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ABSTRACT

This study examines effects of traditional American values, held by students, their parents, and their friends on the success of students in school and their use of out-of-school time. Students' values in this study refer to the work ethic, importance attached to education, and strength of religiosity. Indicators of parents' values are concerns for their children's success in school. Values of a student's friends refer to the importance they attach to education. Data for this study came from the sample of 30,000 sophomores in the 1980 High School and Beyond Survey, which involved 1,100 high schools throughout the country. In 1982, there was a follow-up study of this sample of students. The primary finding of this study was that traditional American values are important predictors of students' success in school, as indicated, for example, by high academic achievement and infrequency of discipline problems in school. Traditional values are twice as important as family socioeconomic status in predicting the success of students in school. Another major finding was that students with strong traditional values were more likely than those with less-traditional values to use time outside of school to reinforce learning in school. For example, there was a significant difference in the amount of time spent on homework. Likewise, students with parents and friends who valued education and good behavior in school were more likely to have success in school. It seems that efforts to improve the American educational system must take into account the values held by students, their parents, and their friends. (JP)

GAINING GROUND:

VALUES AND HIGH SCHOOL SUCCESS

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EXECUTIVE SUMMARY

GAINING GROUND: VALUES AND HIGH SCHOOL SUCCESS

A new study based on a 1980 survey of over 30,000 high school students finds that high school students with more traditional values have significantly better school performance. Students also achieve greater school success when parents and friends place a high value on education. The principal authors of the study are Sandra Hanson of Decision Resources Corporation and Alan Ginsburg of the Department of Education.

The study examines the effects of:

- o students' values (e.g., work ethic, importance attached to education and strength of religiosity),
- o parents' values (e.g., concern over their children's behavior and importance placed on education for their children), and
- o friends' values (e.g., importance attached to education).

The study relates these values to a broad set of student outcomes, including academic performance, discipline, and finishing high school.

Major Findings

Two general findings of the research which cut across different types of values are:

- o Traditional American values are important predictors of student success; in fact, they are twice as important for student performance as family socioeconomic background.

  This finding has important implications. Since values are more subject to change than family socioeconomic background, a student who does not have the advantage of higher family socioeconomic status need not be relegated to failure in school.

- o Students with strong traditional values are also more likely to use their out-of-school time in ways that reinforce learning. For example, high school students with more traditional values spend about three more hours a week on homework than do students with less traditional values. (This is a significant amount of time, since the average student spends only about five hours a week doing homework.)

The contributions of specific values to school success were surprisingly large. Students with strongly held traditional values (i.e., who rank in the upper quartile) were compared to students with weaker values (i.e., who rank in the bottom quartile). The group with more traditional values often had an advantage of 10 or more percentile points on school outcome measures. For example:

Students' Values

- Students who valued the work ethic often outperformed students with weaker work ethic values by up to 17 percentile points on grade point average, 18 percentile points on math achievement, and 22 percentile points on reading achievement.

- Students who attached a high importance to education outperformed students with weaker educational values by up to 16 percentile points on grade point average, and 12 percentile points on math achievement.

- Students who were religious often outperformed students with weaker religious values by up to 15 percentile points on grade point average and 15 percentile points on discipline.

Parents' Values

- Students with parents who valued education for their children outperformed students whose parents valued education less by up to 19 percentile points on grade point average, 21 percentile points on math, and 17 percentile points on reading.

- Students with parents who exhibited a strong concern for their children's behavior outperformed students whose parents exhibited less concern for their children's behavior by up to 10 percentile points on discipline.

Friends' Values

- Students with friends who attached importance to education outperformed students whose friends valued education less by up to 13 percentile points on grade point average, and 17 percentile points on discipline problems.

Data and Methodology

Much of the previous research on the effects of values on student performance suffers from two serious shortcomings: (1) the use of data that are outdated or not representative of the population of interest; and (2) the use of estimation methods that pay inadequate attention to modeling the underlying behavioral relationships linking values to student outcomes. This research design attempted to improve upon previus studies in both respects.

First, data for this study came from the sophomore cohort of the nationally representative High School and Beyond Survey (HSB). The 1980 base year data included over 30,000 sophomore students in 1,100 schools throughout the country. The follow-up sample was collected two years later in the spring of 1982. These data bases contain a wealth of information on a wide range of student, family, and school outcome characteristics.

Second, a number of measurement procedures improved confidence in findings showing the importance of values for school outcomes.

- o Using multiple indicators, a variety of values were measured, including students' work ethic, educational and religious values; parents' concern and educational values; and friends' educational values.
- o A possible confounding of values variables with other family attributes was avoided by taking into account a large number of family background characteristics in the estimation procedures, including family income and parents' average education.
- o Separate analyses allowed for an examination of differences in the determinants of school outcomes for blacks and whites.
- o Values were allowed to work through student behavior characteristics such as time spent on reading and homework, which in turn affected student performance. This procedure improves upon commonly used models that allow only for the direct effects of values on student outcomes.
- o The direction of causation between values and high school outcomes was tested using longitudinal data.

Implications

The findings suggest that efforts to improve the American educational system must take into account the values that students, their parents, and their peers hold in the areas of work ethic, responsibility, and religiosity.

GAINING GROUND: VALUES AND HIGH SCHOOL SUCCESS

In the last decade a number of alarming developments and trends have been occurring in the American educational system. Falling Scholastic Aptitude Test scores, high drop-out rates, large achievement gaps between blacks and whites, and the inadequate math and reading skills of many high school graduates have stimulated considerable discussion and examination of the factors associated with educational achievement in America.

Recently, a number of educators and researchers have suggested that the attitudes and values of students, their parents, and their peers play an extremely important role in the educational achievement process and may be a key part of the solution to America's education dilemas. In Walberg's (1984) analysis of factors that influence high school learning, he found that parental concern and encouragement were twice as predictive of academic learning as was family socioeconomic status. In a recent study of Asian refugee students in the United States, Caplan (1985) discovered that these students tended to have above average achievement and families who put a high value on education and hard work. Finally, Freeman and Holzer (1985) recently concluded that church-going was an important predictor of school going in their study of black inner-city youth.

Systematic evaluation of the role of values-related variables in the educational attainment process began with the addition of "social psychological" variables to the traditional status attainment model of Blau and Duncan (1967). Analyses performed by Sewell, Hauser and others based on a longitudinal survey of Wisconsin seniors illuminated the

critical role of social psychological variables in mediating the impact of family background on educational attainment (see, e.g., Sewell and Hauser, 1972; Sewell et al., 1969; Hauser, 1972; Sewell et al., 1970). Although this early status attainment research focused on educational attainment (i.e., years of education) rather than educational achievement (i.e., grades or achievement test scores), Coleman's early work (Coleman, 1960) and more recent examinations of the educational achievement process have also focused on the attitudes and aspirations of students, their parents, and their peers as critical factors in determining educational success (see, e.g., Alexander et al., 1978; Alexander and Cook, 1982; Alexander and McDill, 1976; Goertz, 1985; Ekstrom, 1985).

In this research, we use the status attainment framework and the nationally representative "High School and Beyond" data to examine the relationship between a number of values-related variables and high school students' achievement test scores, grades, discipline problems, and dropout status. We also examine the extent to which student behavior outside of school (e.g., time spent watching television and doing homework) mediates the relationship between values and high school outcomes. Our research goes beyond previous research in (1) looking at a broader range of value variables and student outcomes; (2) considering the mechanisms through which values potentially affect school outcomes; and (3) testing the causal sequencing of the values and school outcome variables.

The values investigated center on the themes of getting ahead, working hard, responsibility, and religiosity.[1/] Specifically, they include students' religious, work ethic, and educational values; peers' educational values; and parents' educational aspirations and expectations, and general level of concern for their high schoolers.

If indeed values of students, parents, and peers play an important role in high schoolers' achievement and behavior by affecting the effort of the student, there may be cause for considerable optimism. For values (and the efforts they spur) may be more conducive to change and hence allow more equality of opportunity than would be the case if family socioeconomic status or students' innate ability were the only determinants of school achievement.

Literature on Values and High School Outcomes

Before beginning our review of the literature, we should note that values are not a variable often considered in research on dropping out and school discipline problems, especially research on school discipline problems. Thus much of the literature reviewed below concerning values and these school behaviors addresses the dropout. not the school disciplinary problem. We also review some literature on the related variable, delinquency. Many theories of delinquency suggest the

1/ The term values is used rather loosely in this paper. It denotes a set of motivational variables for students (and for their parents and friends) that influence their school achievement and both in-school and out-of-school behavior. These include indicators of getting ahead, working hard, responsibility, and religiosity including expectations, aspirations, attitudes, behaviors, and religious beliefs.

importance of values. For example, Merton (1968) and Cloward and Ohlin (1960) conclude that lower-class students are more apt to fail in school and to be discipline problems due to poor socialization or at least socialization into non-middle-class values. Thus, values involving conformity to norms, observance of laws, and hard work are suggested as important indicators in distinguishing delinquents from nondelinquents.

