
Ethnicity as a Moderator of Teacher Expectations

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Abstract

Students' achievement may confirm their teachers' expectations because: 1) teachers create self-fulfilling prophecies, 2) teachers create perceptual biases, or 3) teachers accurately predict, without influencing, student performance. Ethnicity may play a role as a moderator and as a source of teachers' expectations. Several questions were examined: 1) To what extent do teachers use ethnicity as a basis for their expectations; 2) how much of the perceived differences for African-American and White students reflects bias; and, 3) are influences of teacher expectations on student achievement stronger among African-American students or White students. Longitudinal data obtained from 127 teachers and 1664 students in sixth-grade math classes was used to investigate these questions. Results showed that teachers' expectations were slightly biased in favor of African-American students. In addition, self-fulfilling prophecies were much stronger among the African-American students than among the White students. Among White students, teachers' expectations predict achievement more because they are accurate than because they caused the students' performance. Teachers' expectations are less accurate for African-American students, however, than for White students.

Introduction

The term "self-fulfilling prophecy" describes the process by which a perceiver's initially erroneous beliefs or expectations about a target person create reality by influencing the behavior of the target (Merton, 1948). The primary context for investigating self-fulfilling prophecies has been the expectations teachers form for their students (Miller & Turnbull, 1986). Self-fulfilling prophecies may cause some students to perform lower or higher than they would otherwise have performed. Because expectations are presumed to include stereotypes, self-fulfilling prophecies and other biases may create new differences, or widen existing differences, between groups such as African-Americans and Whites, females and males, and lower-class people and upper-class people.

Self-fulfilling prophecies have often been pinpointed as being major perpetuators of social injustices such as educational and occupational inequality (Fiske & Taylor, 1991; Murray & Jackson, 1982/83; Rist, 1970; Snyder, 1984). However, the research often cited as supporting these claims rarely provides evidence of strong naturally-occurring self-fulfilling prophecies (see reviews by Jussim, 1990, 1991, in press). As a result, the purportedly overwhelming power of teacher expectations to influence behavior has been called into question, particularly by those in educational research (Brophy, 1983; Wineburg, 1987).

This study will investigate the role of students' ethnicity as a source and a moderator of teachers' expectations. Several questions will be examined: 1) To what extent do teachers use ethnicity as a basis for their expectations; 2) how much of the perceived differences for African-American and White students reflects bias; and, 3) are influences of teacher expectations on student achievement stronger among African-American students or White students.

Stereotype-based Expectancies

Stereotypes are considered to be an important factor in the formation of expectancies about groups as a whole, and also about individual group members (Darley & Fazio, 1980; Hamilton, Sherman, & Ruvolo, 1990; Miller & Turnbull, 1986; Jussim, Coleman, & Lerch, 1987; Fleming, Jussim, Kohberger, & Coleman,

1992). Teachers may integrate stereotypic beliefs about a group into their expectations for students who are members of that group, resulting in different expectations for different groups of students. Additionally, different groups of students may be more or less susceptible to expectancies, thereby resulting in greater or lesser behavioral influence among the members of one group as compared to the members of another group.

Differences in the strength of expectancies among groups of students may not be apparent in the existing teacher expectation literature because reported effects represent an average effect size across all students in the studied groups. However, there may be conditions under which the effect size for a group may be larger or smaller than the average (Jussim, 1990). Characteristics of the target (i.e., goals, age), of the situation (i.e., school tracking), and of the perceiver (i.e., motivation, rigidity, prejudice) may change the effect of the expectancy for different groups.

The focus in self-fulfilling prophecy research has been on dyadic interactions. Stereotypes, however, are by definition expectations about a group. In a dyadic encounter, perceivers can draw only on two sources of information about the target: their stereotypes about the group to which the target belongs, and any specific individuating information about the target. Brigham (1971) has reported considerable incongruities between subjects' stereotypes of a group and their descriptions of individual group members. Other studies (Locksley, Borgida, Brekke, & Hepburn, 1980; Locksley, Hepburn, & Ortiz, 1982) have supported this inconsistency, and have suggested that information about the target's background characteristics "is sufficient to swamp the effects of social category information" (Locksley, et al., 1980, p. 830). Still further research has suggested, however, that stereotypes do have some influence on judgment (Jussim, et al., 1987; Krueger & Rothbart, 1988). While individuating information may be the most diagnostic, stereotypes interact with this information and influence judgments. This study examines how ethnicity affects teacher expectations, after considering the impact of individuating background information.

The Strength of Teacher Expectation Effects

Most researchers agree that teachers' expectations about their students, which develop early in the year (Brophy, 1983; Brophy & Good, 1974; Jussim, 1986; West & Anderson, 1976), correlate highly with the students' later achievement (Brophy & Good, 1974; Jussim, 1986, 1989; Crano & Mellon, 1978; Williams, 1976). However, the source of this correspondence between teachers' expectations and students' behavior has been a major point of contention with social and educational psychology. According to the strong social constructivist perspective (see Jussim, 1991, for a review), the main source of this relationship is that teachers develop erroneous expectations and then, through self-fulfilling prophecies and perceptual biases, cause the students' performance level to conform to the teachers' beliefs. A second possibility, however, is that teachers are able to accurately assess a student's abilities and, therefore, validly predict the student's future achievement without influencing it.

