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AUTHOR Tracey, Terence J.; Sedlacek, William E.
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ABSTRACT

The structural relations of the seven non-cognitive dimensions proposed by W. E. Sedlacek and G. C. Brooks (1976) and traditional definitions of academic ability, as indicated by Statistical Aptitude Test (SAT) scores, to first semester grade point average (GPA) and persistence after three and five semesters were examined. Random samples of entrants at a predominantly White eastern state university were administered the Noncognitive Questionnaire (NCQ) during summer orientation in 1979 and 1980. The subjects included 208 Black and 1,475 White entering freshmen. The NCQ results and the SAT scores were used to derive structural models (using LISREL) of early academic success for both Black and White students. The structural models for the Black and White students were found to be very different. For Black students, traditional academic ability was related to first semester GPA, but neither GPA nor academic ability was related to persistence. Only the non-cognitive dimensions were predictive of Black student persistence. For White students, academic ability was the best predictor of first semester grades and these grades were the major predictor of subsequent persistence. The non-cognitive dimensions were not important in White student academic success, while they were crucial in Black student academic success. (Author/SLD)

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Using Noncognitive Variables: A LISREL Analysis

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Abstract

The structural relations of the seven noncognitive dimensions proposed by Sedlacek and Brooks (1976) and traditional definitions of academic ability, as indicated by SAT scores, to first semester GPA and persistence after three and five semesters was examined in this study. Random samples of entrants at one predominant White state university were administered the Noncognitive Questionnaire (NCQ) during summer orientation in 1979 and 1980. The NCQ results and the SAT scores were used to derive structural models (using LISREL) of early academic success for both black and white students. The structural models for the black and white students were found to be very different. For black students, traditional academic ability was related to first semester GPA but neither GPA nor academic ability was related to persistence. Only the noncognitive dimensions were predictive of black student persistence. For white students, academic ability was the best predictor of first semester grades and these grades were the major predictor of subsequent persistence. The noncognitive dimensions were not important in white student academic success while they were crucial in black student academic success.

A Comparison of White and Black Student Academic Success Using Noncognitive Variables: A LISREL Analysis

It is clear that academic success is very different for black and white students in higher education. In general, attrition rates are much higher for blacks than they are for whites (Astin, 1982; Sedlacek & Pelham, 1976). This differential attrition rate is especially pronounced in predominately white institutions (Goodrich, 1978; Sedlacek & Webster, 1978). There is a need for examination of the dimensions related to these differences.

There has been an active debate over the similarities and differences in the process of educational attainment between black and white students (cf., Gottfredson, 1981; Portes & Wilson, 1976; Wolfle, 1985). Much of this debate seems to center around what dimensions are included in the examination of educational attainment. An area that is getting increasing attention in terms of explaining the differences in the educational attainment process between black and white students, especially at the post secondary level, is the inclusion of noncognitive predictors of academic success. Although the traditional predictors of high school grades and SAT or ACT scores have proven valuable in predicting academic success, there is a growing body of research that demonstrates that there are other "less intellectual" or noncognitive dimensions that are also highly related to academic success (Arken, 1964; Astin, 1975; Beasley, & Sease, 1974; Clark &

Plotkin, 1964; Gelso & Rowell, 1967; Gibbs, 1973; Messick, 1979; Nelson, Scott, & Bryan, 1984; Nettles, Thoeny, & Gosman, 1986; Pascarella & Chapman, 1983; Pascarella, Duby, & Iverson, 1983; Pentages & Creedon, 1978; Pruitt, 1973; Tinto, 1975).

One specific set of noncognitive dimensions that has been found to be related to GPA and persistence, especially for minority students, are those proposed by Sedlacek and Brooks (1976). These seven dimensions are : positive self-concept, realistic self-appraisal, understanding of and and ability to deal with racism, preference for long range goals over more immediate short-term needs, support of others for academic plans, successful leadership experience, and demonstrated community service. Tracey and Sedlacek (1984, 1985, 1987) developed a brief questionnaire, called the Non-Cognitive Questionnaire (NCQ), which was designed to assess these noncognitive dimensions, as well as the added dimension of academic familiarity. They found that the instrument was content valid, i.e., the individual items loaded on the hypothesized general dimensions, and that it was highly predictive of grades over four years for both black and white students, and highly predictive of persistence and graduation for black students.