Student Values

Religiosity. Religious values as used in our research refers to measurable activities and attitudes that are assumed to reflect religiosity or intensity of religious beliefs. Unfortunately, much of the small body of literature relating religion and school achievement deals with students' religious affiliations rather than their religiosity. The literature which does focus on religiosity provides mixed results.

One study of university students found strong religious values to be associated with both high- and low-attainment clusters, suggesting the possibility of a curvilinear relationship between religiosity and achievement (Entwistle and Brennan, 1971). Other investigations suggest an inverse relationship between religiosity and achievement (Entwistle, 1972; Dessent-Geller, 1981).

The view that strong religious values produce moral and law-abiding citizens is widespread in religious and law enforcement circles. Social scientists also see religious sanctions as playing an important role in maintaining norm-conformity (Davis, 1948). However, criminological research on the relationship between religiosity and delinquency yields inconsistent results. While some have concluded that church attendance

only weakly encourages obedience to the law and has no influence on delinquency (Hirschi and Stark, 1969), others have discovered a moderately strong negative relationship between specific delinquent acts (e.g., use of marijuana and alcohol) and religiocity (Burkett and White, 1974).

Work Ethic (Protestant Ethic). A second set of values used in our research involves the work ethic, measured by belief in the importance of hard work (often referred to as the Protestant ethic) and an attitudinal variable commonly referred to as locus of control. A high internal locus of control refers to the belief that one's actions and efforts, rather than fate or luck, determine one's successes.

A number of researchers have found an association between the Protestant ethic and locus of control values. Individuals with high scores on the Protestant ethic scale also tend to score high on the internal locus of control scale (Mirels and Garrett, 1971; Waters, Batlis, and Waters, 1975). Thus, both of these variables can be viewed as indicators of a student's evaluation of the importance of effort and hard work. Interestingly, research on the relative importance of effort vs. ability for achievement suggests that the two are compensatory - that is, extra effort can overcome the handicap of low ability (Weiner, 1973).

While a substantial body of literature addresses the relationship between these personality variables (judging oneself as hardworking and feeling in control of one's life) and occupational success, little systematic research has been done on the relationship between these personality variables and academic success or failure. What research is available is contradictory.

Some studies suggest that high-achieving students are likely to rate themselves as hardworking and ambitious, and as having considerable control over their environment (Entwistle and Brennan, 1971; Whalen and Fried, 1973; Coleman et al., 1966; Rock et al., 1985). However, others have found no relationship between Protestant ethic attitudes and achievement (Waters et al., 1975). In Coleman's (1966) seminal work on factors related to school achievement, he discovered that a set of attitudes including students self concept with regard to learning and success in school, and students feeling of control over environment (e.g., believing that hard work pays off) showed a stronger relation to achievement than did family background and school variables.

Research on school dropouts has rather consistently shown that attitudes reflecting a strong work ethic (ambitious, industrious, responsible) reduce a student's chances of dropping out of high school (Bachman et al., 1971, 1978; Cervantes, 1965; Rumberger, 1983). The limited research on values and delinquency suggests that these work ethic values similarly discourage delinquency (Cervantes, 1965). In addition, adolescents with an internal locus of control (i.e., who see themselves as having control over their own fate) have been found to be less likely to drop out of high school (Bachman et al., 1971; Cervantes, 1965; Rock, 1985).

Educational Expectations. Status attainment research suggests that family background indirectly affects educational attainment through educational expectations (Sewell and Hauser, 1972; Sewell and Shah, 1967). Likewise, research on educational achievement supports the conclusion that a student's educational aspirations positively influence

educational achievement (Levin, 1970; Michelson, 1970; and Myers et al., 1985).

Research on delinquency and dropping out shows similar findings. Adolescents who have low educational expectations (that is, they perceive themselves as not having the opportunity to obtain a high level of education) are more likely to drop out (Elliot and Voss, 1974; Bachman et al., 1978; Myers and Ellman, 1983; Rumberger, 1983) and to become involved in delinquent behavior (Elliot and Voss, 1974). The effects of plans for college on educational attainment have been found to be as strong as the effects of socioeconomic status (Bachman et al., 1978). Although low educational expectations have been shown to correlate with dropping out and delinquency, recent analyses of school discipline problems suggest that students' educational expectations do not significantly affect their in-school discipline problems (DiPrete, 1981; Myers et al., 1985).

Parents' Educational Aspirations and Expectations and General Level of Concern

Our research focuses on two specific variables related to the home environment: parents' educational aspirations and expectations, and their general parental concern for the adolescent.

Parents' Educational Aspirations and Expectations. In traditional status attainment models parents' educational expectations and aspirations have been found to be critical factors in predicting educational attainment (Sewell et al., 1969; Sewell and Hauser, 1972). Research shows that when other factors are controlled, the perception of strong parental encouragement has a "net value" of six-tenths of a year of higher education (Sewell and Hauser, 1972, p. 857) .

Little research attempts to relate parents' educational aspirations and expectations to their children's discipline problems and delinquency, and the relevant research on school dropouts is inconclusive. An Australian study of factors influencing intentions to leave school showed that both boys and girls were strongly affected by their perceptions of their parents' aspirations for them (Schrom, 1980). These aspirations were found to be important in mediating the effects of family background and school characteristics. Although other research shows a similar influence of parent's education expectations on chances of dropping out (Rock, 1985), at least one study has concluded that parents' educational expectations do not have a significant impact on dropping out (Myers and Ellman, 1983).

General Level of Concern. Ou. cond parental variable focuses on their general concern for the adolescent. A recent meta analysis of factors influencing learning suggests that "the alterable 'curriculum of the home' is twice as predictive of academic learning as is family socioeconomic status" (Walberg, 1984, p. 25). This "curriculum" involves "informed parent-child conversations about school and everyday events, encouragement and discussion of leisure reading, monitoring and joint critical analyses of television viewing and peer activities, and expression of affection and interest in the child's academic and other progress as a person" (p. 25). Although a number of other researchers have reached similar conclusions on the importance of family inputs for achievement (Mayeske et al., 1973; Levine, 1983; Levin, 1970; Leibowitz, 1977; Rock et al., 1985), some have suggested that the socioeconomic composition of the school (a reflection of family socioeconomic status)

is far more predictive of academic achievement than are parent-child interactions (Benson et al., 1980).

We turn next to the literature on the relationship between general parental concern and school-related behavior. Students who report that their parents monitor their schoolwork and whose parents almost always know where they are and what they are doing have been found to behave better both in and out of school; in fact the effects of this parental concern may be larger than the effects of socioeconomic status (DiPrete, 1981). Similarly, students who have more study aids in the home, greater opportunity for non-school learning, and parents who are interested in and monitor both in-school and out-of-school behaviors have been found to be less likely to drop out of high school (Rock, 1985).

Related research provides further insights into the consequences of parental concern for student behavior. Numerous studies suggest that parental rejection of the adolescent is associated with delinquency (Andry, 1962; Rodman and Grams, 1967; Slocum amd Stone, 1963; Elliot and Voss, 1974). Programs designed to prevent students from dropping out and to help students with discipline problems almost invariably require parental involvement in order to be successful (Pike County Board of Education, 1981; Brown and Allen, 1981).

Peers' Educational Values

Another factor that may influence high schoolers' achievement involves the educational values and expectations of their peers. A number of researchers have found peer influences to be an important factor in educational attainment (Alexander and Campbell, 1964; Campbell and Alexander, 1965; Haller and Butterworth, 1960; Sewell and Hauser,

1972). It has been suggested that having friends who plan on attending college has a "net value" of three-fourths of a year of education (Sewell and Hauser, 1972, p. 857).

A recent review of the literature cites nine factors that influence learning (Walberg, 1984). Two of the environmental factors - the classroom social group and the peer group outside the school - were found to consistently influence learning.

Others have discovered that dropouts are more likely than other adolescents to reject adult authority and accept the authority of peers who are not school oriented and who tend to reject Judeo-Christian capitalistic values (Cervantes, 1965). The educational aspirations that friends hold both for the youth and for themselves have been found to be associated with dropping out, with higher aspirations reducing chances of dropping out (Myers and Ellman, 1983; Rumberger, 1983).

In sum, while our review of the research suggests that values may play an important role in achievement and school behavior processes, the literature is not conclusive about the precise nature of these effects. For example, researchers found no correlation between religiosity and delinquent acts in general (Hirschi and Stark, 1969). Yet, when specific types of delinquent acts were examined, there did appear to be a correlation with religiosity (Burkett and White, 1974).

The most serious shortcomings of the research reviewed above include the nonprobability samples (e.g., Dessent-Geller, 1981; Entwistle, 1972); outdated data (e.g., Coleman et al., 1966; Levin, 1970; Michelson, 1970); and shortage of important control variables and general inattention to modeling (e.g., Benson et al., 1980; Dessent-Geller, 1981; Entwistle and

Brennan, 1971). We conclude, then, that there is a need for systematic values research such as ours, where a multivariate model, current data, a probability sample, multiple endogenous and exogenous control variables, and a broad range of values and student outcomes are employed.