Jussim (1989, 1991) has proposed a compromise between the social constructivist and educational viewpoints, delineating three possible explanations for the relationship between expectancies and behavior. The students' behavioral confirmation of the teachers' expectancies may result from self-fulfilling prophecies or perceptual biases (as the social constructivist view claims), but simple predictive accuracy is another possible source, and may be a serious limit to the self-fulfilling and biasing effects.

Determining the effect of accuracy versus the effects of self-fulfilling prophecies and perceptual biases is difficult using the correlational methods employed by most researchers in this area. The generally high correlations between teacher expectations and student performance studies could represent self-fulfilling prophecies and perceptual biases, or accuracy, or a combination of both. Fortunately, a method for distinguishing between accuracy, self-fulfilling prophecies, and perceptual biases in naturalistic research has been recently developed.

Identifying Three Sources of Expectancy Confirmation Under Naturalistic Conditions

If three conditions are met we may distinguish between self-fulfilling prophecies and accuracy when using correlational data: 1) the teachers' expectations must be positively correlated with their students' achievement; 2) this relationship may not include predictive accuracy without influence; and 3) the students' achievement cannot be judged by the teachers (Jussim, 1989).

Perceptual biases occur when the perceiver interprets the target's behavior to be consistent with the expectancy despite the target's actual actions (Snyder, Tanke, & Berscheid, 1977; Darley & Fazio, 1980; Darley & Gross, 1983). Regardless of whether teachers' actually influence the future achievement of students, the teachers may "see what they want to" and interpret the students' behavior as conforming to expectations, even if that is objectively not true. Perceptual biases may be identified if certain conditions are met: 1) teachers' expectations should be more strongly correlated with their own judgments (i.e., final marks) than with other assessments of students' achievement (i.e., standardized tests); and 2) the correlation may not represent the teachers' ability to accurately predict in-class performance better than performance on an independent measure.

Accuracy, in which the perceiver successfully predicts the target's behavior without influencing it, has two separate aspects. The first aspect is the validity of the bases of the teachers' expectations. Strong correlations between valid information (i.e., previous final marks, test scores, and motivation) and teacher expectations would indicate accuracy. The second aspect is predictive accuracy, the extent to which the teachers' expectations predict students' achievement without causing it. This would be demonstrated if controlling for the valid bases of teacher expectations led to a substantial decrease in the extent to which teacher expectations predict student achievement.

After re-interpreting the empirical research concerning teacher expectations, Jussim (1991) found more evidence for accuracy than for self-fulfilling prophecies or perceptual biases. This suggests that a much weaker form of the social constructivist perspective would be much more consistent with the data. Further

research on naturally-occurring teacher expectations has supported this conclusion (Jussim, 1989; Jussim & Eccles, 1992).

Hypotheses & Models

Previous studies have found teachers' expectations to be largely based on valid information; however, some biases have been found, particularly gender biases (Jussim & Eccles, 1992). The first stage of analysis will investigate the presence of ethnic bias, by assessing the extent to which teachers use ethnicity as a basis for forming their expectations. By controlling for the influences of students' previous achievement, motivation, and gender, we will be able to determine, to a large degree, how much of the ethnicity-expectancy relationship indicates bias. Accuracy (path B in Figure 1) will be demonstrated if students' past achievement and motivation predict teacher expectations. Ethnic bias (path C in Figure 1) will be indicated by a significant path between ethnicity and the teacher expectation variables.

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Evidence for self-fulfilling prophecies will be found if teachers' expectations predict students' objective future achievement, even after controlling for past achievement and motivation. We hypothesize a significant relationship between teacher expectations and an objective measure of students' future achievement. In contrast with self-fulfilling prophecies, perceptual biases will be found only if teachers' expectations predict their own judgments of student achievement (i.e., final marks) better than they predict independent judgments of achievement (i.e., standardized tests). Predictive accuracy will be found if teachers' expectations predict student achievement at least partially because they are based on valid predictors of achievement, which would be demonstrated if the relationship between teachers' expectations and student achievement is considerably decreased when we control for the valid predictors of achievement. In addition, we will examine whether the magnitude of these effects differs between African-American and White students.

Method

Sample

The sample on which all analyses were conducted was obtained through the Michigan Study of Adolescents' Life Transitions (Eccles, 1988). The entire sample included 127 teachers and 3114 students in 12 school districts, including 55 schools. Analyses required that students attend the same district for 5th, 6th, and 7th grades, and only African-American and White students were included; thus, 1664 students were included in the analyses.

Approximately 52% of the 1664 students were male, and 48% female. 1588 (95.4%) of the students were White, and only 76 (4.6%) of the students were African-American. Almost three-quarters (54) of the African-American students were concentrated in a single district, and that district was composed of all African-American students.

