Factors Influencing College Persistence for First-Time Students

By Sheilynda Stewart, Doo Hun Lim, and JoHyun Kim

Abstract: ***Using Tinto's (1993) longitudinal model of institutional departure, this study examined demographic variables, family characteristics, precollege and college academic performance factors, and extent to which mandatory placement in remedial courses predict persistence at a public research institution. This study also examined the relationship between ACT composite scores, high school GPA, first-semester college grade point averages, and persistence. Longitudinal data with 3,213 students were analyzed using factorial analysis of variance (ANOVA), Pearson's product-moment correlations, and multiple regression analysis. Results showed significant mean differences for ethnicity, financial aid, and remedial status on persistence. High school GPA and first-semester college GPA were found to be significant predictors of persistence. Findings indicated that traditional college students who were academically prepared to take college-level coursework were more likely to persist than students placed in mandatory remedial coursework. Implications from this study suggest that support services such as tutoring, mentoring, counseling services, early intervention systems, and financial aid assistance will improve study participants' academic deficiencies and increase persistence beyond the first year.***

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Since the early nineteenth century, American colleges and universities addressed deficiencies in students' reading, writing, and mathematics skills. A chronology of developmental education delineates a long history of academic assistance in American colleges and universities (Cohen, Brawer, & Kisker, 2013). Opponents of remedial education have argued that the widespread need for remedial education at colleges and universities has ultimately increased costs to the students and taxpayers for education that should have been mastered in high school (Hoyt & Sorenson, 2001; Terry, 2007). In this study, remedial education is defined as coursework that compensates for a lack of basic reading, writing, and arithmetic skills necessary to succeed in a college-level course. Student persistence is a major concern for most universities. According to the National Center for Educational Statistics (2011), 23% of full-time students who entered a four-year institution for the first time in 2008 did not remain at their college in the subsequent fall.

A major issue facing higher education institutions serving underprepared and underrepresented populations is addressing transition issues for traditional aged college students during the first year (Raab & Adam, 2005). Researchers have become increasingly aware of the social and economic factors that contribute to how well students transition from secondary to postsecondary institutions. If students do not resolve transition issues in the first year, especially during the first semester, the likelihood of persisting at the same institution is diminished, which affects future enrollments and graduation rates (Raab & Adam, 2005).

Evidence suggests that academic intervention programs such as tutoring programs, academic advising, and counseling programs have at least a modest effect with helping students overcome precollege academic deficiencies and associated disadvantages (Pascarella & Terenzini, 2005). Findings from previous research (Braley & Ogden, 1997; Easterling, Patten, & Krile, 1995; Weissman, Silke, & Bulakowski, 1997) show that remediation efforts at higher education institutions provide short-term benefits by increasing academic performance for underprepared students within the first year in college and also provide long-term retention benefits ranging from 2 to 6 years.

Literature Review

Research conducted by ACT (2007) from their curriculum-based measure of college readiness benchmark scores have shown that if high school students are ready for college, then dropout rates and remediation costs are reduced. Subsequently, more students will persist and graduate from college.

Effect of Remediation on Persistence

Among numerous studies investigating the effect of placement in remedial coursework, findings and conclusions have been mixed. As an example, Hoyt's (1999) study revealed that remediation had no significant relationship with persistence. Research by Livingston (2007) examined

demographic, financial, and educational factors related to graduation from Virginia's public colleges and universities. His analysis of the 1993 and 1997 admission cohorts using regression analysis revealed that students who were not enrolled in remedial courses were more likely to persist and graduate than students who were enrolled in remedial courses.

In another study, Adelman (1998) examined the relationship between a student's need for remedial courses and degree completion by examining college transcripts of high school students who graduated in 1982. Findings from his study revealed that 60% of college students who did not take remedial courses and 55% of those students who completed only one remedial course earned a college degree by the age of 30. In contrast, only 35% of the students who completed five or more remedial courses earned either a bachelor's or associate's degree. Findings from a recent study by Adelman (2006) showed that the number of remedial courses taken influenced the time to degree from college, but he did not find a significant relationship between remedial courses taken and graduation with a bachelor's degree.