Research Design and Data Sources

Data for this research project come from the sophomore cohort of the 1980 and 1982 "High School and Beyond" surveys.[2/] The base year data was collected in the spring of 1980 from over 30,000 10th grade students. The sampling design involved a multistage, stratified cluster sample involving more than 1,100 schools. Response rates for the questionnaire and achievement tests were 84 percent and 77 percent respectively. The follow-up sample was collected in the spring of 1982. Sample weights were developed to adjust for unequal probabilities of selection in the follow-up and for sample nonresponse.

In both the base year and the follow-up questionnaires, students contributed extensive information on a wide range of individual, family, and school characteristics. Achievement tests in reading and mathematics were administered to members of the sophomore cohort in 1980 and 1982, including those who dropped out in the interim.

Missing Data

In this study missing data are due primarily to item nonresponse rather than to sample nonresponse, since sample response rates were quite

2/ Our analysis does not include the senior cohort since our outcomes of interest include dropping out (very few seniors dropped out after the 1980 interview) and changes in achievement test scores.

high. Three techniques are available for dealing with item nonresponse--listwise deletion, pairwise deletion, and imputation. We concluded that a regression-based form of imputation to estimate missing values offers the fewest disadvantages.[3/]

Models

The high school outcomes of interest in this research include achievement test scores, self-reported grade point average, discipline problems, and dropout status. The major intermediary outcomes of interest are students' behaviors outside of school including their employment status and time spent on homework, watching television, and reading. We are interested in examining how the students' value systems, and those of their parents and peers affect their achievement in school and their behavior outside school when family background characteristics are taken into account. Both the direct and indirect effect of values on students' school achievement and behavior are examined.

We utilize two models in analyzing these relationships. Both draw on previous research examining the educational achievement process (see, for example, Coleman et al., 1982a; Coleman et al., 1982b; Hoffer et al., 1984; Alexander and McDill, 1976; Alexander and Cook, 1982).

The first model examined is the cross-sectional model presented in Figure 1. Here the variables are all measured in 1980 (with the exception of dropout status which was measured in 1982) and the general causal ordering goes from individual and family background characteristics

3/ See Wise and McLaughlin (1980) for a detailed discussion of the imputation techniques available and of the distributional technique used here which is available in SAS.

to values to out-of-school behavior to school outcomes. Cross-sectional models like this one are popular in the educational achievement literature.

In the second model we use a longitudinal approach and focus our attention on the change in achievement test scores. In this model, we include 1980 achievement in the 1982 achievement equations (both 1980 and 1982 achievement test scores are available for dropouts and non-dropouts) and thus we can look at the effect of values as measured in 1980 on changes in achievement test scores between 1980 and 1982. Dropout status which occurred between the sophomore and senior years is allowed to affect changes in achievement test scores between 1980 and 1982 since the time ordering is clear. Changes in the other two 1980 school outcomes—grade point average and discipline problems—are not analyzed since 1982 information is unavailable for dropouts. Although the time-relation between 1980 values and dropping out of high school is straightforward, we do not examine it here since it is examined in the model described earlier. This second model is essentially a test of the hypothesis that value systems are causally prior to school achievement. We do not limit our analyses to this model since we are interested in examining the consequences of values for the high school outcomes of dropouts as well as non-dropouts.

We should note that we excluded several of the causal paths from these two models on theoretical grounds. Paths from student's religious values to number of sibs, family income, parents' educational

expectations and concern, and work status were excluded.[4/] In addition, paths from gender to number of sibs and family income were not included. Since the educational achievement process has been shown to differ for blacks and whites, we analyze the two research models separately for these two groups.

Structural equation models are used to estimate the total, direct, and indirect effects of family background, values, and out-of-school behavior variables. Indirect effects are derived by multiplying appropriate path coefficients. Both the individual paths of indirect effect and the sum of these paths are considered for each independent variable of interest. For example, the indirect effect of religiosity on math achievement via time spent on homework is examined as well as the sum of all of the indirect effects of religiosity on math achievement. Total effects are derived by summing the direct effects with these indirect effects. The estimation technique is ordinary least squares. Two of the outcome variables in our model—dropout status and discipline problems—are not interval level variables and thus present a potential problem in a regression context. However, a comparison of results using ordinary least square regression and probit analyses showed minimal differences in the size of coefficients and no differences in patterns of significance. Probit analyses were not used because of difficulties in estimating direct and indirect effects.

4/ Many of these paths would be inappropriate if the relgious values variable measured parents' religious values. Information on parents' religious values is not available in HSB.

Dependent Variables

The high school outcomes of interest in this paper include math and reading achievement test scores measured in 1980 and 1982, grade point average, in-school discipline problems, and dropout status. Summary statistics for these and other variables are presented in the Appendix.

Achievement tests in reading and mathematics were administered to all students in 1980 and again to base year sophomores (regardless of dropout status) in the spring of 1982. Grades were self-reported by sophomores in 1980. In-school discipline problems (or misbehavior) were measured in 1980 using a Guttman scale derived from the three items used by DiPrete (1981). These self-report items indicate whether a student cuts class, is seen as a trouble maker by other students, or has been in serious trouble with the law. The coefficients of reproducibility and scalability for in-school discipline problems during the sophomore year suggest that these items form a reasonably good scale (see Myers et al., 1985). Students classified as dropouts are those nongraduates not enrolled in school at the time of the 1982 follow-up survey (without regard to subsequent return to school). Except for the 1982 achievement test scores and dropout information, all of the variables in this research come from the 1980 survey.

Independent Variables Measuring Individual and Family Background Characteristics

Variables measuring individual and family background characteristics include parents' average education, mother's part-time and full-time work status, single-parent status, family income, number of sibiings, and gender.

Values Variables

We have already noted that the term values is used loosely in this research. It includes a set of variables measuring characteristics which we consider to be good indicators of the underlying value systems of students, their parents, and peers. More specifically, the value systems under consideration relate to the notions of getting ahead, working hard, responsibility, and religiosity. The values measured include students' religious, work ethic, and educational values; their peers' educational values, and their parents' educational values and general level of concern. With the exception of students' educational expectations, all of the values variables were measured with multiple items. We used exploratory factor analysis and theoretical considerations to label the latent variables and to make decisions about the best set of indicators. Values variables were operationalized using factor scores. Information on the measurement and distributions of the items used to measure the latent values variables is presented in the Appendix.

The students' religious values are measured by three indicators based on questions about religiosity, attendance at religious services, and involvement in church activities.

Two aspects of the students' work ethic are considered--their internal locus of control and the degree of importance attached to work. Six items are used to measure extent to which the students feel in control of what happens to them. Our earlier examination of the literature suggested that this characteristic is strongly related to the Protestant (or work) ethic. The importance attached to work--the other dimension of the work ethic included in this research--is measured with

questions about the importance attached to steady work, the importance attached to being successful, and whether or not the adolescent likes to work hard in school.

The final student value--students' educational expectations--is a nonlatent variable measured with a single indicator.

Three items are used to measure the latent variable involving peers' educational values. These include questions about their closest friend's class attendance and plans to go to college, as well as about their friends' feelings concerning students with good grades.

Finally, two aspects of parents' values are included in our models--their general level of concern and their educational expectations. The level of concern is measured using five questions addressing the parents' involvement in the adolescents' day to day activities. Three questions involving the mother's and father's educational expectations and aspirations for the child are used to measure the parents' educational expectations.

Student Out-of-School Behavior

The intermediary outcome variables of interest in this research are a set of student out-of-school behaviors including time spent doing homework, time spent watching television, amount of reading, and the students' work status. Research has shown that out-of-school behaviors involving homework (Coleman et al., 1982; Walberg et al., 1984; Rock et al., 1984), television (Coleman et al., 1984; Milne et al., 1985); and employment (D'Amico, 1984; Steinberg et al., 1982; Greenberger, 1983) affect school outcomes. In addition, a number of researchers have suggested that values as measured by student's achievement motivation,

the importance students place on education, parental interest and pro-educational family inputs are potentially important determinants of student behaviors such as good study habits and time spent watching television (Entwistle and Brennan, 1971; Levine and Worley, 1985; Benson et al., 1980).

RESULTS

In presenting our results, we first focus on the cross-sectional model (see Figure 1) and then shift our attention to the change model. The discussion of results from the cross-sectional model is the lengthiest since these are a larger number of school outcomes examined, and it is here where we include our discussion of the effects of values on school outcomes via out-of-school behavior. Using the cross-sectional model, we first present results for the effects of values on the intermediate variables of interest--i.e., out-of-school behavior (see Table 1). We then present results for the effects of values and other variables on high school outcomes (see Tables 2 and 3). Note that only direct effects can be directly tested for significance. In order to gain some appreciation for the size of the effects examined in these tables, regression coefficients are presented in standardized form as well as non-standardized form.