The purpose of this study was to examine the similarity of the determinants of academic success for black and white students. Most studies of this sort examine only traditional measures of ability and background (e.g., SES and parents' education) in explaining educational success. This study examined traditional measurs of ability, but also

included these newer noncognitive dimensions.

The study of academic success is often problematic because of the variety of definitions used (Tracey & Sedlacek, 1981). Studies have used a variety of definitions but mostly first semester GPA and/or first year retention. Few have examined academic success after the first year. Though many of these definitions are related, they are far from isomorphic. Three relatively different measures of academic success were employed in this study: first semester GPA and persistence after three and five semesters. Studying persistence after three and five semesters should allows one to get an accurate assessment of those who drop out relatively early vs. those who survive the crucial first year but drop out later. First semester grades were used to see the relationship between GPA and persistence. Studying first semester grades enabled the examination of this relationship to see if actual college grades are related to subsequent persistence. So, the invariance between black and white students on the factor structure of the NCQ was examined, as well as the structural relationship of traditional academic ability and the noncognitive dimensions with first semester GPA and persistence after three and five semesters.

Method

Sample and Procedures

All 1979 entering freshmen and a random sample (approximately 25%) of the 1980 entering freshmen who attended summer orientation at a

large, predominately white, eastern state university were sampled. Those students who attended summer orientation typically represent 90% of the entering freshmen. These samples were administered the Non-Cognitive Questionnaire (NCQ). Only those students who fully completed the NCQ, who self-identified themselves as either white or black, whose SAT scores and first semester grade point average could be obtained from university records were included. This resulted in 77% of the original sample being included here. The resulting samples were N=208 black and N=1475 white students.

Instruments

Non-Cognitive Questionnaire (NCQ) was designed to assess the seven factors hypothesized by Sedlacek and Brooks (1976) to be related to minority student academic success. These non-cognitive dimensions were: (a) global positive self-concept as related to expectations for the coming years, (b) realistic self-appraisal, especially with respect to academic abilities, (c) understanding ofand ability to deal with racism, (d) ability to work toward longer-term goals, rather than more immediate, short-term ones, (e) availability of people supportive of one's academic goals, (f) successful leadership experience in either organized or informal groups, (g) demonstrated community service as indicated by involvement in local community and/or church activities during the years prior to college, and (h) academic familiarity. The NCQ consists of 23 items, including two categorical items on

educational aspirations, 18 Likert-type items on expectations regarding college and self-assessment, and three open-ended items requesting information on present goals, past accomplishments, and other activities. All items were found to have adequate test-retest reliabilities (two-week estimates ranging from .70 to .94 for each item with a median value of .85, Tracey & Sedlacek, 1984).

The open-ended items were rated by two judges for the following variables (with interrater reliability estimates presented in parentheses): long range goals (r=.89), academic relatedness of goals (r=.83), degree of difficulty of the listed accomplishments (r=.88), overall number of outside activities (r=1.00), leadership (r=.89), academic relatedness of activities (r=.98), and community involvement (r=.94). Tracey and Sedlacek (1984) found good support for the construct validity of the NCQ using factor analysis.

Analysis

The data were analyzed using LISREL VI (Joreskog & Sorbom, 1983) to examine several questions. First, the similarity of factor structure of the NCQ (measurement model) was examined across black and white students. Second, the structural models were generated separately for the white and black student samples to see where the differences in the relationships to academic sucess existed across the samples. All analyses were conducted using the correlation matrix.

LISREL is a useful tool for modeling a wide variety of relationships

among measured dimensions. It involves the generation of a measurement and structural model to depict relationships in the data. The merit of any model specified is usually determined by how well the model accounts for the actual data, i.e., the goodness of fit. In theory, if one could assess goodness of fit accurately, one would have an idea of how valid any specific model was. However, this assessment of fit is not so straightforward. There are several measures of goodness of fit that are associated with LISREL. Each of these measures is useful, but Joreskog and Sorbom (1983) note than none should be used alone. Multiple measures of fit should be examined to gain a more complete picture of the adequacy of any specific model.