Questionnaires

The students were evaluated by their teachers early in the school year (most often in early October). Teachers assessed each students' talent, effort, and performance in math; these are the three teacher expectation variables to be used in the analyses. The students also completed questionnaires indicating their self-concept of ability in math, their self-reported effort in math, the time they spend on math homework, and the value they place in math; these questionnaires are the student motivation variables to be used in the study. The reliability and validity of these measures has been shown to be satisfactory (see Eccles, Adler, & Meece, 1984; Jussim, 1989; Parsons, 1980).

Measures of Student Achievement

Two measures of past achievement were used: final marks in fifth grade math classes, and scores on the math section of standardized tests taken in late fifth grade or early sixth grade. Percentile ranks were used to translate different standardized tests onto the same scale.

Two measures of final achievement were also used: final marks in sixth grade math classes, and scores

on the math section of the Michigan Educational Assessment Program (MEAP), a standardized test given in October to all Michigan seventh grade students. An overview of all measures is given in Table 1.

Place Table 1 about here

Results & Discussion

Data Analytic Approach

This study employed path analytic techniques as the primary method of statistical analysis. All of the analyses in this study assessed the strength of the paths between variables by using multiple regression techniques. A path indicates the strength of the relationship between two variables after controlling for all other variables in the model. Path coefficients will be reported in standardized form, and therefore represent changes in standard deviations, not in raw units. Because this study used regression techniques to assess naturalistic data, all paths will be phrased as one variable "predicting" rather than "causing" other variables.

Overview of the Study

This study addressed how student ethnicity (African-American or White) affects the relationship between teacher expectations and student achievement. The data will be presented in two stages. In the first stage, a model of the bases of teachers' expectations was investigated, with particular interest placed on the extent to which ethnicity was used as a basis for teacher expectations and how much of that ethnicity-expectation relationship was bias. The second stage assessed a model of the predictors of students' future achievement. First, a model of the interaction of ethnicity and teacher expectations predicting future achievement was assessed (a significant finding indicating that teacher expectations differ between African-Americans and Whites). Then a model of the predictive power of all variables was assessed. This model was assessed twice, separately for African-American students and for White students, and the two models were compared.

Stage I: Bases of Teachers' Expectations

The first stage of the analyses investigated the bases of teachers' perceptions of the students, including the students' gender, previous achievement (both final marks and standardized test scores), and motivation, as well as ethnicity of the student. The Stage I model (depicted in Figure 2) allowed for all of the student background variables to predict the three teacher perception variables, and also assumed that teacher perceptions of performance predict teacher perceptions of talent and effort. Teachers' ethnic biases were assessed by computing the path coefficient for the relationship between ethnicity and teachers' perceptions of the students, after controlling for all other variables in the model.

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As a result of the large sample used in this study, many trivially small path coefficients were found to be statistically significant. Therefore, only those paths with a standardized coefficient of at least .04 will be considered significant in reporting the results for Stage I. All of the results from Stage I are presented in Figure 3.

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Performance. Teachers' perceptions of student performance were based largely upon valid background information, including: previous standardized test score ($\beta = .363$), final marks in fifth grade ($\beta = .228$), self-concept of math ability ($\beta = .209$), self-reported time spent on homework ($\beta = -.062$). Students' gender was also found to be significant ($\beta = -.084$). These path coefficients reveal that teachers accurately base much of their expectations on students' performance and motivation. Teachers also expected slightly better performance from girls. However, the more time students spent on homework, the more poorly teachers perceived them to be performing.

The analyses also found that teachers perceived African-American students as performing slightly better than the White students in sixth grade math classes. ($\beta = -.048$). Although this may seem to be a surprising finding, it is understandable when considering that the school districts are largely segregated by ethnicity, and the same teachers do not evaluate both African-American and White students. Thus, this significant coefficient may be reflecting differences in teachers' expectations at the district level, rather than differences in teachers' evaluations of individual African-American and White students. Because of the segregated districts, most teachers evaluated either African-American students or White students, but rarely both African-American students and White students.

Students' self-perceived effort in math, and the extrinsic and intrinsic value placed on math were not significant predictors of teachers' perceptions of performance ($\beta = .030, .031, \text{ and } .011$, respectively).

Effort. The teachers' perceptions of student effort was also largely based on valid background information – in this case, however, the teachers' own perceptions of student performance were the strongest predictors ($\beta = .636$), followed by self-reported effort ($\beta = .077$), final marks in fifth grade ($\beta = .069$), and intrinsic value of math ($\beta = .044$); student gender was also significant ($\beta = -.100$). Previous standardized test scores, time spent on homework, extrinsic value of math, and self-concept of math ability did not significantly predict perceptions of effort ($\beta = .030, .005, -.002, -.013$, respectively).

Students' ethnicity was again found to be a significant predictor ($\beta = -.057$), showing expectations for the African-American students to invest more effort in math class than the White students. However, this finding probably reflects differences between the predominantly African-American district and the predominantly White districts, rather than individual teachers' evaluating the African-American students more favorably than the White students.

Talent. The best predictors of teachers' perceptions of talent was background information: teachers' perceptions of performance ($\beta = .608$), previous standardized test scores ($\beta = .218$), final marks in fifth grade ($\beta = .070$), self-concept of math ability ($\beta = .042$), and self-reported effort in math ($\beta = .041$) were

the significant predictors; students' gender was significant as well ($\beta = .072$). Time spent on math homework, and extrinsic and intrinsic math value were not significant ($\beta = -.016, .009, -.006$, respectively).