Results presented in Table 1 suggest that values have an important impact on most out-of-school behaviors of both black and white adolescents when background characteristics are taken into account. Each of the values has a significant effect on at least one of the behaviors, and the size of many of these effects is considerable. Values especially

influence the amount of time spent doing homework, watching television, and reading. All of the values variables relate significantly to the amount of homework done by both blacks and whites. For example, one standard deviation increase in the score reflecting a student's feeling of being in control or feeling work to be important corresponds to an increase in the time spent on homework of a quarter of an hour per week for whites. (This interpretation is possible given the way values are measured.) The time spent doing homework increases even more with changes in educational expectations, peer values, and parental concern variables.

In general, stronger values reduce the probability that the adolescent will be working for pay, reduce the time spent watching television, and increase the time spent on homework and reading. F tests for the group of values variables as a whole show that values explain a significant amount of variation in all out-of-school behaviors above and beyond that explained by family and individual background. These results, along with the large indirect effects of values on school outcomes through out-of-school behaviors (which are discussed later), support our hypothesis that out-of-school behaviors are important mediators in the relationship between values and high school outcomes.

We turn now to Tables 2 and 3 which show the effects of values and other variables on school outcomes for whites and blacks when background characteristics are taken into account. Although a number of variables are important for the school outcomes of blacks, fewer of the family background, values, and out-of-school behavior variables significantly impact on the school outcomes of blacks as compared to whites.

Results for whites (Table 2) suggest that variables in all three groups--family and individual characteristics; students', parents', and peers' values; and student out-of-school behavior--importantly affect high school outcomes. A majority of the values variables (at least four out of the seven) are significant in each of the five equations. The control over destiny (an indicator of the work ethic), educational expectations, peers' values, and the two parents' values variables are all significant in four out of the five outcome equations. Some of the largest effects are associated with the values measuring work importance, peers' value, and parents' educational expectations. An examination of the standardized coefficients suggests that these effects are large even when compared to other independent variables in the model (e.g., family characteristics). F tests show that the group of values variables makes a significant contribution to the variation explained in each of the school outcomes.

The two unexpected findings are that greater parental concern is associated with lower math and reading scores, but higher grade point averages and lower discipline problems; and that higher parental educational expectations are associated with increased discipline problems.[5/] The first finding suggests that low math and reading scores serve as a warning flag to parents, resulting in greater monitoring and attention to the student's school progress and use of time. This concern evidently has payoffs, however, in terms of improved

5/ We should note that the positive relationship between family income and discipline problems (where higher family income increases in-school discipline problems) was not unexpected since it replicates the findings of DiPrete et al. (1981).

grade point averages, fewer discipline problems, and lower chances of dropping out. The second finding is less easily explained.

An examination of direct and total effects (Table 3) clarifies the role of values in producing the high school outcomes. Most of the values variables have large indirect effects through the out-of-school behavior variables (e.g., time on homework and time on television). For example, the coefficients for the direct effects of religious values in the math and reading equations are almost zero, but the total effects of religious values in these equations are .473 and .232. In addition, an examination of the coefficients associated with individual paths in the model show large indirect effects on school outcomes though the out-of-school behavior variable. We discuss the importance of these total effects for student outcomes in greater detail later.

Table 3 presents results from the cross-sectional high school outcome model for blacks. Although fewer values variables are significant for blacks than for whites, results in Table 3 suggest that this is true for family background variables as well. Although most of the values variables that are significant for blacks are also significant for whites, there are a few exceptions.

The most notable divergence involves the importance attached to work. For example, attaching importance to work tends to increase the math and reading scores of blacks and decrease the math and reading scores of whites. This may suggest that highly motivated minorities are more likely then highly motivated whites to see work as a path to upward mobility. As was the case for white students, F tests show that the group of values variables makes a significant contribution to the variation explained in each of the school outcomes.

Turning now to the change model, ordinary least-square estimates for the direct and total effects of family background, values, and out-of-school behavior on 1982 math and reading scores are presented for whites and blacks in Table 4. Since 1980 math and reading scores are included in the math and reading equations, the coefficients for family background, values, and out-of-school behavior variables can be interpreted as the amount of change in the achievement score associated with a change of one unit in the independent variable.

The time ordering of independent and dependent variables in the equations in Table 4 is clear, hence they provide an excellent opportunity for testing the time ordering of the relationship between values and school achievement.

An examination of the direct effects of values variables for whites shows that a number of values significantly impact on changes in math and reading scores. For example, the feeling of having control over one's destiny, educational expectations, peers' values, parental concern, and parents' educational expectations all significantly affect changes in math scores. Feelings of control, parental concern, and parents' educational expectations significantly affect changes in reading scores. Greater feelings of control over one's destiny, higher educational expectations, peers who place high value on education, parents who show less concern, and parents with high educational expectations are all associated with increases in achievement test scores. The standardized regression coefficients suggest that the value variable with the largest effects include feelings of control, educational expectations, peers' values, and parents' educational values. As was the case with the

cross-sectional model, these effects are large even when contrasted with the effects of other non-values variables in the model.

The change model coefficients for blacks are also presented in Table 4. In the change model results, as in the cross-sectional model results, we find that fewer of the family background, values, and out-of-school behavior variables significantly affect the school outcomes of blacks than of whites. However, we do find a number of significant values effects, and with the exception of the effect of religion, these are consistent with the effects for whites. For blacks, strong religious values, greater feelings of control, and parents who show less concern are associated with increases in math scores and greater feelings of control are associated with increases in reading scores.

Our examination of the change model suggests that values have a significant impact on changes in achievement. These findings show that the time ordering of the relationship between values and school outcomes which is assumed in the cross-sectional model is legitimate. That is, although there may be an achievement - values effect (we do not test for this since it is not related to our research problem) in addition to a values - achievement effect, our test of the values - achievement relationship using longitudinal data suggests that values have a significant impact on later achievement.[6/]

6/ We should note that this change model technique is a popular way of handling longitudinal data and one which avoids time-order problems. (See e.g., Coleman et al., 1982; Hoffer et al., 1984; Duncan and Morgan, 1981, etc.)

Finally, in Tables 3 and 4 we also present information that is helpful in judging the total effect of the values variables (taken as a whole) on high school outcomes and the relative importance of values as compared to the total effect of family socioeconomic status (SES). The sheaf coefficient, suggested by Heise (1972) provides an excellent technique for comparing these two effects. Using appropriate regression coefficients and correlations from the achievement model, the sheaf coefficient estimates the impact of a group (block) of variables with a single coefficient (usually in standardized form) that can be compared with other effect parameters.[7/]

The sheaf coefficients presented in Tables 3 and 4 suggest that for both races and for all outcomes, the block of values variables has a larger effect on high school success than does the block of variables measuring the SES of the adolescent's family. The effect of values as compared to SES is especially large in the grade point average and discipline equations for blacks and in the discipline equation for whites. When the ratio of the values effect to the SES effect is averaged across school outcomes, we find that values, on the average, have an effect on the school success of white and black students which is twice the size of the effect of SES.

Summary and Conclusions

In this paper, we used the sophomore cohort of the nationally representative "High School and Beyond" survey to examine the importance

7/ For more detail on the calculation and uses of the sheaf coefficient, see Heise (1972).

of a number of values for high school outcomes. The values of interest measured attitudes and beliefs of adolescents, parents, and peers with respect to the concepts of self-help, responsibility, and religiosity.

We discovered that values held by adolescents, their parents, and their peers significantly and positively influence high school outcomes. These values also affect school outcomes indirectly though out-of-school behaviors such as time spent on homework and watching television.

An examination of sheaf coefficients associated with the values and family SES variables as a whole highlighted the importance of values. Comparisons of sheaf coefficients associated values and family SES variables suggested that values variables are, on the average, twice as important in predicting student performance as are variables representing family SES.

We should note that there are two limitations of this values research. First, we only examine a limited number of values. Information on other potentially important values such as honesty and citizenship is not available in HSB. In addition, many of the values variables which were available were included in the 1980 but not the 1982 survey--thus changes in values could not be evaluated.

One of the issues which was not addressed in this research involves the role of school type (e.g., public vs. private) in the values model. Recent research has suggested that differences in achievement between adolescents in public and private high schools may be due in part to differences in values (e.g., Coleman et al., 1982a). We do not address this issue in our paper since the relationship between values, school type, and school outcomes is a complex one and involves a separate set of

substantive and methodological issues from those involved in our values research.[8/] We should note, however, that in separate analyses not presented here we discovered that values continue to have strong effects when school type is controlled, and that values are important for the school outcomes of students in both public and private schools.

Another school related issue which is not addressed here involves the notion of examining the effects of values on high school outcomes within schools and across schools. Since there is reason to believe that schools stratify students by socioeconomic status, values may have even more powerful effects within schools than was shown here.

