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ABSTRACT

This study investigated the efficacy of noncognitive variables and academic background as a function of student ethnic group for the prediction of college grade performance and persistence. New freshmen during four consecutive fall semesters were administered the Cooperative Institutional Research Program Freshmen Survey. The sample included 251 Hispanic, 378 Asian-American, 644 African-American, 15 Native American, and 8,301 White students. Data concerning student attitudes, family characteristics, and high school background were evaluated. From these items, seven noncognitive and other variables were constructed: achievement expectancies, academic self-concept, financial goals, social goals, desire for recognition, parental education, and high school curriculum. All variables were analyzed for their efficacy as predictors of college attrition. American College Testing Program Composite scores, high school class percentile rank, academic self-concept and expectations, high school curriculum, and parental education significantly correlated with grade point average and enrollment status after 2 and 4 years. Financial and social goals were negatively correlated with achievement outcomes. Some differences between student ethnic groups on effective predictors of subsequent achievement were found. Ten tables give data on the correlations found. (Contains 35 references.) (CK)

College Persistence and Grade Outcomes: Noncognitive Variables as Predictors for African-American, Asian-American, Hispanic, Native American, and White Students

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Jean Endo
Editor
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Abstract

There is a continuing interest in the identification of effective predictors of minority students' academic achievement in college. The purpose of this study was to investigate the efficacy of noncognitive variables and academic background for the prediction of college grade performance and persistence. Students included in this study began as new freshmen during four consecutive fall semesters (N = 9,589). There were several significant findings from this study and these results provide a number of direction for further research.

There is a continuing interest in the identification of effective predictors of student achievement in college. Relationships between traditional measures, such as admissions test scores or high school achievement, and subsequent college outcomes have been investigated. More recently, research efforts have been directed toward assessing the efficacy of student attitudes as predictors of academic achievement. Student characteristics such as academic self-concept, achievement expectancies, and goals have been referred to as noncognitive variables (Messick, 1979). An important consideration in conducting research on student achievement is the choice of criterion measures of achievement; two measures of student achievement that have been commonly investigated are grade performance and persistence (Hartnett & Willingham, 1980). The purpose of this discussion is to review the findings of previous research on the efficacy of academic background and noncognitive variables for the prediction of college students' grade performance and persistence.

Findings from recent research indicate that students' noncognitive characteristics are significant predictors of subsequent college achievement. For example, academic self-concept has been shown to be significantly related to the grade performance of college students in specific courses (Wheat, Tunnell, & Munday, 1991; Wilhite, 1990). Gerardi (1990) found a significant relationship between academic self-concept and the subsequent grade performance of minority engineering students. Students' expectations of their academic performance have also been found to be significant predictors of college grade performance. Achievement expectancies have been shown to predict grades in general education courses (Gordon, 1989), exam grades in general education courses (Holen & Newhouse, 1976), and overall grade perfor-

mance (House, 1993). In addition, the significant relationship between achievement expectancies and grade performance has been found even after controlling for the effects of variables such as student goals, self-confidence, and prior achievement (Vollmer, 1986).

With regard to student persistence in college, several studies have examined the efficacy of noncognitive variables as predictors of student attrition and conflicting results have been noted (House, 1992). For example, Pascarella (1985) failed to find a significant relationship between academic self-concept and subsequent bachelor's degree completion while Ethington (1990) failed to find a significant relationship between achievement expectancies and subsequent degree completion. However, recent results suggest that students who failed to persist in college did not have clear academic goals and were less committed to college persistence (Gerdes & Mallinckrodt, 1994). Finally, other noncognitive variables such as family characteristics were predictive of college persistence in a study from the High School and Beyond longitudinal survey (Stage & Rushin, 1993). Consequently, further research is needed to examine the relationship between noncognitive variables and college attrition.

Several studies have examined the relationship between noncognitive variables and the college persistence of minority students. There is a continuing interest in the enrollment of minority students in higher education (Carroll, 1988; Smith, 1991) and in the identification of predictors of minority student achievement in college. Trippi and Stewart (1989) found that African-American students' expected grade performance was significantly related to their persistence in college for two years. Nora (1987) reported that parental education was related to the persistence of Hispanic students while Donovan (1984) found that high admissions tests scores and higher

achievement in high school were related to the college persistence of African-American students. Tracey & Sedlacek (1987a) found that initial attitudes were predictive of college graduation for both African-American and white students. Arbona and Novy (1990), however, found that minority students' expectancies were not significantly related to enrollment status for the second year of college while expectancies were significantly related to the persistence of white students. Similarly, recent findings indicate that Asian-American and African-American students who persisted in college showed higher levels of feeling alienated on campus that did Hispanic and white students who persisted (Bennett & Okinaka, 1990). Tracey and Sedlacek (1987b) also indicated that noncognitive variables were more significant predictors of college persistence for African-American students than for white students. Recent research has also shown that noncognitive variables, such as academic self-concept, are significantly correlated with the college persistence of Asian-American students (Fuertes, Sedlacek, & Liu, 1994). Finally, several studies have assessed the efficacy of noncognitive variables as predictors of the college success of Native American students (Falk & Aitken, 1984; Pavel & Padilla, 1993; McNamara, 1982).