Effect of Student Demographic Attributes on Persistence

Varying results about the effects of gender differences on persistence are reflected in the literature. Corbett, Hill, and Rose (2008) revealed that women attend and graduate from college at higher rates than their male peers. Results from a study by Hagedorn (2005) revealed that graduation rates for female students were 20% higher than male students. In contrast, findings from other researchers (Horn, Peter, & Rooney, 2002; Pritchard & Wilson, 2003) revealed that gender did not influence persistence. Findings from Reason (2003) revealed little or no significant difference between the genders on dropout behavior.

There have also been varying results from studies conducted on the impact of ethnic differences on persistence. Hagedorn, Maxwell, and Hampton (2001) reported that Black students had lower persistence rates than White students. Braxton, Duster, and Pascarella (1988) revealed that minority students were more likely to depart from college than their peers. In contrast, research findings utilizing national samples of students attending four-year colleges disclosed greater persistence of Black students at four-year institutions than White students after controlling for socioeconomic status, aspiration, and past academic achievement (Astin, 1971; Peng & Fetters, 1978). Findings from a study by Pascarella and Terenzini (1978) revealed significant and unique interactions in gender, major, and race/ethnicity on dropping out voluntarily.

Effect of Precollege Academic Experiences on Persistence

High school grades and scholastic measures are recognized by many researchers as the most reliable predictors of academic achievement and college persistence (Allen, Robbins, Casillas, & Oh, 2008; Astin, 1971, 1973, 1997; Hoffman & Lowitzi, 2005). Researchers have found high school grades to be stronger predictors of college academic achievement than any other factors (Hoffman & Lowitzi, 2005; Livingston, 2007; Munro, 1981; Zheng, Saunders, Shelley, & Whalen, 2002). Astin (1997) analyzed data on 52,898 students attending 365 baccalaureate institutions using average high school grades to generate a regression formula to estimate institutional expected retention rates. Findings from this national longitudinal retention study revealed that high school grades are viable predictors of college persistence.

Numerous studies have revealed a positive relationship between standardized test scores, such as the SAT and ACT, and persistence (McGrath & Braunstein, 1997; Noble, 2003; Stillman, 2007; Tracey & Robbins, 2006). However, other researchers (Munro, 1981; Pascarella & Terenzini, 1983) indicated that standardized test scores did not have a direct link to a student's decision to persist and drop out in college. Tracey and Robbins (2006) examined the relationship between ACT composite scores and persistence by analyzing first-time freshmen enrollment data from 87 colleges and universities from four states for students enrolled between 1994 and 2003. Results from the hierarchical linear regression analysis revealed a statistically significant relationship between ACT scores and persistence.

Other researchers...revealed that gender did not influence persistence.

Effect of Socioeconomic Status/ Financial Aid on Persistence

In investigating the relationship of parental income to persistence, many research studies came to mixed conclusions. Cabrera, Castaneda, Nora, and Hengstler (1992) reported that ability to pay for college expenses can moderate the effects of other variables on persistence. In contrast, prior research by Astin (1973) revealed that family income was not a direct factor related to college dropout behavior. Findings from Stage and Rushin's (1993) study revealed that parental income was the third-most useful factor for predicting persistence after student high school GPA and parental educational level. Corbett, Hill, and Rose (2008) showed that disparities by race/ethnicity and family income—specifically for African-American, Hispanic, and low-income students—on persistence were present. Furthermore, most students from families with higher incomes achieve higher scores on the ACT and SAT tests and move on to enroll in colleges and universities.

In regard to the effect of student aid on persistence, studies also yielded varying results. Several researchers assert that economic factors influence where students decide to go to college and how long they remain (Paulsen & St. John, 2002; Tinto, 1993). However, a financial aid package that successfully attracts students to a college or university may not be enough to keep a student there after being faced with the realities of cost of living (St. John, 2000). Although some researchers indicate that receiving financial aid influences persistence (Bean, 1985; Cabrera, Nora, & Castañeda, 1992; Ishitani & DesJardins, 2002; Voorhees, 1985), other researchers assert that student aid is less influential in supporting persistence since students respond to price and subsidies (e.g., debt burden or inadequate financial aid) in their persistence decisions (St. John & Starkey, 1995).