The difference in the teachers' perceptions between African-American students and White students was most clearly demonstrated in the teachers' perceptions of math talent. A small ethnic bias in expectations for talent was again found, also favoring African-American students over White students ($\beta = -.080$).

Teachers were found to rely largely on valid background information to form their expectations. Ethnicity of the student, however, was a significant, though small, basis for teachers' perceptions of performance, effort, and talent. In each case, teachers expected African-American students to do better than White students. This finding, however, may be due to the fact that almost all of the African-American students were in a single school district, and therefore the teachers did not often have both African-American students and White students in the same class. The slight bias towards African-American students found in this stage of analysis may be simply the result of teachers in the mostly-African-American district tending to rate their students higher than teachers in the mostly-White districts, without any actual comparison of African-American and White students.

Stage II: Influences of Teachers' Expectations on Student Achievement

Stage II examined how teachers' expectations differentially influence the future achievement of African-American and White students. The first model (presented in Figure 4) included main effects for the three teacher perception variables and ethnicity, teacher perception by ethnicity interactions, previous standardized test scores, fifth grade final marks, self-concept of math ability, effort in math class, time spent on math homework, extrinsic and intrinsic value placed on math, and student gender as predictors of MEAP scores and sixth grade final marks. The interaction terms significantly predicted each of the future achievement variables (both p 's $< .05$), showing a difference in expectancy effect sizes between ethnic groups.

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Therefore, we next performed two sets of analyses: one for White students and one for African-American students. Both sets of analyses assessed the extent to which teacher perceptions, fifth grade final marks, self-concept of math ability, effort in math class, time spent on math homework, extrinsic and intrinsic value placed on math, and student gender predicted MEAP scores and sixth grade final marks (the operational model is presented in Figure 5).

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Self-fulfilling prophecies. Consistent with the self-fulfilling prophecy hypothesis, teacher perceptions of performance predicted MEAP scores, both for African-American students ($\beta = 0.44$, $p < .005$) and for White students ($\beta = 0.12$, $p < .001$). The degree to which teacher expectations predicted White students' scores is consistent with past research (Jussim, 1991), but the high beta for African-American students is unprecedented, and suggests that self-fulfilling prophecies occur to a much greater extent among African-American students than among White students. However, the other two teacher perception variables were not significant predictors of MEAP scores. All predictors of students MEAP scores are displayed in Figure 6.

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Perceptual biases. In this study, evidence for the existence of perceptual biases will be found if teachers' expectations of their students' future achievement predict their own judgments (i.e., final marks) better than they predict objective judgments of achievement (i.e., the MEAP scores). The results presented in Figures 6 and 7 are consistent with this perceptual bias hypothesis: for White students, teachers perceptions of both effort and talent significantly influenced sixth grade final marks ($\beta = .21$, $p < .001$; β

= .08, $p < .005$), but did not significantly affect MEAP scores ($\beta = -0.06$, ns; $\beta = .01$, ns). For African-American students, teachers' perceptions of performance predicted sixth grade final marks ($\beta = .53$, $p < .001$) slightly more than they predicted MEAP scores ($\beta = .44$, $p < .005$). The other teacher perception variables did not significantly predict final marks. All predictors of sixth grade final marks are presented in Figure 7.

Place Figure 7 about here

The pattern of these results suggests that perceptual biases are working in different ways on African-American students than on White students. Teachers have expectations for the performance of African-American students, which may result in large self-fulfilling prophecy effects, and perhaps also in some perceptual biases. In the case of White students, however, expectations for performance do not result in perceptual biases (although they result in some self-fulfilling prophecies), but perceptions of talent and effort do result in perceptual biases.

Predictive accuracy. To determine the amount of predictive accuracy in the teachers' expectations, we must assess the extent to which expectations predict students' future achievement without causing it. The zero-order correlation between teacher perceptions and students' future achievement is the sum of expectancy effects plus predictive accuracy (see Jussim, Madon, & Chatman, 1993; Jussim, 1989, 1991, in press; Jussim & Eccles, 1992, for detailed explanations). Therefore, in this study, the degree of predictive accuracy in a teachers' perception of achievement is the difference between the zero-order correlation and the standardized beta weight for those two variables.

Place Table 2 about here

The results of this study were mixed, providing evidence both for accuracy and expectancy effects in teachers' perceptions (results are summarized in Table 2). The zero-order correlations of each of the

teacher-perception variables with each of the future achievement variables range from .36 to .66 for the White students, and from .43 to .78 for the African-American students. After controlling for possible sources of predictive accuracy, these correlations were reduced to path coefficients of .01 to .21 for the White students, and .03 to .53 for the African-American students. The zero-order correlations were reduced by 54% to 96%, for the White students, when controlling for potential sources of accuracy. These results suggest a considerable amount of accuracy in the teachers' predictions, as was previously found by Jussim (1991; Jussim & Eccles, 1992). For African-American students, however, zero-order correlations of teachers' perceptions of performance for African-American students with the two future achievement variables were reduced only 21% (for final marks) and 19% (for MEAP scores). This suggests, as was discussed earlier, that there is a much larger expectancy effect for African-American students than there is for White students. However, even among African-American students, there was considerable accuracy in the teachers' perceptions of effort and talent. The zero-order correlations for the other two teacher perception variables were reduced 77% (effort) and 96% (talent) for the final marks, and 85% (effort) and 67% (talent) for the MEAP scores.