The purpose of this study was to investigate the efficacy of noncognitive variables and academic background for the prediction of college grade performance and persistence. This study was designed to examine these relationships as a function of student ethnic group. This study was also designed to extend the findings of previous studies that have investigated either academic background variables or noncognitive variables as predictors by evaluating the relative contributions of each for the prediction of student performance.

Methods

Students

Students included in this study began as new freshmen during four consecutive fall semesters; in this sample, there were 9,589 students who had completed the measures used in this study. In the sample, there were 4,254 male students and 5,335 female students. When analyzed by student ethnic group, there were 251 Hispanic students, 378 Asian-American students, 644 African-American students, 15 Native American students, and 8,301 White students.

Measures

During an on-campus orientation period prior to the start of the fall semester of their freshmen year, all students were requested to complete the Cooperative Institutional Research Program Freshmen Survey (CIRP, 1988). On this survey, there were several items that measured student attitudes, family characteristics, and high school background. From these items, seven non-cognitive variables were constructed: achievement expectancies, academic self-concept, financial goals, social goals, desire for recognition, parental education, and high school curriculum. The specific items that comprised these variables are shown in Table A. In addition, data were collected for two academic background variables: ACT Composite score and high school class percentile rank. Finally, there were five dependent measures of academic performance that were examined in this study. Three dependent variables were measures of grade performance: cumulative grade point average (GPA) after one, two, and four years in college. Two dependent measures were related to student attrition: students' enrollment status after two and four years in college.

Procedure

Several procedures were used to analyze the data from this study. First, correlation coefficients were computed to examine the relationships between each of the predictor variables and subsequent grade performance and persistence. Correlations were computer for the entire sample and separately for each student ethnic group. Second, ordinary least-squares multiple regression procedures were used to investigate the relative contribution of each

Table A Variable Definitions

Parental Education	Sum of mother's and father's education (six levels from `grammar school or less' to `postgraduate degree').
High School Curriculum	Sum of high school units taken in six fields: English, Mathematics, Foreign Languages, Physical Sciences, Biological Sciences, and History/ American Government.
Financial Goals	Sum of student's ratings of the importance of becoming an expert in finance and commerce, being very well off financially, and being successful in own business.
Social Goals	Sum of student's ratings of the importance of promoting racial understanding, helping others in difficulty, influencing social values, influencing the political structure, taking part in community action, and promoting environmental cleanup.
Academic Self-Concept	Sum of student's self-ratings of overall academic ability, drive to achieve, mathematical ability, writing ability, and self-confidence in intellectual ability.
Achievement Expectancies	Sum of student's self-ratings of the probability of graduating with honors, making at least a B average, get bachelor's degree, and transformed ratings of failing one or more course in college, needing extra time to graduate, and getting tutoring assistance.
Desire for Recognition	Sum of student's ratings of the importance of becoming an authority in my field and obtaining recognition from my colleagues for contributions in my special field.

predictor variable for predicting cumulative grade performance after one, two, and four years. These multiple regression analyses were done for the entire sample and separately for each student ethnic group. These analyses investigated the relative ordering of noncognitive variables and academic background for explaining college grade achievement.

Analyses were conducted to investigate the efficacy of noncognitive variables and academic background measures as predictors of college attrition. Stepwise logistic regression procedures were used to determine the relative ordering of each predictor variable toward the explanation of college persistence. Logistic regression is particularly suited to the analysis of binary outcomes such as enrolled/not enrolled (O'Gorman & Woolsor, 1991). In logistic regression, the relationship between a binary outcome measure and a set of predictor variables (either categorical or continuous) is examined. Because it is a stepwise procedure, logistic regression provides an analysis of the relative ordering of each predictor variable toward the explanation of the outcome measure (Afifi, 1990).

A number of logistic regression analyses were performed. Considering enrollment status after two years, logistic regression analyses were conducted using the entire set of predictor variables for the entire sample and separately for each student ethnic group. Similar procedures were also used to investigate enrollment status after four years; because of an insufficient number of students, least-squares and logistic regression analyses were not conducted for Native American students.