Cabrera, Nora, and Castañeda (1992) examined the role of finances on college persistence utilizing a causal model by linear structural equations, and their findings revealed a significant direct effect of financial aid on college GPA and a student's intent to persist. Voorhees (1985) examined the impact of student finances on persistence of freshmen in high financial need using structural equation modeling to allow for a priori relationships among variables. Noncampus-based loans and grants showed positive direct effects on new freshman persistence regardless of the type and/or amount of campus-based aid. Furthermore, there was a positive significant effect of federal campus-based financial programs on persistence.

College Academic Performance and Persistence

Researchers have sought to understand the influence of college academic performance on persistence by conducting both national and institutional studies from the first to the second year and beyond (Gifford, Briceno-Perriott, & Mianzo, 2006). Pascarella and Terenzini (2005) found college grades to be one of the most consistent predictors of student persistence and degree completion. Reason (2003) reported a significant relationship between college academic performance and persistence.

With an intention to understand the influence of first-year college grades on graduation, Adelman (1998) examined transcript and survey data of high school sophomores. Using a longitudinal approach following students for 12 years after graduating from high school, his study revealed that first-year

college grades were positive predictors of degree completion. In McGrath and Braunstein's (1997) study examining the influence of demographic, academic, financial, and social factors on persistence, the findings indicated that the first-semester college GPA as the strongest variable in predicting persistence between the first and second years.

Theoretical Framework

Using Tinto's (1993) longitudinal model of institutional departure as its theoretical framework, this study examined the following variables to determine any significant differences of persistence between students placed in remedial courses and students not placed in remedial courses:

- personal attributes, operationalized as student demographic attributes (measured as gender and ethnicity);
- family background (measured as family income and financial aid status);
- prior schooling, operationalized as precollege academic experiences (measured as high school GPA and ACT composite score); and
- college academic performance (measured as college cumulative grade point average and remedial status).

Although some researchers identified variables that correlate with student persistence (Hey, Calderon, & Seabert, 2003; Reason, 2003), other researchers examined how variables influence a student's decision to leave college (Bean, 1985; Pascarella & Terenzini, 1983; Robbins, Oh, Le, & Button, 2009; Spady, 1970; Tinto, 1975, 1987, 1993). Much attention has been given to student background, educational and institutional goals and commitment, and academic and social integration to identify the constructs that best explain persistence patterns leading to graduation from college.

In Tinto's (1987) longitudinal model of institutional departure, the persistence process is regarded as a function of a student's academic and social interactions of their college experiences over multiple semesters or years. This model focuses on explaining dropout behavior from institutions of higher education and is viewed as an institutional model of dropout. Furthermore, Tinto (1987) purported that students come to college with a range of background characteristics and goal commitments that influence college performance. He acknowledged that finances affect a student's decision to persist or leave an institution in his later model (Tinto, 1993).

Extensive research has been conducted on various student groups from different institutions to analyze the relationships and predictability of variables that influence persistence and retention. Tinto's (1993) longitudinal model of institutional departure focuses on examining student persistence/dropout behavior of traditional students at four-year colleges and universities. Tinto (1993) acknowledged that students attending higher education institutions enter with a wide range of personal attributes, family background and community characteristics, skills, financial resources, dispositions, and precollege academic experiences. His model, which included family background, skills and abilities, and prior schooling as pre-entry attributes, was intended to "speak to the longitudinal process of departure as it occurs within an institution of higher education" (p. 112). Tinto's model was identified as appropriate for framing this study because the methodology focuses on examining persistence behavior of traditional aged students attending college for the first time. Specifically, in this study demographic, pre-entry, family, and college academic performance variables were examined to predict persistence of first-time entering college students at a four-year public university.