Limitations

Alternative explanations for the results of this study are possible because of the correlational nature of the research. Accuracy cannot be decisively eliminated as a possible alternative to the self-fulfilling prophecy hypothesis. Teachers may utilize some other information that was not included in the models used in this study, and which enables them to more accurately predict students' future achievement. Several factors, however, limit the plausibility of this alternative interpretation: this study is consistent with much previous research; more complete controls were used here than in most of the previous research; and many likely sources of accuracy were included. These factors are discussed more completely in Jussim (1989; 1991).

Conclusions

The results of this study provide strong evidence that African-American students are much more influenced by self-fulfilling prophecies and perceptual biases than are White students. Teachers' seem to be much less accurate in their perceptions of African-American students' performance than in their perceptions of White students' performance. Further research in this area is needed, including studies of the differences between other groups, such as those based on socio-economic status, and other ethnicities. More information on the ethnicity of the teachers may also be informative, shedding light on the interaction of the teachers' ethnicity with the students' ethnicity. It is also important to investigate the difference between African-American and White students in a more ethnically integrated school district (or districts) than was used in this study. The sample used in this study was ethnically segregated so that our research provides no information regarding expectancy effects when teachers have the opportunity to directly compare African-American and White students. However, our segregated sample aptly reflects the high segregation in American society more generally. A naturalistic approach to assessing teacher expectations was chosen in order to examine how real teachers teach real children.

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Table 1

Conceptual Variables & Their Operational Measures

Past Performance	Students' Motivation	Teachers' Expectations	Future Achievement
Standardized math test scores ¹	Self-concept of math ability ^{2,3}	Perceptions of math performance ⁴	MEAP math section scores ⁵
Final marks in 5th grade math class	Effort in math ³ Time spent on math homework ³ Intrinsic and extrinsic value of math ³	Perceptions of math talent ⁴ Perceptions of effort in math ⁴	Final marks in 6th grade math class

Notes.

1. *Different school districts administered different standardized tests in late fifth or early sixth grade. Percentile ranks were used to place the tests on the same scale.*
2. *Self-concept of ability was measured by a 2-item scale: How good do students think they are at math, and how good do they think they are in comparison to others.*
3. *The motivational measures were assessed in early October.*
4. *All teacher expectation measures were assessed in October, within a few days of the assessment of the student motivation measures.*
5. *The Michigan Educational Assessment Program (MEAP) is a standardized test taken in October of seventh grade.*

Table 2

*Comparing Accuracy & Expectation Effects
Construction & Reflection of Student Achievement*

	<i>Teachers' Perceptions of Students' Performance</i>		<i>Teachers' Perceptions of Students' Effort</i>		<i>Teachers' Perceptions of Students' Talent</i>	
Correlation With Final Marks	0.78*	0.67*	0.64*	0.63*	0.63*	0.61*
Expectancy Effect on Final Marks	0.61*	0.31*	0.11	0.21*	0.03	0.08*
Percent Reduction	21%	54%	77%	66%	96%	86%
Correlation With MEAP Scores	0.59	0.50	0.43	0.51	0.44	0.36
Expectancy Effect on MEAP Scores	0.48*	0.13*	0.06	-0.06*	-0.15	0.01
Percent Reduction	19%	74%	85%	?	?	96%

Notes.

- The first entry in each column is for African-American students, the second entry is for White students.*
- Correlations refer to zero-order bivariate correlations; expectancy effects refer to standardized total effects.*
- Entries marked with an asterisk (*) are significant at $p < .005$.*

