school GPAs had a higher college GPA. There were no significant interaction effects between race and fourth-year college GPA.

DISCUSSION

Tables 3 through 6 show that, in relationship to long-term persistence, college achievement (GPA) is a major variable for all years, and except for the last year, so is high school GPA. Gender had a minor/negligible role. Decided on major had no significant impact for any of the years. Race and participation in the freshman orientation course only had an impact in returning for the second year. Table 7 indicates a relatively minor to negligible impact of gender and decided on major for college GPA. High school GPA had a significant impact on college GPA; controlling for all other variables, those students with greater high school GPAs had higher college GPAs. Taking the freshman orientation course only had a very significant impact for the first year's GPA.

Racial differences were very significant; controlling for all other variables, whites had higher GPAs than blacks. These racial differences were even more pronounced for the first through third years. Taking the orientation course had more impact for the black first-year GPA than for whites. The model explained more variance for whites than blacks for the second and third years. For the third year, though high school GPA continued to be significant for whites in that year, it was not significant for blacks, but instead, gender had some impact for blacks' GPA.

Table 9 provides an overall summary of key information from this study. In the context of the freshman orientation course and its relationship to persistence, the analysis for the second year (2002) is very positive. Before 2001's GPA is included in the model, taking the freshman orientation course (ACAD1100) had a very significant impact on persistence: those students who took ACAD1100 were 11% more likely to persist than those who did not take the course. When added to the logistic regression model, the previous year's Fall GPA had a huge impact on persistence; this was true for most years. Furthermore, for 2002, taking ACAD1100 had an impact on college GPA (second only to high school GPA). Moreover, for blacks, taking ACAD1100 was the most important variable in

Table 9. Summary of Longitudinal Analysis of Persistence (2001-2005)

Year	Sig. differences in persistence, considering race, gender, & ACAD1100	Log. reg. sig. variables (ΔP) & Pseudo R^2	Prev. fall's GPA analysis by mag. of importance	Racial interaction analysis: **White** by mag. of importance	Racial interaction analysis: **Black** by mag. of importance
2002	(+) Whites (+) Black females (+) ACAD1100 (–) Blacks, who didn't take ACAD1100	**Steps 1-4** Whites (8-10%) HS GPA (10-11%) ACAD1100 (11%) *Pseudo R^2 (.045)* **Step 5 (GPA)** (18%) *Pseudo R^2 (.20)*	HS GPA ACAD1100 Race (White) R^2 (.175)	HS GPA ACAD1100 R^2 (.148)	ACAD1100 HS GPA R^2 (.215)
2003	NA	**Steps 1-4** HS GPA (9%) *Pseudo R^2 (.017)* **Step 5 (GPA)** (12%) *Pseudo R^2 (.064)*	HS GPA Race (White) R^2 (.145)	HS GPA R^2 (.151)	HS GPA R^2 (.060)
2004	NA	**Steps 1-4** HS GPA (5%) *Pseudo R^2 (.007)* **Step 5 (GPA)** (12%) *Pseudo R^2 (.10)*	HS GPA Race (White) Undecided major R^2 (.173)	HS GPA Undecided major R^2 (.186)	Gender (Females) R^2 (.053)
2005	(+) Females	**Steps 4** Gender (Female) (4%) *Pseudo R^2 (.009)* **Step 5 (GPA)** (4%) *Pseudo R^2 (.02)*	Race (White) HS GPA Gender (Female) R^2 (.149)	NA	NA

explaining college GPA; 21.5% of the variance in blacks' 2001 GPA was explained by the multiple regression model, versus 14.8% for whites. Black students who did not take ACAD1100 were less likely to return the following year.

Considering only the persistence for the second year, the orientation course appears to have been very successful. Not only did participation in ACAD1100 have a significant impact for all students' persistence and achievement, it had a noticeably higher impact for blacks in a predominantly white cohort. Other studies suggest that, perceiving an unreceptive environment, freshman minorities may have feelings of isolation and loneliness (Daddona & Cooper, 2002; Fidler & Godwin, 1994). Perhaps ACAD1100 increased social integration for minorities. Moreover, considering the effect on GPA, these findings suggest that, at least for the first year, academic integration might have been impacted by ACAD1100, too.