Results

Correlations between each predictor variable and all five measures of academic performance for the entire sample are presented in table 1. Both measures of academic background (ACT Composite scores and high school class percentile rank) were significantly correlated with cumulative GPA after one, two, and four years. In addition, several noncognitive measures (academic self-concept, achievement expectancies, high school curriculum, and parental education) produced significant positive correlations with each GPA measure. With regard to persistence, both ACT Composite scores and high school class percentile ranks were significantly correlated with enrollment status after two and four years. In addition, academic self-concept, achievement expectancies, high school curriculum, and parental education were significantly positively correlated with both measures of persistence. However, students' financial goals, social goals, and desire for recognition were significantly negatively correlated with each measure of persistence. Further analysis indicated that students who entered college with high financial goals, high social goals, and a strong desire for recognition had lower entering academic skills as measured by ACT Composite scores and high school class ranks.

Correlations between each predictor variable and all three measures of grade performance are summarized by student ethnic group in Table 2. Considering Native American students, desire for recognition was significantly correlated with cumulative GPA after one year. Considering Hispanic students, both measures of academic background (ACT Composite scores and high school class percentile ranks) were significantly correlated with GPA after one, two, and four years. Academic self-concept was significantly correlated with GPA after one, two, and four years while achievement expectancies were significantly correlated with GPA after one and two years. Finally, high

school curriculum was significantly correlated with Hispanic students' GPA after two years of college.

With regard to Asian-American students (Table 2), high school class rank was significantly related to all three GPA measures while ACT Composite scores were significantly correlated with GPA after one and two years. Considering noncognitive variables, academic self-concept was significantly correlated with each GPA measure while achievement expectancies were significant predictors of GPA after one and two years. High school curriculum was significantly related to Asian-American students' GPA after one year.

Results for the relationships between each predictor variable and GPA for African-American students are also summarized in Table 2. Both measures of academic background were significant predictors of each measure of grade performance. In addition, academic self-concept was significantly correlated with each GPA measure. Further, high school curriculum was a significant predictor of African-American students' GPA after two years of college. Considering White students, ACT Composite scores and high school class percentile ranks were significant predictors of cumulative GPA after one, two, and four years. In addition, three noncognitive variables (achievement expectancies, academic self-concept, and high school curriculum) produced significant positive correlations with each grade measure while parental education was significantly correlated with cumulative GPA after one and two years. Finally, there were significant negative correlations between financial goals and each GPA measure.

Correlations between each predictor variable and both measures of persistence are presented in Table 3. With respect to persistence for two years, none of the predictor variables were significantly correlated with the college persistence of Native American students. Two variables (high

school class percentile rank and achievement expectancies) were significantly correlated with the persistence of Hispanic students. Considering Asian-American students, both measures of academic background and one noncognitive variable (academic self-concept) were significant predictors of persistence in college for two years. For African-American students, both academic background measures and two noncognitive variables (academic self-concept and parental education) were significantly related to persistence for two years. Finally, both academic background measures were significant predictors of the enrollment status of White students after two years. In addition, four noncognitive variables (achievement expectancies, high school curriculum, academic self-concept, and parental education) showed significant positive correlations with persistence status. Finally, two variables (financial goals and desire for recognition) showed significant negative correlations with persistence. In this instance, students with initially high financial goals and desire for recognition were less likely to remain enrolled in college after two years.

Correlations between each predictor variable and students' persistence status after four years are also summarized in Table 3. For Native American students, ACT Composite score was the only predictor variable to be significantly correlated with persistence. For Hispanic students, only the two academic background measures were significantly related to persistence status after four years. Similarly, both academic background measures were significantly correlated with the four-year retention status of Asian-American students; in addition, one noncognitive variable (academic self-concept) was also a significant predictor of retention for Asian-American students. Four variables were significant predictors of the four-year persistence outcomes of African-American students; both academic background measures and two non-

cognitive variables (academic self-concept and parental education). Finally, both academic background variables and several noncognitive measures were significantly correlated with the four-year persistence status of White students.

The results of the multiple regression analyses of cumulative GPA for the entire sample are shown in Table 4. For cumulative GPA after one year, the two measures of academic background entered the regression equation as the two most significant predictor variables. In addition, three noncognitive variables (parental education, academic self-concept, and financial goals) also significantly entered the regression equation. Further, the overall regression equation explained 27.6% of the variance in GPA after one year and was significant ($F(9,9579) = 405.48$, $p = .0001$). For cumulative GPA after two years, the two measures of academic background again entered the regression equation as the two most significant predictor variables. Five noncognitive variables (financial goals, academic self-concept, parental education, social goals, and high school curriculum) also significantly entered the multiple regression equation. In addition, the overall multiple regression equation explained 28.6% of the variance in GPA after two years and was significant ($F(9,7372) = 327.83$, $p = .0001$). Considering GPA after four years, six of the nine predictor variables significantly entered the multiple regression equation; further, the overall regression equation explained 27.1% of the variance in GPA after four years and was significant ($F(9,4699) = 194.29$, $p = .0001$).