The most frequently used index of fit, and perhaps most flawed, is the goodness of fit chi-square statistic. This statistic is highly sensitive to departures from multivariate normality (Joreskog & Sorbom, 1983), and is strongly influenced by sample size (i.e., large samples always yield significant results regardless of actual fit), and in complex problems with many variables and degrees of freedom, it will almost always yield a significant result. To account for these weaknesses several other indices of fit have been proposed. Bentler and Bonett (1980) have developed the coefficient delta to reflect the proportion of variance in the data accounted for (relative to a model of complete independence among the variables) by the model examined. This delta coefficient ranges from zero to one. Although there are no definite guidelines for what acceptable values of this delta

coefficient are, Bentler and Bonett suggest that delta =.90 is a reasonable cutoff for adequacy. This index has the advantage of not being directly influenced by sample size.

Another index that is especially valuable for use with complex models (i.e., with many variables and degrees of freedom as studied here) is the chi-square goodness of fit statistic/degree of freedom ratio. Different researchers have recommended ratio values as low as 2.0 or as high as 5.0 to indicate adequate fit (Marsh & Hocevar, 1985). However, this index is similar to the goodness of fit statistic in that it is still related to sample size.

Finally, LISREL produces a modification index which is useful in evaluating the fit of a model. Each possible parameter not included in the model is tested to see what it would delete from the goodness of fit statistic if it were added. The presence of several parameter modification indices that are high would indicate that there are several important parameters that are not included. Each of these modification indices is approximately equal to the change in the goodness of fit chi-square (with 1 df) if the model were changed only to add this parameter. Because of the problem associated with multiple significance tests used in this modification index matrix (Long, 1983), a cutoff of 5.0 was selected, even though the .05 level of significance is 3.84. This conservative cutoff of 5.0 is recommended by Joreskog and Sorbom (1983). Since this method also relies on the goodness of fit statistic, it too is biased with respect to sample size.

So, all of the above indexes of fit will be used in evaluating the models examined in this study in order to reduce the drawbacks associated with each. The indices that will be used are the omnibus chi-square goodness of fit statistic, Bentler and Bonett's delta coefficient, the goodness of fit chi-square/ degrees of freedom ratio, and the modification index matrix value cutoff of 5.0.

Given that some of the variables included in the models tested were dichotomous, some alterations in the usual LISREL procedures were required. In the case of nonnormality (i.e., here the dichotomous variables of persistence or nonpersistence after three and five semesters), the maximum liklihood estimates can be biased. For those correlations involving the dichotomous variables, biserial correlations were used. All other relationships were represented using Pearson product moment correlations.

Results

Insert Table 1 About Here

The correlation matrices used in all analyses are presented in Table 1. Based on the results of past research (i.e., Tracey & Sedlacek, 1984, 1985, 1987) those items that were the best indicators of the constructs proposed by Sedlacek and Brooks (1976) were selected for inclusion. This resulted in using a total of 16 items from the NCQ to

represent the seven noncognitive constructs. The eight construct, that of academic familiarity, was not examined because preliminary examination demonstrated that the items hypothesized to be indicative of this construct had little overlap. The specific measurement model proposed is summarized (with standardized factor loadings) in Table 2. The validity of this proposed measurement model was examined for the black sample. The goodness of fit statistic of the model was significant (X^2 (96, N=208)= 218.21, p<.001) however the other indicators of fit demonstrated adequate representation of the data (delta= .90, X^2/df= 2.3, and all modification indices were less than 5.0) indicating that overall, the hypothesized measurement model was an adequate representation of the data.