Recently, considerable concern has been voiced over the declining quality of American education. A number of educators and scholars have suggested that students' attitudes and values may play a critical role in raising the academic quality of American schools. Our findings support these suggestions in showing that attitudes and beliefs held by adolescents, their parents, and their peers have a major impact on school performance.

8/ Extensive literature has been devoted to these substantive and methodological issues. See, for example, the April/July 1982 volume of Sociology of Education.

Figure 1: Model Of School Achievement And Behavior Outcomes

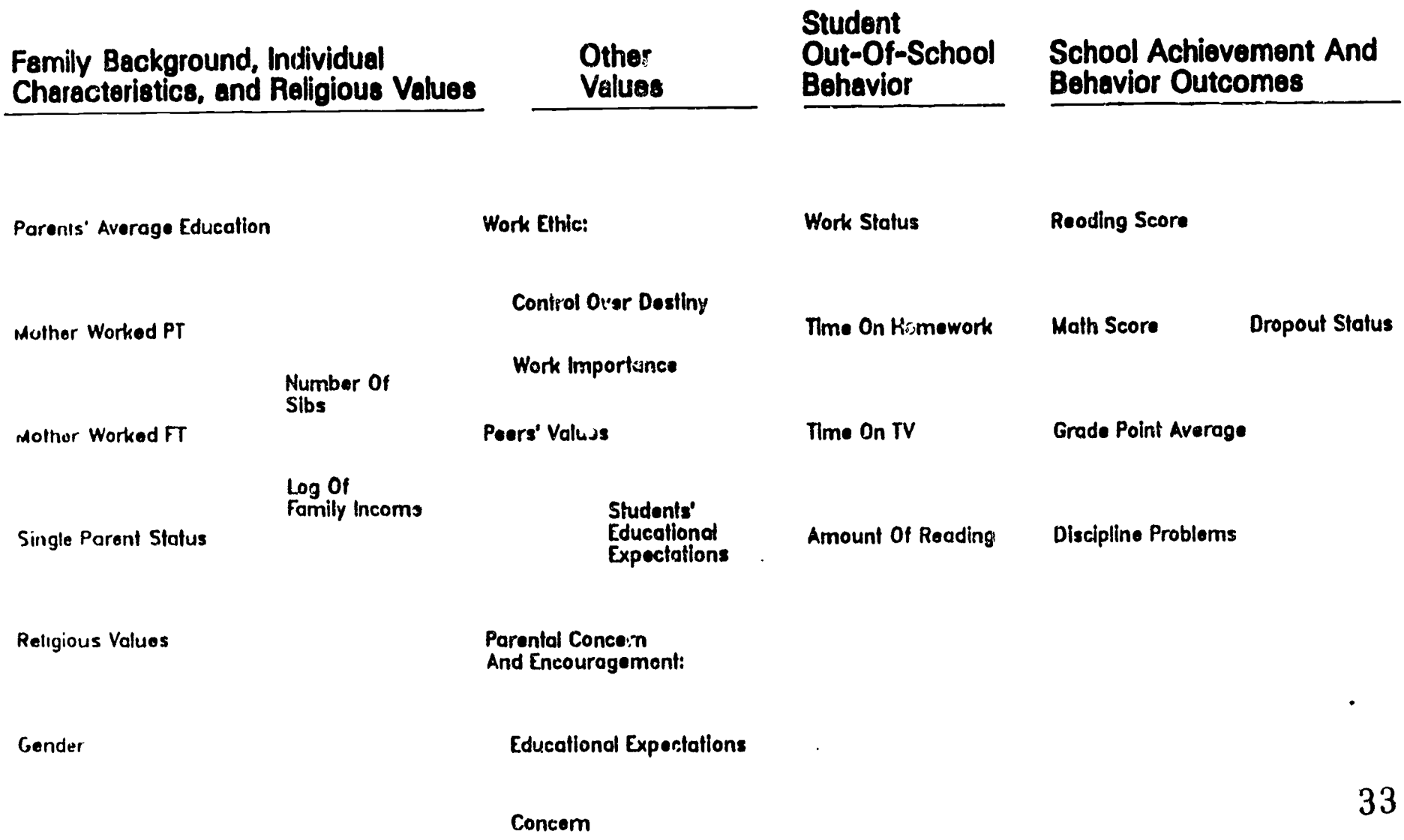

Table 1

Coefficients Showing the Effects of Values and Other Variables on Student Out of School Behavior (Cross-sectional model)

Independent Variable	Whites: Time on Homework T	D	Time Watching TV T	D	Amount of Reading T	D	Work Status T	D	Blacks: Time on Homework T	D	Time Watching TV T	D	Amount of Reading T	D	Work Status T	D
FAMILY AND INDIVIDUAL CHARACTERISTICS																
Parents' Average Education	.402	.170*	-.184	-.152*	.075	.028*	[illegible]	.008*	[illegible]	.122*	-.017	.031	.054	.025*	.000	.008
	(.215)	(.091)	(-.194)	(-.161)	(.115)	(.043)	(.010)	(.028)	(.140)	(.060)	(-.017)	(-.031)	(.080)	(.037)	(.000)	(.027)
Mother Worked PT	-.165	-.160*	.036	.019	-.013	-.016	.032	.040*	.401	.293	-.011	-.017	-.057	-.100	.020	.022
	(-.024)	(-.023)	(.010)	(.005)	(-.005)	(-.007)	(.011)	(.038)	[illegible]	(.044)	(-.003)	(-.005)	(-.030)	(-.045)	(.022)	(.024)
Mother Worked FT	-.359	-.266*	.166	.133*	-.075	-.037	.025	.033*	.162	-.023	.105	.088	-.077	-.120*	-.010	-.004
	(-.038)	(-.024)	(.035)	(.028)	(-.023)	(-.011)	(.017)	(.023)	[illegible]	(-.003)	(.032)	(.026)	(-.034)	(-.053)	(-.011)	(-.004)
Single Parent Status	-.179	.093	.062	.029	-.010	.027	.004	.005	[illegible]	[illegible]	-.010	-.014	.038	.096*	.001	-.008
	(-.019)	(.009)	(.012)	(.006)	(-.003)	(.008)	(.002)	(.003)	(-.046)	(-.013)	(-.003)	(-.004)	(.016)	(.040)	(.001)	(-.008)
Log of Family Income	.322	.007	-.107	-.071*	-.003	-.076*	.013	.018*	[illegible]	.224*	-.007	-.018	.036	-.006	-.034	-.031*
	(.055)	(.001)	(-.037)	(-.034)	(-.001)	(-.038)	(.015)	(.020)	(.064)	(.049)	(-.003)	(-.008)	(.024)	(-.004)	(-.054)	(-.050)
Number of Sibs	-.040	.031*	-.014	-.019*	-.019	-.003	.017	.016*	-.051	-.003	-.004	-.001	-.016	-.006	.001	.000
	(-.025)	(.019)	(-.017)	(-.023)	(-.034)	(-.005)	(.070)	(.067)	(-.046)	(-.002)	(-.008)	(-.002)	[illegible]	(-.017)	(.005)	(-.001)
Gender (0 = Male; 1 = Female)	1.048	[illegible]	-.204	-.173*	.402	.321*	-.016	-.013	.720	.465*	.011	.012	.217	.155*	-.111	-.104*
	(.159)	[illegible]	(-.061)	(-.051)	(.174)	(.139)	(-.017)	(-.013)	(.100)	(.070)	(.009)	(.003)	(.099)	(.072)	(-.122)	(-.115)
VALUES																
Students' Values																
Religion	.203	.069*	.001	.010	.079	.050*	-.001	+	.273	.225*	-.053	-.057	.062	.056*	-.003	+
	(.062)	(.021)	(.001)	(.006)	(.070)	(.044)	(-.003)		(.079)	(.066)	(-.032)	(-.034)	(.054)	(.050)	(-.005)	
Work Ethic: Control	.272	.257*	-.146	-.144*	.166	.142*	-.001	-.001	.437	.425*	.032	.031	.097	.095*	-.006	-.006
	(.081)	(.076)	(-.086)	(-.085)	(.124)	(.120)	(-.001)	(-.002)	(.146)	(.142)	(.022)	(.021)	(.098)	(.096)	(-.015)	(-.014)
Work Importance	.270	.259*	.032	.033*	.012	.009	.004	.003	.216	.209*	-.004	-.004	.029	.027	-.014	.013
	(.083)	(.080)	(.020)	(.020)	(.010)	(.008)	(.007)	(.007)	(.067)	(.065)	(-.002)	(-.003)	(.027)	(.026)	(-.031)	(-.030)
Educational Expectations	.430	.430*	-.037	-.037	.122	.122*	.007	.007	.428	.420*	.031	.031	.070	.070*	-.020	-.020
	(.099)	(.099)	(-.017)	(-.017)	(.080)	(.080)	(.010)	(.010)	(.090)	(.090)	(.014)	(.014)	(.044)	(.044)	(-.031)	(-.031)
Peers' Values	.366	.323*	.024	.028*	.049	.037*	-.009	-.010*	.161	.131*	.026	.024	.002	-.003	-.012	-.011
	(.115)	(.101)	(.015)	(.017)	(.044)	(.033)	(-.018)	(-.020)	[illegible]	(.040)	(.017)	(.015)	(.002)	[illegible]	(-.027)	(-.024)
Parents' Values																
Concern	.441	.428*	.007	.008	.129	.125*	.001	.001	.224	.204*	-.102	-.103*	.175	.172*	.018	.019*
	(.134)	(.130)	(.004)	(.005)	(.112)	(.109)	[illegible]	(.001)	(.070)	(.063)	(-.065)	(-.066)	(.164)	(.161)	(.040)	(.042)
Educational Expectations	.356	.182*	-.056	-.041*	.056	.007	-.015	-.018*	.375	.214*	.141	.129*	.021	-.005	-.021	-.014
	(.111)	(.057)	(-.035)	(-.025)	(.050)	(.006)	(-.031)	(-.016)	(.106)	(.061)	(.082)	(.075)	(.018)	(-.004)	(-.044)	(-.028)
R-Square		.176		.051		.103		.007		.122		.012		.008		.024

* Significant at ≤ .05 level.
+ Path not estimated.