Findings from the logistic regression analyses of persistence after two years and four years for the entire sample are summarized in table 5. Considering persistence for two years, the two academic background measures were the first two variables to significantly enter the logistic regression

equation. In addition, four noncognitive variables (parental education, financial goals, high school curriculum, and academic self-concept) also significantly entered the logistic regression equation. Finally, the overall logistic regression equation was significant (chi-square = 673.59, df = 9, p = .0001). Considering persistence for four years, the two academic background measures were the first two variables to significantly enter the logistic regression equation; four noncognitive variables also significantly entered the logistic regression equation and the overall regression equation was significant (chi-square = 630.13, df = 9, p = .0001).

Findings from the multiple regression analyses of cumulative GPA after one year for each student ethnic group are shown in Table 6. For Hispanic students, only one variable (high school class percentile rank) significantly entered the regression equation. For Asian-American students, only the two academic background measures significantly entered the regression equation. For African-American students, high school class percentile rank entered the regression equation first as the most significant predictor, followed by two noncognitive variables (academic self-concept and achievement expectancies). For White students, both academic background measures and four noncognitive variables (parental education, academic self-concept, financial goals, and social goals) significantly entered the regression equation. Finally, the overall regression equations were significant for each student ethnic group: Hispanic students ($F(9,241) = 5.66$, $p = .0001$), Asian-American students ($F(9,368) = 14.69$, $p = .0001$), African-American students ($F(9, 634) = 7.03$, $p = .0001$), and White students ($F(9, 8291) = 351.97$, $p = .0001$).

The results of the multiple regression analyses of cumulative GPA after two years for each student ethnic group are presented in Table 7. For Hispanic students, only the two academic background measures significantly

entered the regression equation. For Asian-American students, two variables (high school class percentile rank and academic self-concept) significantly entered the regression equation. Three variables (both academic background measures and achievement expectancies) significantly entered the regression equation for African-American students. For White students, eight of the nine predictor variables significantly entered the regression equation. Finally, the overall regression equations were significant for each student ethnic group: Hispanic students ($F(9,161) = 4.86$, $p = .0001$), Asian-American students ($F(9,260) = 11.19$, $p = .0001$), African-American students ($F(9,367) = 8.62$, $p = .0001$), and White students ($F(9, 6546) = 277.10$, $p = .0001$).

Findings from the multiple regression analyses of cumulative GPA after four years for each student ethnic group are shown in Table 8. Two noncognitive variables (academic self-concept and financial goals) significantly entered the regression equation for Hispanic students. For Asian-American students, two variables (high school class percentile rank and parental education) significantly entered the regression equation. For African-American students, only the two academic background measures significantly entered the multiple regression equation. Finally, six of the nine predictor variables significantly entered the regression equation for White students. The overall regression equations were significant for each student ethnic group: Hispanic students ($F(9,83) = 2.12$, $p = .0364$), Asian-American students ($F(9,113) = 5.48$, $p = .0001$), African-American students ($F(9,177) = 3.63$, $p = .0001$), and White students ($F(9,4289) = 173.44$, $p = .0001$).

Logistic regression analyses were conducted to investigate the prediction of persistence by student ethnic group and those findings are presented in Tables 9 and 10. Considering persistence for two years (Table 9), only one variable (high school class percentile rank) significantly entered the

logistic regression equation for Hispanic students. Two academic background measures and one noncognitive variable (parental education) significantly entered the logistic regression equation for both Asian-American and African-American students. For White students, both academic background measures and two noncognitive variables (parental education and financial goals) significantly entered the logistic regression equation. Finally, the overall regression equations were significant for Asian-American students (chi-square = 36.49, df = 9, p = .0001), African-American students (chi-square = 33.84, df = 9, p = .0001), and White students (chi-square = 509.75, df = 9, p = .0001). For Hispanic student, however, the overall logistic regression equation was not significant (chi-square = 14.67, df = 9, p = .1004).

With respect to student persistence for four years (Table 10), only one academic background variable significantly entered the logistic regression equation for Hispanic students (ACT Composite scores) and Asian-American students (high school class percentile rank). For African-American students, the two academic background measures and one noncognitive variable (academic self-concept) significantly entered the regression equation. For White students, six of the nine predictor variables significantly entered the logistic regression equation. The overall regression equations were significant for Asian-American students (chi-square = 20.27, df = 9, p = .0163), African-American students (chi-square = 37.33, df = 9, p = .0001), and White students (chi-square = 425.85, df = 9, p = .0001). However, the overall logistic regression model for Hispanic students was not significant (chi-square = 15.87, df = 9, p = .0696).