Insert Table 2 About Here

To examine if this measurement model of the NCQ items was also valid for the white sample, a similar analysis was conducted. The results of this model for the white sample was also significant (X^2 (96, N=1475)= 531.86, p<.001). The other goodness of fit indices were mixed with respect to the fit of the model (delta= .96, X^2/df= 5.5, and 12 of the parameter modification indices were above 5.0). The measurement model fit fairly well for the black sample and less well for the white

sample. An inspection of the modification indices indicated that the simple structure found for the black sample was less evident for the white sample. Several of the items loaded on two dimensions. The model was altered to take account of these differences. The resulting measurement model for whites is summarized in Table 3. As can be seen from this table, the overall meaning of the latent constructs was not found to vary appreciably even though some of the items loaded somewhat differently. So the seven constructs were examined as they were hypothesized in the black model.

Insert Table About Here

To this seven construct model of noncognitive predictors of academic success, we added an eighth construct, that of academic ability. The traditional variables of SAT Verbal and SAT Quantitative scores were used as indicators of this construct. These eight latent predictors of academic success were then examined with respect to their relationship to three measures of academic success (first semester GPA, enrollment status after three semesters, and enrollment status after five semesters). These three measures of academic success were viewed as very different from each other (i.e., each reflected very different aspects of academic success) and thus collectively they provided a more complete picture of academic success than just one of these alone. Also, each person sampled had values for each of these dimensions. Had

we included three semester GPA also, many of the sample would not have valid values on this variable because they would have dropped out. Thus these three dimensions of academic success were broad enough to cover several aspects of early academic sucess without being subject to sample mortality.

For the black sample, it was hypothesized that the noncognitive constructs would be related to the enrollment dimensions but not necessarily first semester GPA. It was expected that the traditional predictor of academic ability would be predictive of only first semester grades but not persistence. This structural model was examined for the black sample. The statistical test of the goodness of fit was significant (X^2 (163, N=208)= 325.71, p<.001). The other goodness of fit indices all indicated a relatively good fit but that some minor modifications may improve the fit (delta= .88, X^2/df= 2.0, and all but two of the modification indices were less than 5.0). To yield a more parsimonious yet adequate model, all structural parameters that had modification indices over 5.0 and that made conceptual sense to include in the model were included, and all structural parameters already in the model that resulted in nonsignificant t-test (p<.05) results were deleted. This revised structural model of the black academic success process is depicted in Figure 1. Note that for simplicity only the structural model is presented. The statistical test of the goodness of

fit was significant (χ^2 (170, N=203)= 254.21, p<.01). The other indices of goodness of fit indicated that the model was an adequate representation of the data (delta= .90, χ^2/df= 1.5, and all of the modification indices were less than 5.0). In addition, all of the t-tests of the parameter estimates included in the model were significant (p<.05) indicating that all the parameters included in the model were necessary in order to explain the data variation. The final model accounted for a total of [illegible] of the variance in the three measures of academic success (R^2 for GPA= .27, R^2 for 3 semester persistence= .20, R^2 for 5 semester persistence= .39).

Insert Figure 1 about here

As can be seen in [illegible], academic ability (as indicated by SAT and ACT scores) was not predictive of first semester GPA for blacks. Of the noncognitive dimensions, only outside support for academic plans was related to GPA. All other noncognitive dimensions (with the exception of racism) were predictive of persistence after three semesters. It is important to note that neither first semester GPA nor academic ability was predictive of persistence at either three or five semesters for black students.

The validity of the final model (Figure 1) for black students was

examined with respect to fit on the white sample. Most all indices of fit demonstrated that this black model of academic success was not an adequate model of white academic success. The statistical test of fit was significant (X^2 (170, N=1475)= 1057.21, p<.001) and though the delta index of fit was high (delta=.94) few of the other indices of fit were within acceptable levels (X^2/df=6.22 and there were 41 modification parameters greater than 5.0).