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Table 2

Coefficients Showing the Effects of Values and Other Variables on High School Outcomes for White Sophomores (Cross-sectional model)

Independent Variable	Math Score (1980) T	Math Score (1980) D	Reading Score (1980) T	Reading Score (1980) D	Grade Point Average T	Grade Point Average D	Discipline Problems T	Discipline Problems D	Dropout T	Dropout D
FAMILY AND INDIVIDUAL CHARACTERISTICS										
Parents' Average Education	1.756	.590*	.785	.297*	.101	.010*	-.011	.024*	-.032	-.011*
	(.321)	(.108)	(.296)	(.112)	(.229)	(.022)	(-.024)	(.054)	(-.170)	(-.057)
Mother Worked PT	-.468	-.329*	-.232	-.201*	-.040	-.035*	.052	.057*	.016	.013*
	(-.023)	(-.016)	(-.024)	(-.020)	(-.025)	(-.022)	(.031)	(.034)	(.022)	(.019)
Mother Worked PT	-2.127	-1.585*	-.759	-.528*	-.120	-.076*	.048	.024	.027	.013
	(-.077)	(-.058)	(-.057)	(-.040)	(-.054)	(.035)	(.021)	(.010)	(.029)	(.014)
Single Parent Status	-1.200	-.407*	-.456	-.182	-.090	-.016	.061	.051*	.059	.036*
	(-.040)	(-.014)	(-.032)	(-.013)	(-.037)	(-.007)	(.024)	(.020)	(.057)	(.034)
Log of Family Income	1.976	.851*	.627	.176*	.125	.024*	.056	.110*	-.029	-.008
	(.116)	(.050)	(.076)	(.021)	(.091)	(.017)	(.040)	(.078)	(-.050)	(-.013)
Number of Siblings	-.299	-.118*	-.219	-.131*	-.030	-.009*	.035	.019*	.016	.009*
	(-.063)	(-.025)	(-.096)	(-.057)	(-.078)	(-.025)	(.089)	(.048)	(.095)	(.054)
Gender (0 = Male; 1 = Female)	-.856	-2.331*	-.096	-.888*	.234	.109*	-.207	-.121*	-.007	.022*
	(-.044)	(-.121)	(-.010)	(-.095)	(.151)	(.070)	(-.131)	(-.076)	(-.016)	(.033)
SHEAF COEFFICIENT for SES Variables†	.396		.360		.301		.097		.237	
VALUES										
Students' Values										
Religion	.473	.005	.232	.006	.119	.070*	-.124	-.078*	-.035	-.016*
	(.050)	(.001)	(.051)	(.001)	(.156)	(.091)	(-.159)	(-.100)	(-.106)	(-.047)
Ethic: Control	2.049	1.747*	1.184	1.002*	.138	.119*	-.067	-.060*	-.020	-.002
	(.209)	(.178)	(.249)	(.211)	(.174)	(.145)	(-.083)	(-.074)	(-.059)	(-.007)
Work Importance	.016	-.092	-.057	-.087*	.058	.048*	-.043	-.034*	-.009	-.002
	(.002)	(-.010)	(-.012)	(-.019)	(.076)	(.063)	(-.056)	(-.043)	(-.029)	(-.007)
Educational Expectations	1.469	1.225*	.382	.237*	.132	.115*	-.068	-.056*	-.041	-.025*
	(.116)	(.097)	(.062)	(.039)	(.129)	(.113)	(-.065)	(-.054)	(-.094)	(-.056)
Peers' Values	.807	.538*	.246	.153*	.116	.093*	-.160	-.142*	-.032	-.012*
	(.086)	(.058)	(.054)	(.034)	(.154)	(.123)	(-.208)	(-.185)	(-.099)	(-.036)
Parents' Values										
Concern	.057	-.213*	.067	-.086*	.070	.049*	-.103	-.087*	-.020	-.010*
	(.006)	(-.022)	(.014)	(-.018)	(.090)	(.063)	(-.130)	(-.110)	(-.059)	(-.029)
Educational Expectations	2.151	1.469*	.851	[illegible]	[illegible]	[illegible]	-.002	.031*	-.033	-.006
	(.229)	(.157)	(.187)	[illegible]	[illegible]	[illegible]	(-.003)	(.040)	(.101)	(-.018)
SHEAF COEFFICIENT for Values Variables†	.487		.429		.596		.435		.341	

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Table 2 (continued)

Independent Variable	Math Score (1980) T	Math Score (1980) D	Reading Score (1980) T	Reading Score (1980) D	Grade Point Average T	Grade Point Average D	Discipline Problems T	Discipline Problems D	Dropout T	Dropout D
STUDENT OUT-OF-SCHOOL BEHAVIOR										
Time on Homework	.331	.331*	.080	.080*	.028	.028*	-.030	-.030*	-.005	.000
	(.114)	(.114)	(.057)	(.057)	(.118)	(.118)	(-.123)	(-.123)	(-.048)	(-.005)
Time Watching TV	-.468	-.468*	-.171	-.171*	-.012	-.012*	-.024	-.024*	-.009	-.011*
	(-.081)	(-.081)	(-.061)	(-.061)	(-.026)	(-.026)	(-.050)	(-.050)	(-.046)	(-.053)
Amount of Reading	.696	.696*	.865	.865*	.039	.039*	-.005	-.005	.001	.006*
	(.084)	(.084)	(.214)	(.214)	(.059)	(.059)	(-.007)	(-.007)	(.002)	(.019)
Work Status	-.170	-.170	-.204	-.204*	-.023	-.023*	.062	.062*	.007	.003
	(-.009)	(-.009)	(-.022)	(-.022)	(-.014)	(-.014)	(.039)	(.039)	(.011)	(.004)
HIGH SCHOOL OUTCOMES										
Math Score (1980)									-.003	-.003*
									(-.090)	(-.090)
Reading Score (1980)									.000	.000
									(.003)	(.003)
Grade Point Average									-.075	-.075*
									(-.173)	(-.174)
Discipline Problems									.042	.042*
									(.101)	(.101)
R-Square		.288		.278		.314		.173		.160

* Significant at $\leq .05$ level.

† Sheaf coefficients are interpreted as a standardized regression coefficient. Variables contributing to the SES sheaf coefficient include parents' average education, single parent status, family income, and number of siblings. Sheaf coefficients were calculated using the total effects associated with the values and SES variables.

Table 3

Coefficients Showing the Effects of Values and Other Variables on High School Outcomes for Black Sophomores (Cross-sectional model)