However, this study was longitudinal. Unfortunately, *after 2002, participation in ACAD1100 disappeared as a significant variable.* High school GPA continued to be significant for the next couple of years; the previous Fall's college GPA continued to be significant through 2005. Through 2004, college GPA was primarily impacted by high school GPA and race. Whites tended to earn higher GPAs, and for them, high school was the most important variable for years 2001-2003. For blacks, while 21.5% of the variance in 2001 GPA was explained by the model, for 2002-2003, the variance dropped to 5-6%.

Finally, the inclusion of "Decided on Major," which was proposed to represent a part of "goal commitment," had no significant impact on persistence. Only for 2003's GPA, did this variable show any significance and primarily for whites.

Contrary to the results of the 1990 cohort study (Magun-Jackson, 1996) where gains made from freshman to sophomore year and from junior to senior year were due to course participation, whatever gains were made in the 2001 cohort by ACAD1100 toward second-year persistence appears to have been lost by the third year. Perhaps explanations may be surmised based on the content of the course, relative to the two primary domains of academic and social/institutional integration. Ryan and Glenn (2004) found that learning strategies are the most important skills to be gained through a first-year seminar. In the academic domain, the topics of problem solving and critical thinking were covered in ACAD1100, as were some communication skills and the use of the computer. However, other topics which focus on academic success, like academic and study skills, note taking, test taking, time management, reading, and writing were not well covered. In regard to social/institutional integration, the students were introduced to the library, advising and academic/career planning, and campus diversity. Other topics which may have introduced the student to other campus services/facilities, regulations/policies, and engagement from significant others were not covered. Moreover, as indicated earlier, only 11.7% of the students were taught by a faculty member. Here too, most students were not given the opportunity to build interactions with faculty, an important factor in student retention. Indeed, even though a primary goal of a first-year seminar is to help students understand higher

education and to help them with the transition from high school, these topics, too, were missing.

Several topics covered personal development (e.g., learning style, stress management, financial management, values, assertiveness). Students were given an opportunity to understand themselves, a good outcome to achieve, but without their developing practical academic skills or learning how to navigate through the institutional/social system, personal development may not have been enough to achieve long-term persistence. However, there was significant persistence and achievement into the second year, particularly for blacks. According to Fidler and Godwin (1994), first-year seminars can benefit African Americans when tolerance and support for their culture is taught. Perhaps the *diversity on campus* topic was effective in this area. Moreover, Fidler and Godwin (1994) also found that orientation to career services is important for African-American retention. Indeed, ACAD1100's focus on advising, academic/career planning, coupled with personal development, might have provided the motivation/engagement for both whites and blacks to focus and "stick-it-out" into the second year. However, without being provided the academic/institutional tools to navigate higher-level courses and demands, long-term persistence appears to have not been enabled through ACAD1100.

FUTURE RESEARCH

This study included all students who enrolled in ACAD1100. It could be argued that any exposure to an orientation course might have positive impacts, particularly for social integration. However, it could also be argued that, particularly for academic integration, the quality/success of the student's experience in ACAD1100 should be considered. For example, Hyers and Joslin (1998) found that only 45% of students who earned a C+ or less in their orientation course, returned for the second year. Of the 608 students (black/white) who took ACAD1100, 105 (17.3%) had either dropped (i.e., withdrew from) the class or received a grade of "D" or "F." Though there was no significant difference between blacks and whites, males (53/250, 21.2%) did not perform as well as females (52/358, 14.5%) in ACAD1100, χ^2 (1) = 4.6, $p < .05$. The exclusion of these students might produce different results, particularly in the area of college achievement/academic integration.

Along with "Undecided on Major," additional variables might have been used to further control for individual differences, as well as to help explain persistence. Financial factors (e.g., financial aid) have been researched in regard to their relationship to persistence (Pascarella & Terenzini, 2005; Reynolds & Weagley, 2003; Somers, Woodhouse, & Cofer, 2004). Other studies have considered the persistence of out-of-state students (Reynolds & Weagley, 2003), as well as students who live on campus (Fidler & Moore, 1996; Pascarella & Terenzini, 1998). Indeed, non-traditional students (i.e., older, live off-campus,

part-time) may show different factors that influence their persistence (Bean & Metzner, 1985; Leppel, 2002).