The model for the white students was altered in a sequential process by: (a) including those parameters that had modification indices over 5.0 and that made conceptual sense and (b) deleting those parameters that had nonsignificant t-tests. The resulting model also had a significant statistical test of the goodness of fit (X^2 (166, N=1475)= 448.70, p<.001) but the other indices of goodness of fit demonstrated that it was an adequate approximation of the data (delta= .97, X^2/df= 2.7, all of the modification indices were less than 5.0, and all of the t-tests on the parameters included in the model were significant). The structural model of this revised model of white student academic success is depicted in Figure 2. Again, the reader should note that the parameter estimates associated with the measurement model have not been included for ease of presentation. This final model accounted for a total of 30% of the variance in the three academic success measures(R^2

for GPA= .28, R^2 for 3 semester persistence= .17, R^2 for 5 semester persistence= .48).

Insert Figure 2 About Here

As can be seen from Figure 2, the structural model of the white academic success process was quite different from the model for the black students. First, only one of the noncognitive dimensions (relaistic self-appraisal) was predictive of persistence for whites and that to a minor degree. Only positive self-concept and academic ability were causally related to first semester GPA. First semester GPA was causally related to subsequent persistence. None of the other dimensions were important in accounting for academic success for the white students.

Discussion

The results of this study support the contention that different processes are involved in academic success for white and black students on a predominately white campus. For whites the best predictor of academic success was SAT scores. This plus positive self-concept predicted first semester grades fairly well for the white students. Further, first semester grades were the major predictor of subsequent persistence one and two years later for white students. Given that most admissions validation tests are conducted using these traditional

academic ability measures on first semester or first year grades at best, these results support the validity of using these predictors for white students. Also these first semester grades were the best predictor of persistence.

A very different picture emerged with respect to the black sample. As with the white sample, the best predictors of first semester grades were SAT scores. But these first semester grades were not related to subsequent persistence. Persistence and grades were found to be independent of each other. Thus having traditional academic ability (as measured by SAT scores) and doing well initially in college have little bearing on remaining enrolled for black students. We have often heard that those who drop out of higher education are those that cannot meet the academic demands. With respect to black students in this study, this does not appear to be true. Remaining enrolled has little to do with meeting academic demands. It appears that other elements are involved. Sedlacek and Brooks proposed that these other elements are the seven noncognitive dimensions.

As expected, these noncognitive dimensions had a strong effect on persistence, only for the black students. These results support those found by Tracey and Sedlacek (1984, 1985, 1987) in past studies. Those dimensions most related to persistence after three semesters were having a positive self concept, a realistic self-appraisal (seeing extra effort as necessary), preferring long range goals to more short-term immediate needs, and having some leadership experience.

Those black students that stay enrolled are those that are generally more mature and able to cope with a wider variety of issues than those that do not. This makes sense in that there are many things that require coping in one's undergraduate years. The better equipped black students are to cope, the higher the likelihood that they will persist, independent of traditional indicators of academic ability (i.e., SAT scores).

This result is enlightening when one realizes that a similar relationship was not found for white students. Ability to meet academic demands (academic ability) was the best predictor of persistence. The noncognitive dimensions had little effect on persistence for white students. So why is it that we require our black students to be more mature than our white students? Perhaps this result is indicative of the very different environment faced by white and black students at predominately white institutions. Mechanisms may exist such that academic success for white students is more closely associated with traditional academic ability but black students need more. As an example, if a white student were not doing well, he or she may be able to go to a friend in the class or to the instructor to get some extra help (or indeed the help may be offered without needing to solicit it). A black student may not be as comfortable seeking out other students or the instructor (for most all are white) for assistance. It would take a more mature black student to overcome some of these extra obstacles to seek help. We are requiring very different

skills of our black and white students.

These results do point out that it may be beneficial to view black students in predominately white schools as different than we view white students. As Fleming (1984) has found, the academic success process is very different for black and white students. Account needs to be taken of noncognitive information in selecting these students. Perhaps with black students near the borderline with respect to traditional academic predictors (high school GPA and SAT scores) these noncognitive dimensions could be used to do a better job of selection. Also, programs could be designed to help enhance these dimensions in students that are enrolled. But perhaps more important, is the need to examine the hurdles that exist that account for this difference in the academic success process between black and white students. What could be done to remove these differences? Fleming (in press) offers a number of suggestions in his review of the literature on black students on white campuses over a 20 year period.