Independent Variable	Math Score (1980) T	Math Score (1980) D	Reading Score (1980) T	Reading Score (1980) D	Grade Point Average T	Grade Point Average D	Discipline Problems T	Discipline Problems D	Dropout T	Dropout D
FAMILY AND INDIVIDUAL CHARACTERISTICS										
Parents' Average Education	.585	.178*	.358	.145*	.020	-.016*	.000	.022*	-.011	.001
	(.132)	(.040)	(.152)	(.061)	(.045)	(-.035)	(.000)	(.049)	(-.049)	(.005)
Mother Worked PT	.537	.102	.345	.208	-.018	-.065	.002	.046	-.019	-.004
	(.037)	(.007)	(.045)	(.027)	(-.012)	(-.045)	(.001)	(.031)	(-.025)	(-.005)
Mother Worked FT	.381	-.268	.192	-.041	.013	-.042	-.055	.001	-.056	-.024
	(.025)	(-.018)	(.024)	(-.005)	(.009)	(-.028)	(-.037)	(.000)	(-.071)	(-.030)
Single Parent Status	-1.339	-.942*	-.430	-.246	-.068	-.029	.060	.020	.047	.019
	(-.085)	(-.060)	(-.050)	(-.029)	(-.043)	(-.018)	(.038)	(.013)	(.056)	(.023)
Log of Family Income	.975	.485*	.452	.174	.044	.003	.015	.052*	-.009	.005
	(.097)	(.048)	(.084)	(.033)	(.044)	(.003)	(.015)	(.052)	(-.018)	(.010)
Number of Siblings	-.283	-.171*	-.124	-.048*	-.017	-.008	.024	.016*	.017	.011*
	(-.122)	(-.071)	(-.097)	(-.037)	(-.072)	(-.031)	(.101)	(.065)	(.136)	(.090)
Gender (0 = Male; 1 = Female)	.329	-.410	-.105	-.568*	.182	.104*	-.201	-.124*	-.063	-.022
	(.023)	(-.028)	(-.014)	(-.071)	(.125)	(.071)	(-.139)	(-.085)	(-.082)	(.029)
SHEAF COEFFICIENT for SES Variables+	.257		.237		.119		.106		.165	
VALUES										
Students' Values										
Religion	.005	-.182	.149	.058	.103	.076*	-.069	-.044*	-.019	-.006
	(.001)	(-.024)	(.037)	(.014)	(.137)	(.101)	(-.093)	(-.059)	(-.047)	(-.015)
Ethic: Control	1.728	1.535*	1.066	.977*	.073	.052*	-.044	-.033*	-.014	.005
	(.264)	(.235)	(.306)	(.280)	(.111)	(.079)	(-.067)	(-.051)	(-.041)	(.013)
Work Importance	.354	.251*	.154	.109	.076	.065*	-.081	-.074*	-.025	-.013*
	(.050)	(.035)	(.041)	(.029)	(.107)	(.092)	(-.115)	(-.105)	(-.067)	(-.034)
Educational Expectations	.877	.698*	.231	.150	.149	.133*	.013	.026	-.015	-.004
	(.084)	(.067)	(.042)	(.027)	(.143)	(.127)	(.013)	(.025)	(-.027)	(-.007)
Peers' Values	.292	.172	.043	.009	.086	.071*	-.137	-.133*	-.044	-.028*
	(.041)	(.024)	(.011)	(.002)	(.121)	(.100)	(-.193)	(-.187)	(-.129)	(-.074)
Parents' Values										
Concern	-.233	-.328*	-.078	-.166*	.031	.015	-.067	-.067*	-.004	-.003
	(-.033)	(-.047)	(-.021)	(-.044)	(.063)	(.021)	(-.095)	(-.095)	(-.012)	(-.009)
Educational Expectations	.879	.450*	.545	.435*	.067	.003	-.008	-.005	-.038	-.025*
	(.114)	(.058)	(.132)	(.105)	(.087)	(.004)	(-.011)	(-.006)	(-.093)	(-.061)
SHEAF COEFFICIENT for Values Variables+	.370		.390		.414		.327		.239	

Table 3 (continued)

Independent Variable	Math Score (1980) T	Math Score (1980) D	Reading Score (1980) T	Reading Score (1980) D	Grade Point Average T	Grade Point Average D	Discipline Problems T	Discipline Problems D	Dropout T	Dropout D
STUDENT OUT-OF-SCHOOL BEHAVIOR										
Time on Homework	.398	.398*	.121	.121*	.041	.041*	-.029	-.029*	-.007	.000
	(.182)	(.182)	(.103)	(.103)	(.186)	(.186)	(-.133)	(-.133)	(-.060)	(-.003)
Time Watching TV	.048	.048	-.058	-.058	-.008	-.008	-.005	-.005	-.004	-.004
	(.011)	(.011)	(-.024)	(-.024)	(-.019)	(-.019)	(-.012)	(-.012)	(-.018)	(-.017)
Amount of Reading	-.068	-.068	.320	.320*	-.003	-.003	.019	.019	.016	.015*
	(-.010)	(-.010)	(.091)	(.091)	(-.004)	(-.004)	(.028)	(.028)	(.045)	(.042)
Work Status	-.572	-.572*	-.465	-.465*	-.003	-.003	.093	.093*	.073	.061*
	(-.036)	(-.036)	(-.055)	(-.055)	(-.002)	(-.002)	(.059)	(.059)	(.087)	(.073)
HIGH SCHOOL OUTCOMES										
Math Score (1980)									-.006	-.006*
									(-.110)	(-.110)
Reading Score (1980)									-.003	-.003
									(-.030)	(-.030)
Grade Point Average									-.038	-.038*
									(-.072)	(-.072)
Discipline Problems									.078	.078*
									(.149)	(.149)
R-Square		.185		.195		.167		.148		.134

* Significant at $\leq .05$ level.

+ Sheaf coefficients are interpreted as a standardized regression coefficient. Variables contributing to the SES sheaf coefficient include parents' average education, single parent status, family income, and number of siblings. Sheaf coefficients were calculated using the total effects associated with the values and SES variables.

Table 4

Coefficients Showing the Effects of Values and Other Variables on High School Outcomes Using Change Model

Independent Variable	Whites				Blacks			
	Math Score (1982)		Reading Score (1982)		Math Score (1982)		Reading Score (1982)	
	T	D	T	D	T	D	T	D
Parents' Average Education	.657	.285*	.214	.079*	.319	.140*	.084	-.011
	(.110)	(.048)	(.076)	(.028)	(.064)	(.028)	(.033)	(-.004)
Mother Worked PT	-.137	-.049	-.045	-.020	-.265	-.428	.200	.156
	(-.006)	(-.002)	(-.004)	(-.002)	(-.016)	(-.026)	(.024)	(.019)
Mother Worked FT	-.992	-.820*	-.364	-.281*	-.466	-.753*	.026	-.076
	(-.033)	(-.027)	(-.026)	(-.020)	(-.028)	(-.044)	(.003)	(-.009)
Single Parent Status	-.481	-.209	-.094	-.020	.035	.277	-.053	.039
	(-.015)	(-.006)	(-.006)	(-.001)	(.002)	(.016)	(-.006)	(.004)
Log of Family Income	.654	.286*	.200	.092	.607	.450*	.334	.263*
	(.035)	(.015)	(-.023)	(.010)	(.053)	(.040)	(.058)	(.045)
Number of Sibs	-.011	.054*	-.000	-.037*	-.095	-.041	-.071	-.046*
	(-.002)	(.010)	(.027)	(-.015)	(-.035)	(-.015)	(-.051)	(-.033)
Gender (0 = Male; 1 = Female)	-.662	-1.032*	.127	-.134*	-.535	-.903*	-.443	-.614*
	(-.031)	(-.048)	(.013)	(-.014)	(-.033)	(-.055)	(-.053)	(-.073)
VALUES								
Students' Values								
Religion	.222	.040	.085	-.009	.381	.265*	.087	.039
	(.021)	(.004)	(.017)	(-.002)	(.044)	(.031)	(.020)	(.009)
Work Ethic: Control	.366	.290*	.437	.308*	.445	.348*	.278	.208*
	(.034)	(.027)	(.086)	(.073)	(.060)	(.047)	(.074)	(.055)
Work Importance	.040	-.019	-.030	-.044	.186	.097	.004	-.032
	(.004)	(-.002)	(-.008)	(-.009)	(.023)	(.012)	(.001)	(-.008)
Educational Expectations	.627	.519*	.065	-.007	.403	.294	.079	.015
	(.045)	(.037)	(.010)	(-.001)	(.034)	(.025)	(.013)	(.002)
Peers' Values	.407	.270*	.087	.046	.203	.138	.024	-.008
	(.040)	(.026)	(.018)	(.010)	(.033)	(.017)	(.006)	(-.002)
Parents' Values								
Concern	-.109	-.212*	-.020	-.088*	-.243	-.291*	-.031	-.103
	(-.010)	(-.020)	(-.004)	(-.018)	(-.030)	(-.037)	(-.008)	(-.025)
Educational Expectations	.827	.539*	.173	.174*	.369	.121	.122	.058
	(.080)	(.052)	(.036)	(.028)	(.042)	(.014)	(.027)	(.013)

Table 4 (continued)

Independent Variable	Whites				Blacks			
	Math Score (1982)		Reading Score (1982)		Math Score (1982)		Reading Score (1982)	
	T	D	T	D	T	D	T	D
STUDENT OUT-OF-SCHOOL BEHAVIOR								
Time on Homework	.137	.133*	.028	.027*	.227	.221*	.086	.085*
	(.043)	(.041)	(.019)	(.018)	(.092)	(.089)	(.068)	(.067)
Time Watching TV	-.042	-.059*	-.015	-.021	.033	.026	.062	.061
	(-.007)	(-.009)	(-.005)	(-.007)	(.006)	(.005)	(.024)	(.024)
Amount of Reading	.008	.015	.373	.375*	-.111	-.086	.316	.322*
	(.001)	(.002)	(.087)	(.087)	(-.015)	(-.011)	(.083)	(.085)
Work Status	.140	.149	-.084	-.081	-.470	-.345	-.033	-.009
	(.007)	(.007)	(-.008)	(-.008)	(-.026)	(-.020)	(-.004)	(-.001)
HIGH SCHOOL OUTCOMES								
Math Score (1980)	.723	.716*	.128	.126*	.679	.669*	.139	.136*
	(.659)	(.653)	(.249)	(.244)	(.600)	(.591)	(.241)	(.237)
Reading Score (1980)	.277	.274*	.498	.497*	.288	.282*	.488	.468*
	(.122)	(.121)	(.468)	(.467)	(.136)	(.133)	(.452)	(.451)
Dropout	-1.393	-1.393*	-.446	-.446*	-1.532	-1.532*	-.359	-.359*
	(-.044)	(-.044)	(-.030)	(-.030)	(-.071)	(-.071)	(-.033)	(-.033)
R-Square		.719		.571		.597		.501

* Significant at ≤ .05 level.