Though a general understanding of the topics covered for ACAD1100 was determined, a more thorough investigation into instructors' topical selection, as well as the rational for these selections, would be valuable in confirming this study's conclusions regarding topical gaps, as well as provide an understanding of the differences between the teaching approaches used by faculty versus non-faculty instructors. A qualitative method (i.e., interviews with instructors) is the recommended approach for conducting such a study.

Inevitably, persistence should lead to graduation. However, though this study followed the same cohort through five Fall semesters, of the students studied only 1% of blacks graduated, while only 0.5% of whites graduated. As such, this study supports the argument that degree programs may now take more than 4 years to complete as indicated by numerous studies conducted by the U.S. Department of Education (e.g., 2006). A 6-year longitudinal study of this cohort, when data is available, would be useful in providing an understanding of overall persistence toward graduation. On the other hand, the primary intention of this study was to longitudinally study the impact of the course on persistence and college achievement.

REFERENCES

Aldrich, J. H., & Nelson, F. D. (1984). *Linear probability, logit, and probit models.* Beverly Hills, CA: Sage.

Astin, A. W. (1993). *What matters in college? Four critical years revisited.* San Francisco: Jossey-Bass.

Austin, J. T., Yaffee, R. A., & Hinkle, D. E. (1989). Logistic regression for research in higher education. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research* (Vol. V, pp. 379-410). New York: Agathor Press.

Barefoot, B. O, Gardner, J. N., Cutright, M., Morris, L. V., Schroeder, C. V., Schwartz, S. W., et al. (2005). *Achieving and sustaining institutional excellence for the first year of college.* San Francisco: Jossey-Bass.

Barefoot, B. O., Warnock, C. L., Dickinson, M. P, Richardson, S. E., & Roberts, M. R. (1998). Exploring the evidence: Reporting outcomes of first-year seminars. *Monograph of the National Resource Center for the first-year experience and students in transition, 2*(25).

Bean, J. P. (1980). Dropouts and turnover: The synthesis and test of a causal model of student attrition. *Research in Higher Education, 12,* 155-187.

Bean, J., & Eaton, S. B. (2001). The psychology underlying successful retention practices. *Journal of College Student Retention: Research, Theory and Practice, 3,* 73-89.

Bean, J. P., & Metzner, B. S. (1985). A conceptual model of nontraditional undergraduate student attrition. *Review of Educational Research, 55,* 485-540.

Boudreau, C., & Kromrey, J. (1994). A longitudinal study of the retention and academic performance of participants in freshman orientation course. *Journal of College Student Development, 35,* 444-449.

Cabrera, A. F. (1994). Logistic regression analysis in higher education: An applied perspective. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research* (Vol. X, pp. 225-256). New York: Agathor Press.

Cabrera, A. F., Castaneda, M. B., Nora, A., & Hengstler, D. (1992). The convergence between two theories of college persistence. *The Journal of Higher Education, 63,* 143-164.

Cabrera, A. F., Nora, A., & Castaneda, M. B. (1993). College persistence: Structural equations modeling test of an integrated model of student retention. *The Journal of Higher Education, 64,* 123-139.

Choate, L. H., & Smith, S. L. (2003). Enhancing development in 1st-year college student success courses: A holistic approach. *Journal of Humanistic Counseling, Education, and Development, 42,* 178-193.

Clark, M. R. (2005). Negotiating the freshman year: Challenges and strategies among first-year college students. *Journal of College Student Development, 46,* 296-316.

Cone, A. (1991). Sophomore academic retention associated with a freshman study skills and college adjustment course. *Psychological Reports, 69,* 312-314.

Cutright, M., & Siegel, M. J. (2005). Indiana University—Purdue University Indianapolis: Success and the city. In B. O. Barefoot, J. N. Gardner, M. Cutright, L. V. Morris, C. C. Schroeder, S. W. Schwartz, et al. (Eds.), *Achieving and sustaining institutional excellence for the first year of college* (pp. 325-348). San Francisco: Jossey-Bass.

Daddona, M. F., & Cooper, D. L. (2002). Comparison of freshmen perceived needs prior to and after participation in an orientation program. *NASPA Journal, 39,* 300-318.