Research Purpose and Questions

The purpose of this study was to examine what demographic, family characteristics, precollege, and college academic performance factors predict persistence between students placed in remedial courses and students not placed in remedial courses at a four-year public research institution. The review of the literature revealed varying results from studies on the effects of gender, race/ethnicity, ACT composite scores, family income, financial aid status, and remediation status variables on persistence; however, high school and college grades were consistently reported as strong predictors of persistence, which contributed to the development of the research questions. In order to address the issue of mixed research findings, the following research questions were developed for this study:

1. Are there statistically significant differences in persistence by student demographics (gender and race/ethnicity) and family characteristics (family income and financial aid status) between students who were placed in remedial courses and students who were not placed in remedial courses?
2. Is there a statistically significant relationship between high school grade point average, ACT composite scores, college cumulative grade point average, and persistence?
3. Do student demographic factors (gender and race/ethnicity), precollege (high school grade point average, and ACT composite score), family characteristics (family income and financial aid status), and college academic performance (college cumulative grade point average and remedial status) predict persistence?

Method

This study used an ex post facto design to test hypotheses about main effects on persistence (Gall, Borg, & Gall, 1996) because the study examined group differences on persistence after the independent variables had occurred between students placed or not placed in remedial courses. Existing secondary longitudinal data used in this study were obtained from the state higher education database.

Participants and Setting

The study was conducted at a large four-year pubic research institution located in a residential setting with a total student population over 27,000. The subject pool for this study was comprised of 3,213 first-time, full-time and part-time, degree-seeking freshmen between 17 and 21 years of age who were enrolled continuously during the Fall 2006 semester through the Fall 2008 semester. Among the population of 3,213 students, the percentage of females in this study accounted for 52.9% (n = 1,701), whereas males accounted for 47.1% (n = 1,512). The overall ethnic proportion of students for this study consisted of predominantly White/Non-Hispanic (75.5%) students, whereas 6.2% were African American/Non-Hispanic, 7.8% were American Indian/Alaska Native, 6.0% were Asian/Pacific Islander, and 4.5% were Hispanic. The overall proportion of participants awarded financial aid was 83.8%, and 16.2% of the population was not awarded financial aid. The overall proportion of students reporting a total family income less than $50,000.01 was 23.7%, whereas 76.3% reported a total family income greater than $50,000. Overall, 10.3% were remedial students, and 89.7% were nonremedial students.

The population for this study contained two groups: (a) 332 Fall 2006 freshmen who were placed in at least one remedial course and (b) 2,881 Fall 2006 freshmen who were not placed in remedial courses

Table 1

Mean Differences in Gender by Remediation Status

	Remedial Students			Nonremedial Students		
Gender	***N***	***M***	***SD***	***N***	***M***	***SD***
Male	134	4.58	1.787	1378	4.67	1.558
Female	198	4.43	1.803	1503	4.71	1.501

(see Table 1). In Oklahoma, students are required to enroll in remedial courses if they score below 19 on ACT subject tests and do not demonstrate proficiency by an approved entry-level secondary assessment and placement test. These state-mandated remedial noncredit courses are for students who do not demonstrate minimum competencies in mathematics, English, reading, and science.

Procedure

The student demographics (race/ethnicity and gender), family characteristics (family income and financial aid status), precollege academic performance (high school GPA and ACT composite scores), and college academic performance (college cumulative GPA and remedial status) independent variables were examined to determine factors that predict the dependent variable, college persistence. The race/ethnicity, gender, family income, and high school GPA were self-reported data provided by the students. Persistence was measured as a discrete variable with a range from 1 to 7. Persistence scores were calculated by coding a "1" for the Fall 2006 semester and each subsequent semester a student enrolled and a "0" for each semester a student did not return following the Fall 2006 semester through the Fall 2008 semester (see Figure 1). Measuring persistence as a discrete variable allowed for greater precision and description of the effects on the dependent variable. The independent variables, gender, race/ethnicity, family income, financial aid status, and remedial status, were measured as dichotomous variables, and high school GPA, first-semester college cumulative GPA, and ACT composite scores were measured as continuous variables.

The data for this study were analyzed using the Statistical Package for Social Sciences (SPSS), version 17.0 for Windows. Research questions were restated in the null form to test the null hypotheses and examine the relationship of gender, race/ethnicity, family income, financial aid status, and remedial status on persistence. Descriptive statistics were used to summarize the status of each variable using a frequency distribution, means (*M*), and standard deviations (*SD*). Inferential statistics used to answer each research question included the factorial analysis of variance (ANOVA), Pearson's product-moment correlations, and multiple regression analysis.