Figure 1

Conceptual Model

of the Role of Ethnicity in Teacher Expectations & Student Achievement

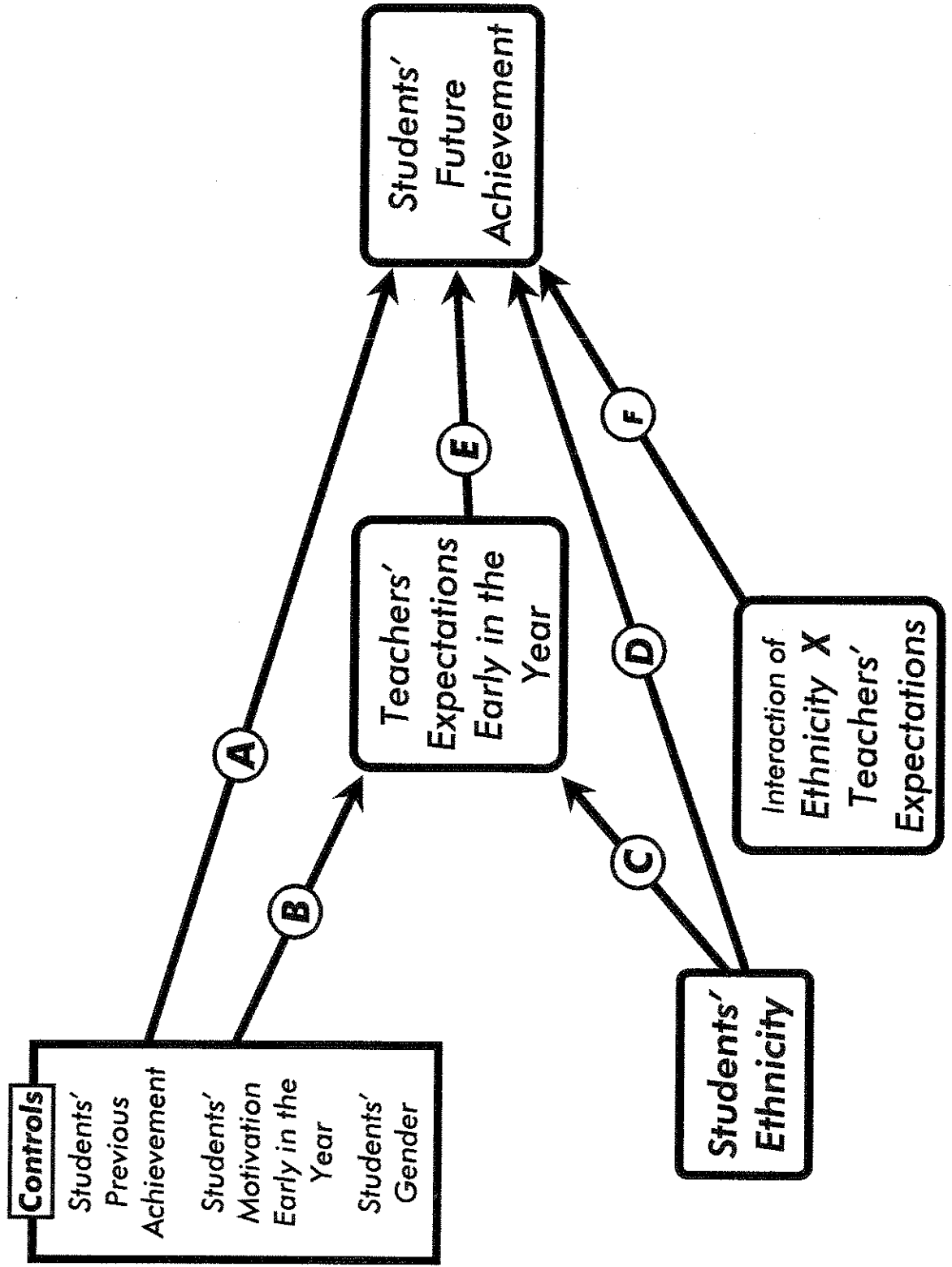


Figure 2