Davig, W. B., & Spain, J. W. (2004). Impact of freshmen retention of orientation course. *Journal of College Student Retention: Research, Theory and Practice, 5,* 305-323.

DeMaris, A. (1992). *Logit modeling: Practical applications.* Newbury Park, CA: Sage.

Fidler, P. P. (1991). Relationship of freshman orientation seminars to sophomore return rates. *Journal of the Freshman Year Experience, 3,* 7-38.

Fidler, P. P., & Godwin, M. A. (1994). Retaining African-American students through the freshman seminar. *Journal of Developmental Education, 17,* 34-41.

Fidler, P. P, & Hunter, M. S. (1989). How seminars enhance student success. In M. L. Upcraft & J. N. Gardner (Ed.), *The freshman year experience: Helping students survive and succeed in college* (pp. 216-237). San Francisco: Jossey-Bass.

Fidler, P. P., & Moore, P. S. (1996). A comparison of effects of campus residence and freshman seminar attendance on freshman dropout rates. *Journal of the Freshman Year Experience, 8,* 7-16.

Glynn, J. G., Sauer, P. L., & Miller, T. E. (2003). Signaling student retention with prematriculation data. *NASPA Journal, 41,* 41-67.

Goodman, K., & Pascarella, E. T. (2006). First-year seminars increase persistence and retention: A summary of the evidence from *How College Affects Students. Peer Review, 8,* 26-28.

Gordon, V. P. (1989). Origins and purpose of the freshman seminar. In M. L. Upcraft & J. N. Gardner (Ed.), *The freshman year experience: Helping students survive and succeed in college* (pp. 183-197). San Francisco: Jossey-Bass.

Higher Education Research Institute. (2005, February). *How "good" is your retention rate?: Using the CIRP survey to evaluate undergraduate persistence.* Retrieved October 17, 2006, from http://www.gseis.ucla.edu/heri/PDFs/DARCU_RB.PDF

Hoff, M. P., Cook, D., & Price, C. (1996). The first five years of freshman seminars at Dalton College: Student success and retention. *Journal of the Freshman Year Experience, 8,* 33-42.

Hu, S., & St. John, E. P. (2001). Student persistence in a public higher education system: Understanding racial and ethnic differences. *The Journal of Higher Education, 72,* 265-286.

Hunter, M. S. (2006). Fostering student learning and success through first-year programs. *Peer Review, 8,* 4-7.

Hyers, A. D., & Joslin, M. N. (1998). The first-year seminar as a predictor of academic achievement and persistence. *Journal of the Freshman Year Experience and Students in Transition, 10,* 7-30.

Jarrell, C. L. (2004). Creating a foundation for student success from research to practice. *Community College Journal of Research and Practice, 28,* 513-524.

Jewler, A. J. (1989). Elements of an effective seminar: The university 101 program. In M. L. Upcraft & J. N. Gardner (Ed.), *The freshman year experience: Helping students survive and succeed in college* (pp. 198-215). San Francisco: Jossey-Bass.

Kuh, G. D., & Hu, S. (2001). The effects of student-faculty interaction in the 1990s. *The Review of Higher Education, 24,* 309-332.

Leppel, K. (2002). Similarities and differences in the college persistence of men and women. *The Review of Higher Education, 25,* 433-450.

Magun-Jackson, S. (1996). *The relationship of a freshman orientation course to minority and non-minority retention at a large urban university.* Unpublished doctoral dissertation, University of Memphis.

Morris, L. V., & Cutright, M. (2005). University of South Carolina: Creator and standard-bearer for the first-year experience. In B. O. Barefoot, J. N. Gardner, M. Cutright, L. V. Morris, C. C. Schroeder, S. W. Schwartz, et al. (Eds.), *Achieving and sustaining institutional excellence for the first year of college* (pp. 349-376). San Francisco: Jossey-Bass.

Murtuza, A., & Ketkar, K. W. (1995). Evaluating the cost-effectiveness of a freshman studies program on an urban campus. *Journal of the Freshman Year Experience, 7,* 7-26.

Pascarella, E. T. (1980). Student-faculty informal contact and college outcomes. *Review of Educational Research, 50,* 545-595.