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Appendix. Means, Standard Deviations, Minimum and Maximum Values for Variables in Model of School Achievement and Behavioral Outcomes*

	Total				Whites				Blacks			
	Mean	S.D.	Min.	Max.	Mean	S.D.	Min.	Max.	Mean	S.D.	Min.	Max.
FAMILY AND INDIVIDUAL CHARACTERISTICS												
Parents' Average Education (in years)	12.73	1.77	9.95	16.00	12.81	1.78	9.96	16.00	12.32	1.67	9.95	16.00
Mother Worked PT (1=worked some, either full or part-time, since before respondent entered elementary school; 0=otherwise)	.63	.48	.00	1.00	.65	.48	.00	1.00	.51	.50	.00	1.00
Mother Worked FT (1=worked full-time since before respondent entered elementary school; 0=otherwise)	.18	.39	.00	1.00	.14	.35	.00	1.00	.39	.49	.00	1.00
Single Parent Status (0=no; 1=yes)	.14	.35	.00	1.00	.11	.32	.00	1.00	.30	.46	.00	1.00
Log of Family Income (in thousands of dollars)	9.80	.61	8.13	10.70	9.87	.56	8.13	10.70	9.49	.71	8.15	10.70
Number of Sibs	2.98	2.18	.00	25.00	2.82	2.01	.00	2.50	3.70	2.80	.00	25.00
Gender (0=male; 1=female)	.51	.50	.00	1.00	.51	.50	.00	1.00	.54	.50	.00	1.00
Educational Expectations (1=college not planned; 2=do not know; 3=college planned)	2.52	.73	1.00	3.00	2.50	.74	1.00	3.00	2.60	.67	1.00	3.00
STUDENT OUT-OF-SCHOOL BEHAVIOR												
Time on Homework (hours per week)	4.16	3.38	-.10	12.50	4.21	3.37	-.10	12.50	3.89	3.41	.00	12.50
Time Watching TV (hours per day on weekdays)	3.43	1.67	.00	5.50	3.34	1.66	.00	5.50	3.93	1.60	.00	5.50
Amount of Reading (1=rarely or never; 2=less than once a week; 3=once or twice a week; 4=everyday or almost everyday)	2.24	1.15	1.00	4.00	2.21	1.16	1.00	4.00	2.35	1.10	1.00	4.00

* Unweighted.

Appendix (continued)

	Total				Whites				Blacks			
	Mean	S.D.	Min.	Max.	Mean	S.D.	Min.	Max.	Mean	S.D.	Min.	Max.
Work Status (0=not working; 1=working)	.42	.49	.00	1.00	.45	.50	.00	1.00	.28	.45	.00	1.00
HIGH SCHOOL OUTCOMES												
Math Score (1980)	13.50	9.84	-8.67	38.00	14.80	9.70	-8.67	38.00	6.70	7.43	-8.33	35.33
Math Score (1982)	15.44	10.76	-11.33	38.00	16.82	10.59	-11.33	38.00	8.20	8.67	-8.67	38.00
Reading Score (1980)	7.26	4.75	-4.75	19.00	7.79	4.72	-4.75	19.00	4.51	3.89	-4.75	19.00
Reading Score (1982)	8.50	5.06	-4.75	19.00	9.10	4.97	-4.75	19.00	5.35	4.29	-4.07	19.00
Grade Point Average	2.72	.75	.50	3.75	2.76	.75	.50	3.75	2.51	.71	.50	3.75
Discipline Problems**	.56	.76	.00	3.00	.58	.77	.00	3.00	.48	.69	.00	3.00
Dropout Status (0=not drop out; 1=dropout)	.08	.27	.00	1.00	.07	.26	.00	1.00	.11	.31	.00	1.00
VALUES												
Students' Values												
Religion												
1. "Do you think of yourself as a religious person?"	1.89	.58	1	3	1.89	.58	1	3	1.91	.58	1	3
2. "In the past year, about how often have you attended religious services?"	3.64	1.75	1	6	3.62	1.76	1	6	3.76	1.72	1	6
3. "Have you participated in any of the following types of activities in or out of school this year? "Church activities, including youth groups"	.41	.49	0	1	.40	.49	0	1	.45	.50	0	1

** An index containing three dichotomous items measuring representation as troublemaker, trouble with law, and days absent from school.

Appendix (continued)

	Total				Whites				Blacks			
	Mean	S.D.	Min.	Max.	Mean	S.D.	Min.	Max.	Mean	S.D.	Min.	Max.
Work Ethic:												
Control												
1. "What happens to me is my doing"	3.69	1.04	1	5	3.72	1.01	1	5	3.55	1.16	1	5
2. "When I make plans, I am almost certain I can make them work"	3.68	.94	1	5	3.65	.94	1	5	3.84	.95	1	5
3. "Good luck is more important than hard work for success"	3.91	.98	1	5	3.97	.92	1	5	3.58	1.17	1	5
4. "Everytime I try to get ahead, something or somebody stops me"	3.45	1.06	1	5	3.47	1.04	1	5	3.33	1.17	1	5
5. "Planning only makes a person unhappy, since plans hardly every work out anyway"	3.75	1.10	1	5	3.78	1.08	1	5	3.60	1.18	1	5
6. "People who accept their condition in life are happier than those who try to change things"	2.96	1.24	1	5	2.98	1.23	1	5	2.84	1.25	1	5
Work Importance												
1. "How important is each of the following to you in your life?" "Being able to find steady work"	2.83	.41	1	3	2.83	.41	1	3	2.85	.41	1	3
2. "How important is each of the following to you in your life?" "Being successful in my line of work"	2.85	.39	1	3	2.84	.39	1	3	2.86	.39	1	3
3. "Are the following statements about yourself true or false?" "I like to work hard in school"	.54	.50	0	1	.52	.50	0	1	.66	.47	0	1

Appendix (continued)

	Total				Whites				Blacks			
	Mean	S.D.	Min.	Max.	Mean	S.D.	Min.	Max.	Mean	S.D.	Min.	Max.
Peers' Values												
1. "Please think of your closest friend in this school who is a sophomore. As far as you know, are the following statements true or false for him/her?" "Plans to go to college"	.67	.47	0	1	.66	.47	0	1	.71	.45	0	1
2. "Please think of your closest friend in this school who is a sophomore. As far as you know, are the following statements true or false for him/her?" "Attends classes regularly"	.93	.26	0	1	.93	.26	0	1	.91	.29	0	1
3. "How do you and your friends in this school mostly feel about these different kinds of students?" "Students who get very good grades"	.36	.48	0	1	.35	.48	0	1	.41	.49	0	1
Parents' Values												
Concern												
1.a. "My mother (stepmother or female guardian) keeps close track of how well I am doing in school"	1.59	.66	0	2	1.61	.66	0	2	1.44	.66	0	2
1.b. "My father (stepfather or male guardian) keeps close track of how well I am doing in school"												
2. "How much have you talked to the following people about planning your school program?" "Your father"	1.98	.70	1	3	2.02	.68	1	3	1.77	.74	1	3

Appendix (continued)

	Total				Whites				Blacks			
	Mean	S.D.	Min.	Max.	Mean	S.D.	Min.	Max.	Mean	S.D.	Min.	Max.
3. "How much have you talked to the following people about planning your school program?"	2.30	.64	1	3	2.28	.63	1	3	2.38	.59	1	3
"Your mother"												
4. "My parents (or guardians) almost always know where I am and what I'm doing"	.82	.39	0	1	.83	.38	0	1	.76	.43	0	1
5. "How often do you spend time on the following activities outside of school?"	2.27	1.14	1	4	2.28	1.13	1	4	2.18	1.15	1	4
"Talking with your mother or father about personal experiences"												
Educational Expectations												
1. "How far in school do you think your mother wants you to go?"	14.77	1.56	10	16	14.72	1.56	10	16	14.95	1.50	10	16
2. "What do the following people think you ought to do after high school?"	.57	.49	0	1	.58	.49	0	1	.53	.50	0	1
"Your father"												
3. "What do the following people think you ought to do after high school?"	.66	.47	0	1	.65	.48	0	1	.70	.46	0	1
"Your mother"												