The results of this study are interesting in their implications but there are several issues that limit the generalizability of the results. First, these results were found only at one institution. More work is needed in examining how valid these results are at other institutions. Some steps have been taken in this regard. Another problem with the validity of these results is the potential bias due to a restriction of range in the SAT scores. Since SAT scores were used in selection, the failure of academic ability to account for

persistence may be attributable to the decreased variance in this dimension. The noncognitive dimensions on the other hand were not used in selection and thus there is greater variance and a higher probability of accounting for differences in the samples. However, the institution where this study was conducted is a state school which typically accepts 90% of the in-state applicants. The amount of restriction in range is thus quite small.

The results of this study are also limited in their generalizability by the validity of the particular model tested. As in all path analyses, several different models can account for data variation. Other models may account for the data as well or better than the one tested. But part of the evaluation of the model should be based on the plausibility (in empirical and theoretical terms) of the specific model examined. The model examined in this study may not be the only one but it is supported by past research and theory.

Another potential limitation of this study is the inclusion of non-normally distributed variables in the model (i.e., the persistence variables). We used biserial correlations to represent relationships with these variables but even so, using nonnormal variables in LISREL can result in biased parameter estimates. However, the results of this study support those of past research using these dimensions (Tracey & Sedlacek, 1984, 1985, 1987).

The results of the LISREL analyses did indicate that more work is needed on finding more accurate measures of the noncognitive

dimensions. The NCQ does an adequate job of assessing these dimensions but more items are needed in each of the subscales to yield more reliable and valid measures.

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Table 1

Correlation matrix of the measured variables. [Blacks above the diagonal and Whites below]

Variable	GPA	ENR3	ENR5	I28	I26	I27	I18	I21	I10D	I22	I29C	I24	I25
GPA	---	25	21	34	39	37	13	-14	19	-19	07	-11	-07
ENR3	16	---	54	20	20	20	-03	-17	26	-05	17	12	-10
ENR5	20	67	---	20	19	19	-06	-19	16	-10	12	07	-10
I28	30	19	12	---	71	72	00	-09	09	-20	-12	-03	-10
I26	15	09	04	26	---	66	05	-11	-05	-26	-10	01	-10
I27	07	03	-01	24	40	---	-02	-08	-05	-27	-12	-03	-05
I18	14	09	06	15	19	-02	---	-22	06	11	-01	22	-07
I21	-05	-01	00	-06	01	11	-16	---	-21	06	-02	-13	05
I10D	22	06	04	23	08	-06	12	-06	---	-01	06	08	-04
I22	-03	-04	00	-02	-05	-06	02	01	00	---	-13	06	05
I29C	01	01	-03	-03	-03	-04	01	02	04	-01	---	02	-03
I24	03	02	02	07	-02	-15	14	-09	03	07	02	---	-38
I25	-03	-02	-02	02	05	16	-09	10	-05	03	-05	-30	---
I15	-03	-02	02	-05	-03	09	-12	07	-02	-02	-01	-10	10
I14	-02	-03	00	03	02	13	-09	09	-09	05	-03	-05	08
I17	01	02	02	06	08	11	-08	03	-05	03	-04	-02	06
I19	-06	-02	-04	-16	-02	05	-11	14	-03	00	08	-02	10
I7	10	14	06	04	06	-05	15	-05	13	-07	06	09	-10
I9	-06	-05	-02	-05	-07	01	-11	02	-02	00	00	-02	08
SATV	36	11	12	10	12	02	22	-17	23	-07	07	07	-07
SATQ	34	15	17	14	21	04	23	-13	20	-10	01	02	-08

Table 1 continued on next page

Table 1 (continued)