The factorial ANOVA was used to test group differences in means on persistence between students placed in remedial courses and students not placed in remedial courses. Factorial ANOVAs allowed the researcher to assess the effects of two or more independent variables on a single dependent variable and any possible combined effects of the independent variables within the same analysis (Ary, Jacobs, & Razavieh, 2002). The effect size is also reported, where Cohen's (1992) conventional guidelines state that .01, .06, and .14 represent a small, medium, and large effect size, respectively.

Pearson's product-moment correlation analysis helped identify relationships and correlations between variables such as high school GPA, ACT composite score, college cumulative GPA, and persistence. Multiple regression analysis was used to analyze the relationships between variables and determine how much of the variance was accounted for. Gender, race/ethnicity, ACT composite score, high school GPA, family income, financial aid status, college cumulative GPA, and remedial status were used as predictor variables and persistence as the criterion variable. The alpha level of significance for this study was set at.05 (Ary, Jacobs, & Razavieh, 2002).

Findings

On average, 60.5% of remedial students persisted for 5 or more semesters, and 39.5% persisted for 4 semesters or less. Furthermore, 73.2% of nonremedial students persisted for 5 or more semesters, whereas 26.8% persisted less than 5 semesters(see Figure 1).

Specific findings related to the first research question follow: For gender, there was not a statistically significant main effect of gender on persistence, $p = .528$, (see Table 2). There was no significant interaction between gender and remedial status in that overall remedial status differences did not depend on gender, $p = .302$. Since there was no statistically significant mean difference found in gender on persistence, the first null hypothesis was maintained. However, there was a statistically significant main effect obtained for remediation status, $p = .047$, although the effect size of the difference in overall remedial status was very small (0.001), and the observed power was moderate (.511). Students who scored higher on placement instruments and were not placed in remedial courses had higher mean scores and were more likely to persist ($M = 4.69$, $SD = 1.528$) than students placed in remedial courses ($M = 4.49$, $SD = 1.795$).

In the case of ethnicity, a statistically significant main effect was obtained for ethnicity

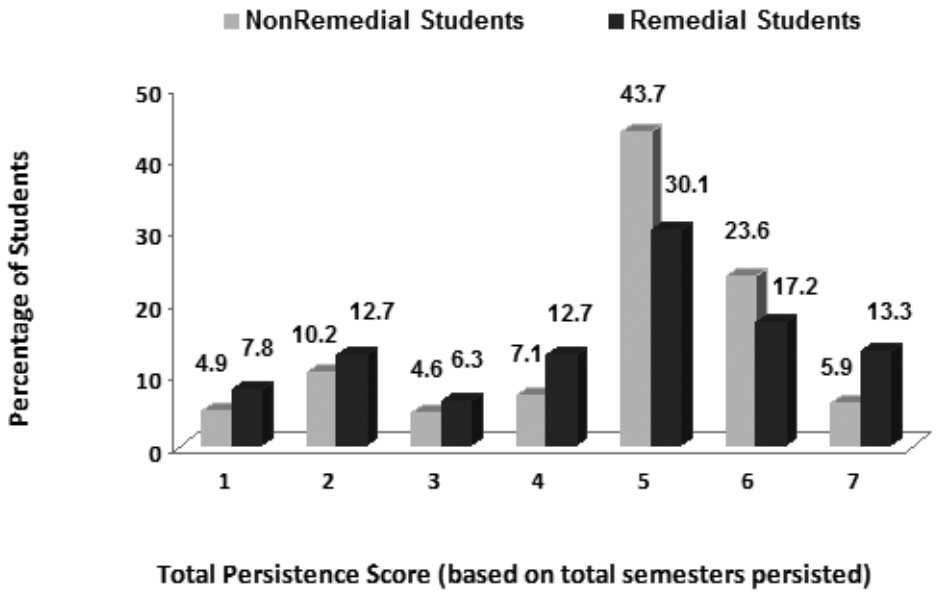

Figure 1. **Total persistence scores from Fall 2006 through Fall 2008 for all study participants.**