Discussion

There were several significant findings from this study. First, the set of predictor variables examined in this study comprised an overall model that was effective for predicting student grade performance. In addition, the combination of ACT Composite scores and high school class percentile rank alone explained 26.2% of the variance in GPA after one year and 26.6% of the variance in GPA after two years. A second interesting finding was that there were some differences between student ethnic groups with regard to which variables were the most effective predictors of subsequent achievement. Yet another finding from this study was that some of the significant predictors (such as financial goals and social goals) actually had negative relationships with achievement outcomes. This pattern was apparently due to the fact that students with high financial and social goals tended to show lower levels of academic preparation.

One limitation of this study is that only traditional-aged students were included. Recent research has focused on the applicability of recognized models of attrition for adult learners (Ashar & Skenes, 1993). The findings of Ashar and Skenes (1993) suggest that different factors may be related to the persistence of adult students than for traditional-aged students. Consequently, further research is needed to determine if the findings of this study would be replicated for adult learners. A second limitation of this study is that students from only one institution were available for analysis. Further studies that examine students at other types of institutions are needed to evaluate the generalizability of these findings for students at other types of colleges and universities. Finally, there were insufficient numbers of Native American students to allow multiple regression

analyses of grade outcomes and attrition. Additional study is needed to investigate the relative ordering of academic background and noncognitive variables for the prediction of college achievement for Native American students.

The results of this study provide a number of directions for further research. First, further study is needed to examine the predictive validity of specific facets of academic self-concept and achievement expectancies for subsequent achievement outcomes. Second, further research is needed to examine which parts of the high school curriculum are most effective for predicting college achievement. However, these findings provide considerable insight into the efficacy of academic background and noncognitive variables as predictors of student achievement in college. Also, these results are consistent with earlier studies that have shown noncognitive variables to be significant predictors of student achievement in specific college courses such as chemistry (House, 1995a), mathematics (House, 1995b, 1995c), and general psychology (House, Keeley, & Hurst, 1995).

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Table 1

Correlations Between Predictor variables and Academic Performance Measures (All Students)

	GPA After One Year	GPA After Two Years	GPA After Four Years	Two-Year Persistence	Four-Year Persistence
Achievement Expectancies	.185**	.188**	.161**	.068**	.050**
High School Curriculum	.107**	.088**	.071**	.073**	.073**
Financial Goals	-.129**	-.161**	-.220**	-.068**	-.073**
Social Goals	-.046**	-.038**	-.026	-.033**	-.043**
Desire for Recognition	-.018	-.019	-.033*	-.028**	-.035**
Academic Self-Concept	.272**	.267**	.220**	.113**	.103**
Parental Education	.067**	.038**	.033*	.045**	.039**
ACT Composite Score	.324**	.350**	.291**	.157**	.162**
High School Class Rank	.476**	.469**	.461**	.241**	.226**

** p < .01

* p < .05

Table 2

Correlations Between Predictor Variables and Grade Performance
(By Student Ethnic Group)

	Native American	Hispanic	Asian-American	African-American	White
GPA After One Year					
Achievement Expectancies	.147	.204*	.173**	-.007	.175**
High School Curriculum	-.260	.050	.121*	.063	.088**
Financial Goals	.252	-.084	-.001	-.054	-.114**
Social Goals	.070	-.066	.009	-.024	-.005
Desire for Recognition	.704**	-.018	-.034	.003	-.011
Academic Self-Concept	.019	.172**	.227**	.149**	.268**
Parental Education	.330	.002	-.023	.053	.058**
ACT Composite Score	.283	.165**	.286**	.104**	.279**
High School Class Rank	-.044	.402**	.477*	.259**	.483**
GPA After Two Years					
Achievement Expectancies	.207	.213**	.129*	.006	.179**
High School Curriculum	.010	.154*	.057	.118*	.066**
Financial Goals	.063	-.094	.029	.021	-.155**
Social Goals	-.531	-.092	-.066	.063	-.001
Desire for Recognition	.394	.023	-.013	-.002	-.013
Academic Self-Concept	.144	.245**	.281**	.187**	.259**
Parental Education	.539	.094	.023	.048	.025*
ACT Composite Score	.057	.400**	.270**	.292**	.295**
High School Class Rank	.078	.386**	.494**	.286**	.468**
GPA After Four Years					
Achievement Expectancies	-.241	.112	.097	-.002	.157**
High School Curriculum	.074	-.026	.018	.081	.056**
Financial Goals	.489	-.181	-.024	-.027	-.215**
Social Goals	-.237	-.028	-.199*	.038	.013
Desire for Recognition	.609	-.026	-.038	-.067	-.025
Academic Self-Concept	-.181	.330**	.223*	.147*	.211**
Parental Education	.160	.076	.131	-.023	.026
ACT Composite Score	-.423	.330**	.159	.246**	.236**
High School Class Rank	-.388	.223*	.495**	.296**	.464**