Variable	I15	I14	I17	I19	I7	I9	SATV	SATQ
GPA	15	09	-11	-09	-04	-14	48	50
EN83	15	04	-01	-03	04	-10	24	20
EN85	13	03	-07	-03	23	-12	19	16
I28	11	-02	01	-21	26	-22	34	45
I26	05	-03	-04	-22	26	-25	42	54
I27	16	20	07	-12	26	-27	42	51
I18	00	-16	-10	-05	04	-02	08	08
I21	08	10	25	16	-09	16	-31	-30
I10D	-07	-15	-09	02	00	10	18	19
I22	09	-09	-02	11	-22	11	-18	-19
I29C	-17	07	07	04	15	04	03	02
I24	-18	10	02	-06	10	09	03	04
I25	13	09	04	21	-20	-03	14	13
I15	--	12	14	14	01	-03	07	05
I14	14	--	44	11	07	05	07	01
I17	15	38	--	21	-01	05	10	10
I19	10	07	13	--	-13	12	12	17
I7	-02	-15	-04	-09	--	11	04	06
I9	08	05	05	03	04	--	10	13
SATV	04	08	01	00	22	06	--	70
SATQ	04	09	03	06	22	06	66	--

Note: To save space, decimals have been omitted.

Table 2

Measurement Model of the NCQ for the Black Sample.

Item	Construct	Lambda
I28 My HS grades do not reflect what I can do	Positive Self-Concept	.77
I26 If tutoring is available at no cost, I will attend regularly.	Positive Self-Concept	.92
I27 I want a chance to prove myself academically	Positive Self-Concept	.96
I18 I expect to have a harder time than most.	Realistic Self-Appraisal	-.41
I21 I am as skilled academically as the average student.	Realistic Self-Appraisal	55
I10D Rated difficulty of three accomplishments	Realistic Self-Appraisal	-.28
I22 I expect I will encounter racism in college.	Racism	.99
I29C Rated community service in outside activities.	Community Service	.99
I24 My friends and relatives don't think I should go to college.	Support	-.66
I25 My family always wanted me to go to college.	Support	.55
I15 If I run into problems concerning school, I have someone who would listen to me and help me.	Support	.28
I14 I am sometimes looked up to by others.	Leadership	.69
I17 In groups where I am comfortable, I am often looked to as leader.	Leadership	64
I19 Once I start something I finish it.	Long Range Goals	.40
I7 Amount of education expected.	Long Range Goals	-.40
I9 Certainty of finishing college.	Long Range Goals	32
SAT Verbal	Academic Ability	.77
SAT Quantative	Academic Ability	.86

Note that the lambda coefficient presented is standardized.

Table 3

Measurement Model of the NLS for the Black Sample.

Item	Construct	Loading
128 My HS grades do not reflect what I can do	Positive Self-Concept	.75
126 If tutoring is available at no cost, I will attend regularly.	Positive Self-Concept	.82
	Long Range Goals	.45
	Academic Ability	.17
127 I want a chance to prove myself at [illegible]	Positive Self-Concept	.96
	Long Range Goals	.25
I18 I expect to have a [illegible]	Realistic Self-Appraisal	-.37
121 I am as skilled academically as the average student.	Realistic Self-Appraisal	.24
I100 Rated difficulty of [illegible]	Realistic Self-Appraisal	-.37
I22 I expect I will encounter racism in college.	Racism	.93
I29C Rated community service in outside activities.	Community Service	.99
I24 My friends and relatives don't think I should go to college.	Support	-.54
I25 My family always wanted me to go to college.	Support	.55
I15 If I run into problems concerning school, I have someone who would listen to me and help me.	Support	-.16
	Leadership	.21
I14 I am sometimes looked up to by others.	Leadership	.63
I17 In groups where I'm comfortable, I am often looked to as leader	Leadership	.60
I19 Once I start something I finish it	Long Range Goals	.54
	Leadership	.18
I7 Amount of education expected.	Long Range Goals	.44
	Leadership	-.18
	Academic Ability	.28
I9 Certainty of finishing college	Long Range Goals	.36
SAT Verbal	Academic Ability	.75
SAT Quantative	Academic Ability	.75