Stage I – Operational Model

The Bases of Teacher Expectations

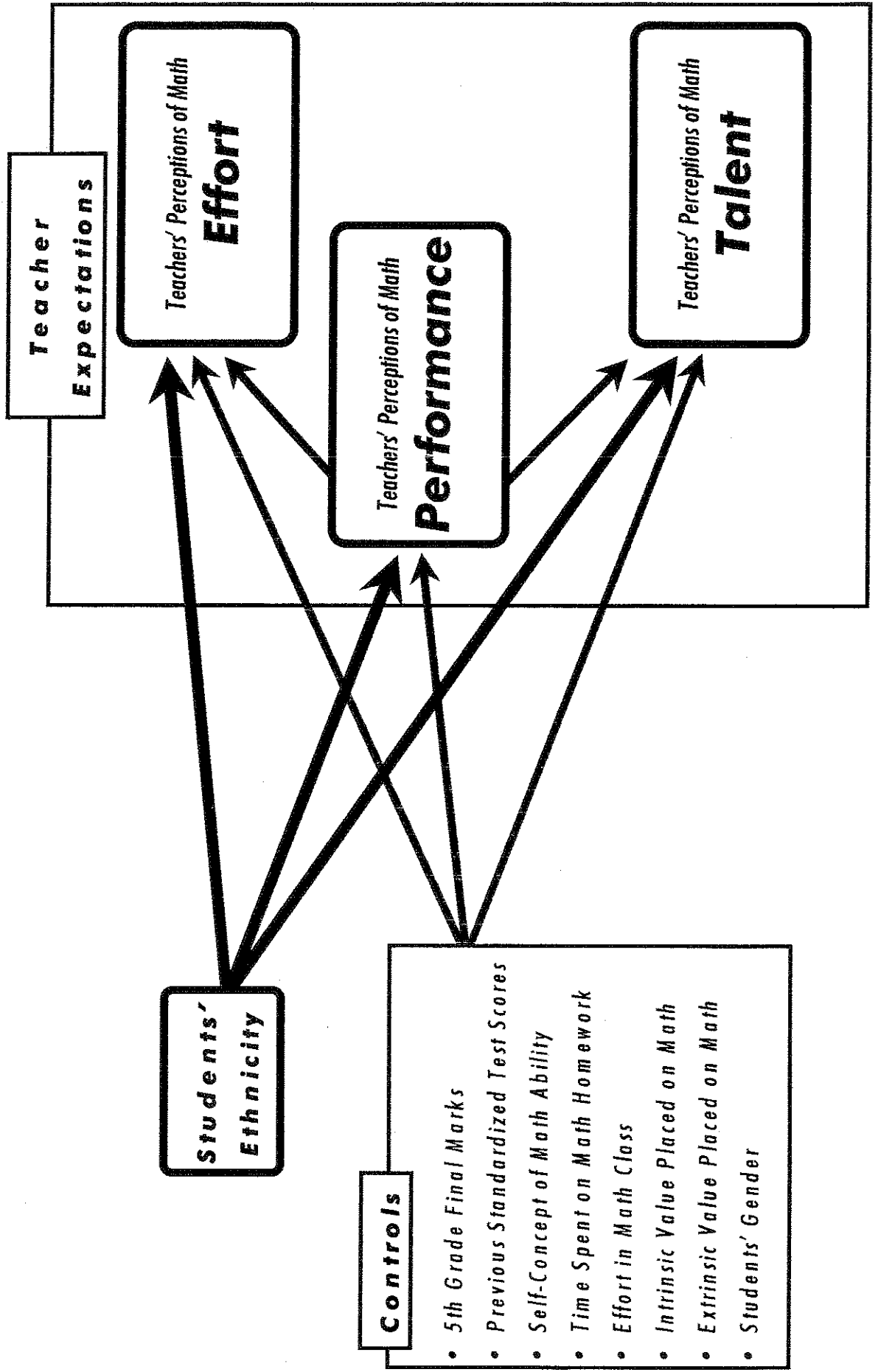
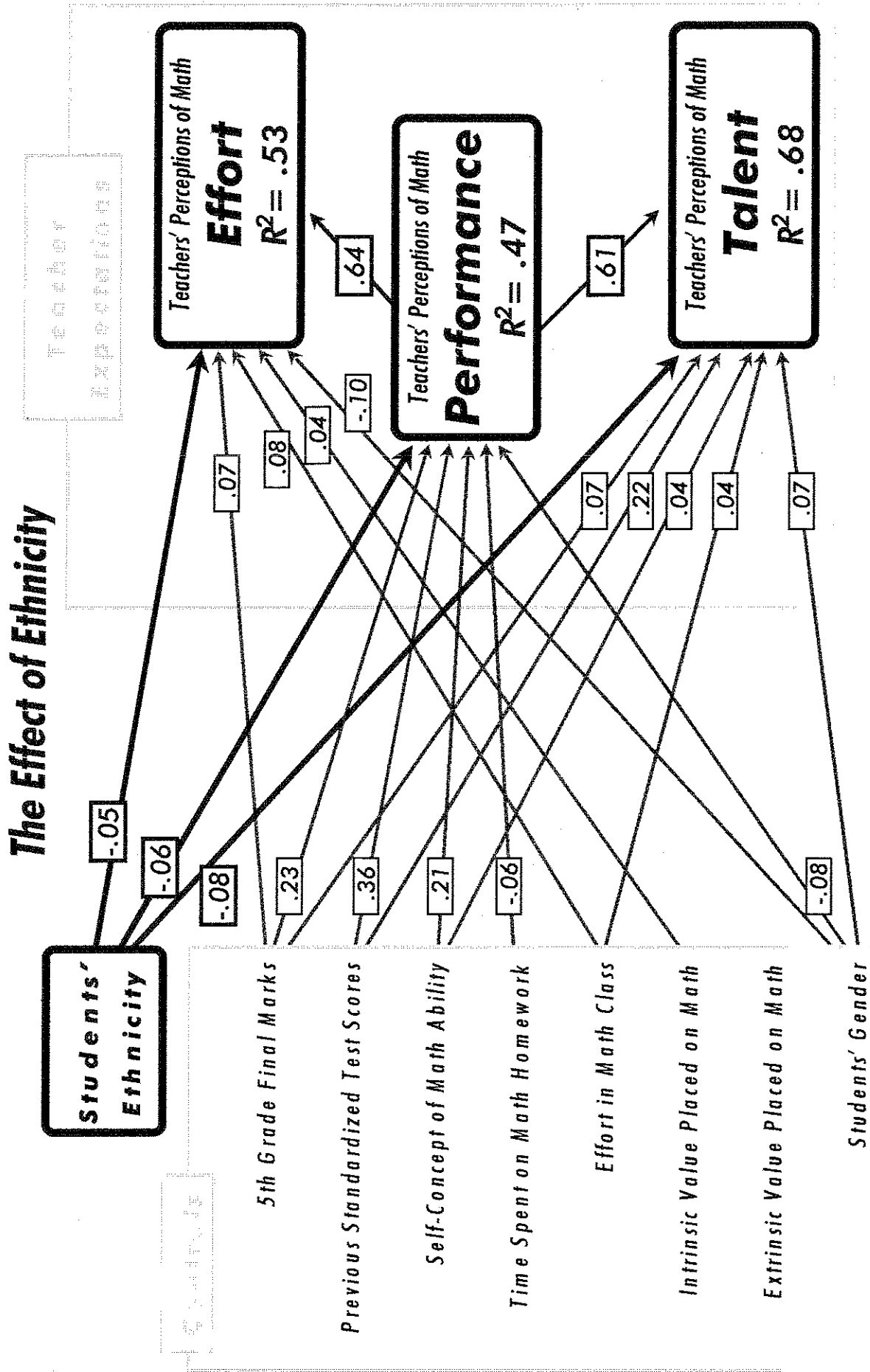