Table 2

ANOVA Summary Table for Gender on Persistence by Remediation Status

Source	Sum of Squares	*df*	Mean Square	*F*
Gender	0.968	1	0.968	0.399
Remediation Status	9.582	1	9.582	3.948
Gender × Remediation Status	2.585	1	2.585	1.065
Error	7789.476	3209	2.427	
Total	77832.000	3213		
Corrected Total	7803.989	3212		

on persistence, $p < .01$; however, the effect size of the difference in overall remedial status was small (0.010), and the observed power was very strong (.999). Since the Games-Howell post hoc comparison is a powerful and widely used procedure when population variances are uncertain and sample sizes are unequal (Field, 2000), multiple Games-Howell post hoc comparisons were computed to determine which ethnic group means resulted in the significant differences. Comparisons revealed a statistically significant mean difference between the African-American/non-Hispanic and American-Indian/Alaska-Native students, between White/non-Hispanic and American-Indian/Alaska-Native students, and between Asian/Pacific-Islander and American-Indian/Alaska-Native students on persistence. Among the ethnic groups, the overall group means revealed that the Asian/Pacific-Islander students were most likely to persist ($M = 4.97$, $SD = 1.394$), followed by African-American/non-Hispanic ($M = 4.87$, $SD = 1.604$), White/non-Hispanic ($M = 4.69$, $SD = 1.536$), Hispanic ($M = 4.54$, $SD = 1.546$), and American Indian/Alaska Native ($M = 4.13$, $SD = 1.736$). As shown in Table 3, no significant main effect between remedial and nonremedial students was obtained on persistence, $p = .404$. No significant interaction was obtained between ethnicity and remediation status on persistence, $p = .305$, which indicated that overall ethnic differences did not depend on the level of remediation status. Since the only statistically significant main effect was found in ethnicity, the second null hypothesis was partially rejected.

No statistically significant main effect was obtained for family income, $F(1, 626) = 2.507$, $p = .114$, and remediation status, $F(1, 626) = 1.086$, $p = .298$. There was no significant interaction found between family income and remedial status on persistence, $F(1, 626) = .680$, $p = .410$. Therefore, the third null hypothesis was maintained.

A statistically significant main effect was obtained for financial aid status, $p < .01$ (see Table 4); however, although the effect size of the difference in overall financial aid status was small (0.004), the observed power was very high (.947). Students who received financial aid were more likely to persist ($M = 4.73$, $SD = 1.506$) than students who were not awarded financial aid ($M = 4.33$, $SD = 1.770$). The main effect of remediation was not significant, $p = .083$. There was no significant interaction between financial aid status and remedial status in that overall financial aid differences did not depend on remediation, $p = .847$. Since the only significant main effect obtained was financial aid status on persistence, the fourth null hypothesis was partially rejected.

Table 3

ANOVA Summary Table for Ethnicity on Persistence by Remediation Status

Source	Sum of Squares	*df*	Mean Square	*F*
Ethnicity	80.411	4	20.103	8.386
Remediation Status	1.673	1	1.673	0.698
Ethnicity × Remediation Status	11.580	4	2.895	1.208
Error	7678.390	3203	2.397	
Total	77832.000	3213		
Corrected Total	7803.989	3212		

Table 4

ANOVA Summary Table for Financial Aid Status on Persistence by Remediation Status

Source	Sum of Squares	*df*	Mean Square	*F*
Financial Aid Status	30.862	1	30.862	12.825
Remediation Status	7.256	1	7.256	3.015
Financial Aid Status × Remediation Status	0.090	1	0.090	0.037
Error	7722.129	3209	2.406	
Total	77832.000	3213		
Corrected Total	7803.989	3212		

Table 5

Summary Correlations Between Academic Factors and Persistence

Variable	*M*	*SD*	*r*
High School GPA	3.58	0.362	.177*
ACT Composite Score	25.61	3.920	.118*
1st-Semester College Cumulative GPA	2.99	0.816	.422*

Note. * Correlation is significant at the .01 level (2-tailed).