Pascarella, E. T., & Terenzini, P. T. (1980). Predicting freshman persistence and voluntary dropout decisions from a theoretical model. *The Journal of Higher Education, 51,* 60-75.

Pascarella, E. T., & Terenzini, P. T. (1998). Studying college students in the 21st century: Meeting new challenges. *The Review of Higher Education, 21,* 151-165.

Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students volume 2: A third decade of research.* San Francisco: Jossey-Bass.

Pascarella, E. T., Terenzini, P. T., & Wolfe, L. M. (1986). Orientation to college and freshman year persistence/withdrawal decisions. *The Journal of Higher Education, 57,* 155-175.

Peng, C. J., So, T. H., Stage, F. K., & St. John, E. P. (2002). The use and interpretation of logistic regression in higher education journals: 1988-1999. *Research in Higher Education, 43,* 259-293.

Petersen, T. (1985). A comment on presenting results from logit and probit models. *American Sociological Review, 50,* 130-131.

Porter, S. R., & Swing, R. L. (2006). Understanding how first-year seminars affect persistence. *Research in Higher Education, 47,* 89-109.

Reason, R. D. (2003). Student variables that predict retention: Recent research and new developments. *NASPA Journal, 40,* 172-191.

Reynolds, L. M., & Weagley, R. O. (2003, April). Academic persistence in higher education. Paper presented at the 49th annual conference of the American Council on Consumer Interests, Atlanta, GA.

Ryan, M. P., & Glenn, P. A. (2004). What do first-year students need most: Learning strategies instruction or academic socialization? *Journal of College Reading and Learning, 34,* 4-28.

Schnell, C. A., & Doetkott, C. D. (2003). First year seminars produce long-term impact. *Journal of College Student Retention: Research, Theory and Practice, 4,* 377-391.

Schwartz, S. W., & Swing, R. L. (2005). Kalamazoo College: No stone left unturned. In B. O. Barefoot, J. N. Gardner, M. Cutright, L. V. Morris, C. C. Schroeder, S. W. Schwartz, et al., *Achieving and sustaining institutional excellence for the first year of college* (pp. 113-141). San Francisco: Jossey-Bass.

Sidle, M. W., & McReynolds, J. (1999). The freshman year experience: Student retention and student success. *NASPA Journal, 36,* 288-300.

Somers, P., Woodhouse, S., & Cofer, J. (2004). Pushing the boulder uphill: The persistence of first-generation college students. *NASPA Journal, 41,* 418-435.

Starke, M. C., Harth, M., & Sirianni, F. (2001). Retention, bonding, and academic achievement: Success of a first-year seminar. *Journal of the Freshman Year Experience, 13,* 7-35.

Strumpf, G., & Hunt, P. (1993). The effects of an orientation course on the retention and academic standing of entering freshmen, controlling for the volunteer effect. *Journal of the Freshman Year Experience, 5,* 7-14.

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research, 45,* 89-125.

Tinto, V. (1987). *Leaving college: Rethinking the causes and cures of student attrition.* Chicago: University of Chicago Press.

Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.). Chicago: University of Chicago Press.

Tokuno, K. (1993). Long-term and recent student outcomes of the freshman interest group program. *Journal of the Freshman Year Experience, 5,* 7-28.

The University of Memphis. (1994). Faculty guide: ACAD1100 introduction to the University. Memphis, TN: The University of Memphis.

U.S. Department of Education, National Center for Education Statistics. (2003). *The Condition of Education 2003,* NCES 2003-067, Washington, DC: U.S. Government Printing Office.

U.S. Department of Education, National Center for Education Statistics. (2006). *Placing college graduation rates in context: How 4-year college graduation rates vary with selectivity and size of low-income enrollment,* NCES 2007-161, Washington, DC: U.S. Government Printing Office.

Williford, A. M., Chapman, L. C., & Kahrig, T. (2001). The university experience course: A longitudinal study of student performance, retention, and graduation. *Journal of College Student Retention: Research, Theory and Practice, 2,* 327-340.

Wirt, J., Choy, S., Rooney, P, Provasnik, S, Sen, A., & Robin, R. (2004). *The condition of education 2004* (NCES 2004-077). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

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