** $p < .01$

* $p < .05$

Table 3

Correlations Between Predictor Variables and Persistence
(By Student Ethnic Group)

	Native American	Hispanic	Asian-American	African-American	White
Persistence for Two Years					
Achievement Expectancies	-.131	.147*	.099	.034	.050**
High School Curriculum	-.020	.074	.030	.077	.058**
Financial Goals	-.191	-.046	.011	-.045	-.055**
Social Goals	-.357	-.028	.031	-.016	-.009
Desire for Recognition	.236	-.027	-.048	.032	-.028*
Academic Self-Concept	-.188	.079	.123*	.150**	.094**
Parental Education	.459	.070	-.080	.104**	.034**
ACT Composite Score	.330	.100	.179**	.111**	.105**
High School Class Rank	.150	.214**	.242**	.144**	.233**
Persistence for Four Years					
Achievement Expectancies	.131	.110	.064	.025	.029**
High School Curriculum	.196	.121	.032	.077	.054**
Financial Goals	-.391	-.013	-.014	-.013	-.058**
Social Goals	-.382	-.098	-.009	.024	-.016
Desire for Recognition	.189	-.020	-.037	.026	-.035**
Academic Self-Concept	.125	.113	.108*	.160**	.079**
Parental Education	.437	.102	-.050	.084*	.026*
ACT Composite Score	.568*	.183**	.147**	.147**	.092**
High School Class Rank	.409	.183**	.192**	.162**	.211**

** p < .01

* p < .05

Table 4

Summary of Stepwise Multiple Regression Analysis of Grade Performance (All Students)

Step	Variable Entered	R-Square	F	p
GPA After One Year				
1	High School Class Rank	.227	2812.91	.0001
2	ACT Composite Score	.262	453.79	.0001
3	Parental Education	.266	60.19	.0001
4	Academic Self-Concept	.270	50.47	.0001
5	Financial Goals	.276	69.68	.0001
6	Social Goals	.276	3.47	.0624
7	Achievement Expectancies	.276	0.93	.3356
8	Desire for Recognition	.276	0.31	.5788
9	High School Curriculum	.276	0.07	.7934
GPA After Two Years				
1	High School Class Rank	.220	2076.49	.0001
2	ACT Composite Score	.266	470.61	.0001
3	Financial Goals	.277	103.13	.0001
4	Academic Self-Concept	.282	60.98	.0001
5	Parental Education	.284	14.42	.0001
6	Social Goals	.285	12.36	.0004
7	High School Curriculum	.286	5.33	.0210
8	Desire for Recognition	.286	2.62	.1057
9	Achievement Expectancies	.286	0.48	.4863
GPA After Four Years				
1	High School Class Rank	.212	1268.26	.0001
2	Financial Goals	.243	188.62	.0001
3	ACT Composite Score	.264	136.11	.0001
4	Social Goals	.267	17.04	.0001
5	Parental Education	.269	15.62	.0001
6	Academic Self-Concept	.271	10.94	.0009
7	Desire for Recognition	.271	2.20	.1377
8	High School Curriculum	.271	0.93	.3344
9	Achievement Expectancies	.271	0.21	.6459

Table 5

Summary of Stepwise Logistic Regression Analysis of Persistence (All Students)

Step	Variable Entered	Chi-Square	p
Persistence for Two Years			
1	High School Class Rank	558.20	.0001
2	ACT Composite Score	75.03	.0001
3	Parental Education	19.70	.0001
4	Financial Goals	11.69	.0006
5	High School Curriculum	5.28	.0216
6	Academic Self-Concept	2.79	.0948
7	Achievement Expectancies	4.43	.0353
8	Desire for Recognition	1.27	.2604
9	Social Goals	0.24	.6248
Persistence for Four Years			
1	High School Class Rank	491.10	.0001
2	ACT Composite Score	94.63	.0001
3	Financial Goals	16.73	.0001
4	Parental Education	13.30	.0003
5	Achievement Expectancies	10.21	.0014
6	High School Curriculum	7.02	.0080
7	Academic Self-Concept	3.20	.0738
8	Desire for Recognition	1.59	.2070
9	Social Goals	0.17	.6808

Table 6

Multiple Regression Analysis of GPA After One Year (By Student Ethnic Group)