Positive correlations were found related to the second research question (see Table 5). A statistically significant positive, although weak, correlation existed between high school GPA and persistence, $p < .01$ (see Table 5). Students entering college with high academic scores from high school were likely to persist through their sophomore year. Therefore, the fifth null hypothesis was rejected. Results from Pearson's correlation coefficients also revealed a positive correlation, although weak, between ACT composite score and persistence, $p < .01$, implying students with high ACT scores were likely to persist through their sophomore year. Therefore, the sixth null hypothesis was rejected. In addition, a moderately strong significant positive correlation existed between the first- semester college cumulative GPA and persistence scores, $p < .01$. Students with a high first-semester college GPA were likely to persist through their sophomore year. Therefore, the seventh null hypothesis was rejected.

A stepwise multiple regression analysis was performed using gender, race/ethnicity, ACT composite score, high school GPA, family income, financial aid status, college cumulative GPA, and remedial status as predictor variables and persistence as the criterion variable. The independent variable with the strongest correlation on the dependent variable is entered into the model first (see Table 6, p. 18). The first-semester college cumulative GPA was entered first into the prediction equation model as the strongest predictor variable, and all other variables were removed. The first-semester college cumulative GPA variable accounted for slightly over 24% (.241) of variance on the model and had a strong correlation (.491) on persistence.

The stepwise method entered high school GPA into the second prediction model as the next variable with the highest partial correlation on

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persistence after controlling for the first independent variable. High school GPA accounted for an additional 2% of variance in Model 2 (see Table 7). Results from the final stepwise regression show that first-semester college GPA and high school GPA revealed a significant contribution to Model 2 on persistence, $p < .01$. Model 2 accounted for slightly over 26% ($R^2 = .261$) of the variance and demonstrated a strong correlation coefficient value, $R = .511$. The results show that first-semester college cumulative GPA had a statistically significant positive effect on persistence, $p < .01$. High school GPA had a statistically significant inverse effect on persistence, $p < .01$. Although two predictor variables, first-semester college cumulative GPA and high school GPA, were statistically significant predictors of persistence, the remaining variables (gender, race/ethnicity, ACT composite score, family income, financial aid, and remedial status) did not contribute to the final multiple regression model. Therefore, the eighth null hypothesis was partially rejected.

Table 6

Multiple Regression Model Summary

Variable	*R*	R^2	Adj. R^2	*SE* of the Estimate
1st-Semester College Cumulative GPA	.491	.241	.240	1.315
High School GPA	.511	.261	.259	1.299

Discussion

The results found in this study—a statistically significant main effect for race/ethnicity on persistence—are consistent with findings from the extant literature (Astin, 1971; Pascarella & Terenzini, 1978; Peng & Fetters, 1978). It is interesting to note findings consistent with research conducted almost two decades previous to this study.

Our study also revealed consistent findings with studies reported in the literature review (Bean, 1985; Cabrera, Nora, & Castañeda, 1992; Ishitani & DesJardins, 2002; Voorhees', 1985) relative to the effect of financial aid and student persistence. A statistically significant relationship was found between financial aid status and persistence. The common requirement to maintain a passing GPA to continue receiving aid, loans, or grant funds may contribute to this relationship. Another factor may be a reduction of hours spent at jobs by aid-receiving students.

Findings from this study revealed that high school GPA and the first semester college cumulative GPA together explain 26% of persistence in college. Results from this study show an inverse relationship exists between high school GPA and persistence, where an increase in high school GPA is related to a decrease in persistence at the same institution. This result suggests that high academic performance in high school may not predict persistence at the same institution beyond the first year.

Limitations

As noted, the data reported for this study represented students at one public research institution. The single institutional setting limits generalizability of findings to other institutions. In addition, the nature of freshmen student characteristics of this study may not be representative of those students at other institutions. Data collected on total family income were self-reported by high school students. This presents a limitation since high school students may have lacked sufficient knowledge to complete this question at the time the ACT exam was administered.