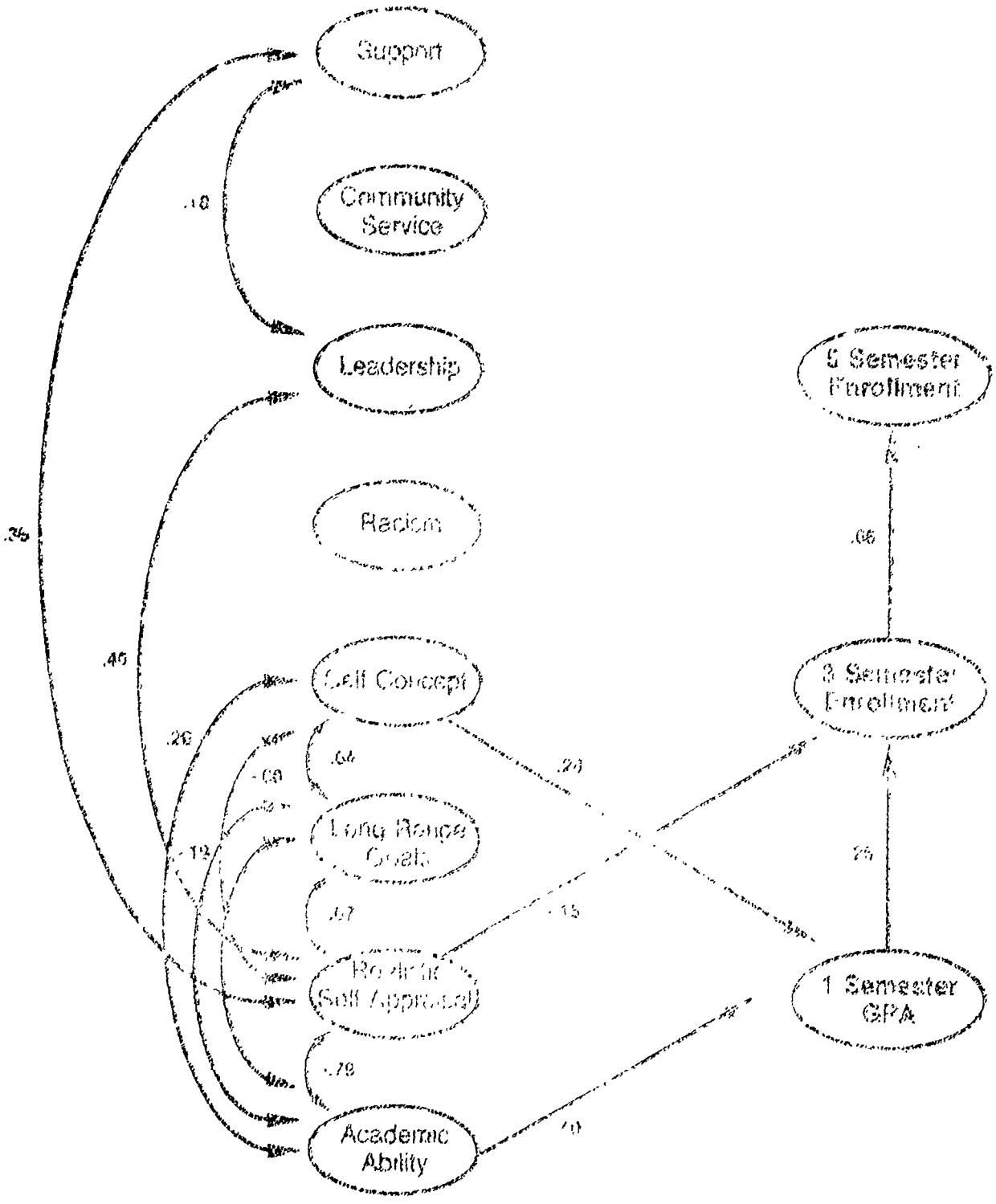
Note that all loadings listed are standardized

Figure Caption

Figure 1: Structural model obtained on the Black sample

Figure Caption

Figure 2: Structural model obtained on the White sample.


Support
Community Service
Leadership
Racism
Self Concept
Long Range Goals
Realistic Self Appraisal
Academic Ability
5 Semester Enrollment
3 Semester Enrollment
1 Semester GPA
.10
.35
.45
.20
.12
.64
.09
.07
.78
.20
.15
.10
.05
.25