Step	Variable Entered	R-Square	F	p
Hispanic Students				
1	High School Class Rank	.162	48.04	.0001
2	Achievement Expectancies	.167	1.42	.2344
3	Financial Goals	.170	0.98	.3238
4	Social Goals	.171	0.35	.5540
5	Academic Self-Concept	.172	0.32	.5704
6	ACT Composite Score	.174	0.59	.4418
7	High School Curriculum	.175	0.13	.7204
8	Desire for Recognition	.175	0.02	.8992
9	Parental Education	.175	0.01	.9146
Asian-American Students				
1	High School Class Rank	.227	110.54	.0001
2	ACT Composite Score	.247	10.08	.0016
3	High School Curriculum	.251	1.72	.1907
4	Parental Education	.253	1.01	.3165
5	Social Goals	.255	1.06	.3049
6	Desire for Recognition	.260	2.44	.1188
7	Financial Goals	.264	2.15	.1431
8	Achievement Expectancies	.264	0.04	.8333
9	Academic Self-Concept	.264	0.00	.9677
African-American Students				
1	High School Class Rank	.067	45.99	.0001
2	Academic Self-Concept	.076	6.32	.0122
3	Achievement Expectancies	.082	4.45	.0353
4	Parental Education	.085	2.15	.1430
5	Financial Goals	.088	1.52	.2186
6	ACT Composite Score	.089	0.97	.3256
7	High School Curriculum	.090	0.64	.4238
8	Social Goals	.091	0.55	.4580
9	Desire for Recognition	.091	0.00	.9461
White Students				
1	High School Class Rank	.233	2520.38	.0001
2	ACT Composite Score	.259	288.17	.0001
3	Parental Education	.266	77.34	.0001
4	Academic Self-Concept	.270	47.61	.0001
5	Financial Goals	.275	63.77	.0001
6	Social Goals	.276	9.56	.0020
7	High School Curriculum	.276	1.66	.1971
8	Achievement Expectancies	.276	1.14	.2859
9	Desire for Recognition	.276	0.76	.3838

Table 7

Multiple Regression Analysis of GPA After Two Years (By Student Ethnic Group)

Step	Variable Entered	R-Square	F	p
Hispanic Students				
1	ACT Composite Score	.160	32.22	.0001
2	High School Class Rank	.207	9.84	.0020
3	High School Curriculum	.209	0.58	.4481
4	Financial Goals	.211	0.45	.5017
5	Parental Education	.212	0.12	.7281
6	Desire for Recognition	.213	0.13	.7140
7	Social Goals	.214	0.21	.6488
8	Academic Self-Concept	.214	0.01	.9307
9	Achievement Expectancies	.214	0.01	.9219
Asian-American Students				
1	High School Class Rank	.244	86.70	.0001
2	Academic Self-Concept	.256	4.10	.0438
3	ACT Composite Score	.261	1.81	.1795
4	Achievement Expectancies	.265	1.55	.2142
5	Financial Goals	.269	1.44	.2315
6	Desire for Recognition	.278	3.11	.0790
7	Parental Education	.279	0.33	.5648
8	High School Curriculum	.279	0.12	.7318
9	Social Goals	.279	0.07	.7938
African-American Students				
1	ACT Composite Score	.085	35.01	.0001
2	High School Class Rank	.145	26.01	.0001
3	Achievement Expectancies	.159	6.04	.0145
4	Academic Self-Concept	.166	3.42	.0653
5	High School Curriculum	.168	1.04	.3074
6	Financial Goals	.170	0.78	.3789
7	Desire for Recognition	.172	0.79	.3758
8	Social Goals	.174	0.82	.3649
9	Parental Education	.174	0.28	.5986
White Students				
1	High School Class Rank	.219	1839.96	.0001
2	ACT Composite Score	.251	279.46	.0001
3	Financial Goals	.264	114.12	.0001
4	Academic Self-Concept	.271	61.53	.0001
5	Social Goals	.273	18.36	.0001
6	Parental Education	.275	14.78	.0001
7	High School Curriculum	.275	8.48	.0036
8	Desire for Recognition	.276	4.15	.0417
9	Achievement Expectancies	.276	0.00	.9966

Table 8

Multiple Regression Analysis of GPA After Four Years (By Student Ethnic Group)