Implications for Practice

The effects of student financial aid on persistence could be assessed to monitor enrollment management outcomes and student financial aid packaging options. As financial aid packages change due to state and federal policy changes, students may ultimately base their decision on where to attend college on the amount of financial aid awarded. In addition, students may consider the cost of tuition, meals, lodging, and location when selecting where to attend college or re-enroll in college. Given the unpredictability of the availability of state appropriations and federal grants, researching the effects of student financial aid on persistence becomes increasingly important. Accurate, current information may allow university administrators and financial aid officers to make better decisions on how to optimize their budgets with financial aid packages and communicate options to students in an effort to increase persistence rates.

Study findings related to ethnicity and persistence have implication for practice as well. Evidence from this study suggests that cultural diversity programs that educate the campus community on diverse cultural traditions may build a more inclusive campus environment for Black students attending predominately White campuses. College administrators and academic/student affairs officers should ensure that special population groups continue to have access and are encouraged to utilize the cultural and social support, advising, and counseling programs to foster student success and increase student persistence.

The task of preparing students to succeed in higher education and increasing student success, persistence, and graduation rates are the responsibility of both the student and higher education institution. Considering the importance of academic performance to persistence in college, an academic plan or a centralized advising center may help increase persistence of students by designing counseling and advisement sessions to resolve issues related to their academic interests and services, selecting a major, and future goals (Wilson, Mason, & Ewing, 1997).

Conclusion

Overall, the conclusion from this study was that traditional aged college students who were academically prepared to take college-level coursework at a selective public college were more likely to persist beyond the first year at the same institution than students who are placed in mandatory remedial coursework. It is imperative that students resolve academic and transition issues early during the first year to help underprepared students be successful in higher education. Interventions, such as tutoring programs, academic advising, and counseling programs are designed to help underprepared students succeed in college.

The results of this study agree with an outcome reported by other researchers where high school grades and scholastic measures are the most reliable predictors of academic achievement and college persistence (Allen, Robbins, Casillas, &

Table 7

Multiple Regression Coefficients Model Summary

Model		Unstandardized Coefficients		Standardized Coefficients	
		B	*SE*	Beta	*t*
1	(Constant)	2.253	.189		11.902
	First-Semester College Cumulative GPA	0.859	.062	.491	13.783
2	(Constant)	4.501	.596		7.555
	First-Semester College Cumulative GPA	0.999	.071	.572	14.074
	High School GPA	−0.731	.184	−.162	−3.974

Oh, 2008; Astin, 1997; Hoffman & Lowitzi, 2005). High school GPA and the first-semester college GPA were found to be significant predictors of persistence. Providing academic assistance not only helps underprepared students achieve their full potential but also strengthens American higher education institutions' goals to maintain enrollments, increase financial viability, and meet standards of excellence.

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NADE News: Comment on the Higher Education Act Reauthorization

By Gwenn Eldridge, NADE President

This is clearly a time of transformation and reform in higher education, reform that often centers on the effectiveness of developmental education. We know that good work is being done throughout the country by developmental educators who are working diligently to provide the support that many students need. We also know that colleges and universities are under the microscope of administration, legislators, and funders who all are pushing for greater retention and success rates. The pressure coming from many fronts to raise completion rates has resulted in a review of the Higher Education Act that affects students and educators alike.

The National Association for Developmental Education Executive Board recently offered comments on the act, which is being reviewed for a Senate vote. In its statement, the board affirmed the importance of the legislation that will directly affect the students with whom developmental educators work each day.

The NADE Board comments submitted to Senator Lamar Alexander, chair of the Senate Education Committee, focused in the following areas:

- the reinstatement of year-round Pell,
- increased funding for dual enrollment and early college high school programs,
- new state competitive grants for reforms to improve higher education persistence and completion, and
- investment in the Minority Serving Institutions Innovation Fund.

The board supported much of the language in the bill, which proposes increased funding that will benefit students. Additionally, the board expressed concern about some of the language of the legislation that may result in too many restrictions on institutions that would, in essence, create barriers for institutions to successfully secure the grants. The board also encouraged language that allows grant-funded initiatives sufficient time for evaluation and revision that will enable them to secure continued funding. Further, the NADE comment encouraged the inclusion of all minority groups in the section of the bill that addresses funding for minority-serving institutions.

To see the complete comment on the act, visit nade.net.

NADE: Helping underprepared students prepare, prepared students advance, and advanced students excel!
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