Step	Variable Entered	R-Square	F	p
Hispanic Students				
1	Academic Self-Concept	.109	11.15	.0012
2	Financial Goals	.152	4.52	.0363
3	ACT Composite Score	.168	1.79	.1842
4	High School Curriculum	.179	1.16	.2839
5	Social Goals	.183	0.39	.5339
6	Achievement Expectancies	.186	0.36	.5497
7	Desire for Recognition	.187	0.05	.8258
8	Parental Education	.187	0.03	.8663
9	High School Class Rank	.187	0.00	.9952
Asian-American Students				
1	High School Class Rank	.245	39.21	.0001
2	Parental Education	.276	5.15	.0251
3	Social Goals	.287	1.90	.1710
4	Financial Goals	.293	0.92	.3400
5	Academic Self-Concept	.296	0.55	.4599
6	Achievement Expectancies	.301	0.87	.3529
7	ACT Composite Score	.303	0.28	.5963
8	High School Curriculum	.304	0.09	.7656
9	Desire for Recognition	.304	0.06	.8062
African-American Students				
1	High School Class Rank	.088	17.74	.0001
2	ACT Composite Score	.128	8.62	.0038
3	Achievement Expectancies	.140	2.39	.1242
4	Desire for Recognition	.147	1.62	.2050
5	Academic Self-Concept	.152	1.10	.2957
6	Social Goals	.155	0.64	.4260
7	High School Curriculum	.156	0.10	.7521
8	Parental Education	.156	0.00	.9582
9	Financial Goals	.156	0.00	.9761
White Students				
1	High School Class Rank	.216	1181.46	.0001
2	Financial Goals	.247	176.48	.0001
3	ACT Composite Score	.257	59.16	.0001
4	Social Goals	.262	27.95	.0001
5	Parental Education	.264	15.00	.0001
6	Academic Self-Concept	.266	11.10	.0009
7	Desire for Recognition	.267	2.38	.1227
8	High School Curriculum	.267	1.69	.1934
9	Achievement Expectancies	.267	0.14	.7099

Table 9

Logistic Regression Analysis of Persistence After Two Years
(By Student Ethnic Group)

Step	Variable Entered	Chi-Square	p
Hispanic Students			
1	High School Class Rank	11.52	.0007
2	Achievement Expectancies	1.53	.2154
3	Parental Education	0.94	.3321
4	Financial Goals	0.25	.6159
5	ACT Composite Score	0.19	.6637
6	High School Curriculum	0.18	.6729
7	Desire for Recognition	0.08	.7765
8	Academic Self-Concept	0.04	.8410
9	Social Goals	0.02	.8828
Asian-American Students			
1	High School Class Rank	22.13	.0001
2	ACT Composite Score	4.92	.0265
3	Parental Education	4.07	.0436
4	Social Goals	1.54	.2152
5	Desire for Recognition	3.38	.0661
6	Financial Goals	1.67	.1958
7	Achievement Expectancies	0.10	.7574
8	High School Curriculum	0.12	.7304
9	Academic Self-Concept	0.02	.8975
African-American Students			
1	Academic Self-Concept	14.45	.0001
2	High School Class Rank	8.76	.0031
3	Parental Education	6.07	.0137
4	Financial Goals	1.90	.1684
5	High School Curriculum	0.99	.3197
6	ACT Composite Score	0.53	.4651
7	Achievement Expectancies	0.67	.4145
8	Desire for Recognition	0.42	.5168
9	Social Goals	0.65	.4183
White Students			
1	High School Class Rank	452.30	.0001
2	Parental Education	25.74	.0001
3	ACT Composite Score	16.59	.0001
4	Financial Goals	8.63	.0033
5	Achievement Expectancies	3.16	.0755
6	Academic Self-Concept	3.78	.0518
7	High School Curriculum	2.70	.1003
8	Desire for Recognition	1.06	.3022
9	Social Goals	1.49	.2222

Table 10

Logistic Regression Analysis of Persistence After Four Years
(By Student Ethnic Group)

Step	Variable Entered	Chi-Square	p
Hispanic Students			
1	ACT Composite Score	8.39	.0038
2	High School Class Rank	3.51	.0612
3	High School Curriculum	1.58	.2082
4	Social Goals	1.75	.1862
5	Parental Education	0.86	.3541
6	Desire for Recognition	0.03	.8570
7	Achievement Expectancies	0.02	.8824
8	Financial Goals	0.01	.9129
9	Academic Self-Concept	0.00	.9981
Asian-American Students			
1	High School Class Rank	13.99	.0002
2	ACT Composite Score	3.20	.0738
3	Parental Education	1.73	.1889
4	Desire for Recognition	0.57	.4493
5	Social Goals	0.56	.4530
6	Financial Goals	0.26	.6135
7	Academic Self-Concept	0.21	.6485
8	Achievement Expectancies	0.05	.8152
9	High School Curriculum	0.00	.9935
African-American Students			
1	High School Class Rank	16.80	.0001
2	Academic Self-Concept	10.80	.0010
3	ACT Composite Score	4.70	.0302
4	Parental Education	2.89	.0890
5	Achievement Expectancies	2.21	.1375
6	High School Curriculum	0.45	.5019
7	Financial Goals	0.17	.6816
8	Social Goals	0.05	.8205
9	Desire for Recognition	0.00	.9928
White Students			
1	High School Class Rank	369.70	.0001
2	Parental Education	18.04	.0001
3	Financial Goals	12.19	.0005
4	ACT Composite Score	10.28	.0013
5	Achievement Expectancies	10.47	.0012
6	High School Curriculum	4.31	.0378
7	Academic Self-Concept	2.13	.1440
8	Desire for Recognition	1.87	.1720
9	Social Goals	0.33	.5686