Figure 3

Stage 1 – Results

The Bases of Teacher Expectations



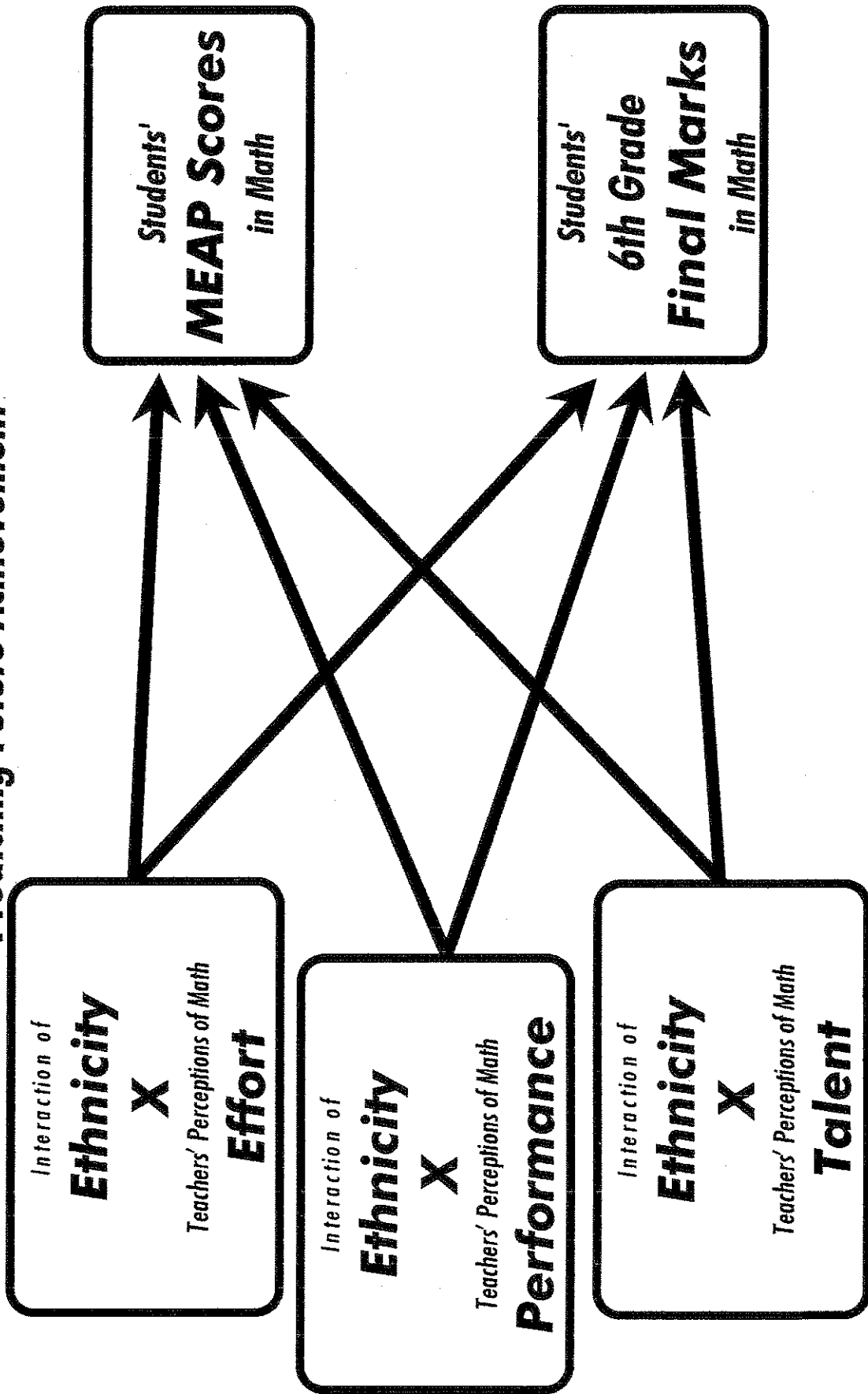
Note: Only paths with standardized beta coefficients > .04 are shown. All paths are significant to $p < .001$.

Figure 4

Stage II – Interaction Model

The Interaction of Ethnicity & Teacher Expectations

Predicting Future Achievement



Note: These paths will be assessed after controlling for: 5th grade final marks, 5th grade standardized test scores, self-concept of ability, time spent on homework, effort, value placed on math, gender, ethnicity, teachers' perceptions of math performance, teachers' perceptions of math talent, and teachers' perceptions of math ability.

Figure 5

Stage II – Comparison Model

Predicting Future Achievement

Separately by Ethnicity

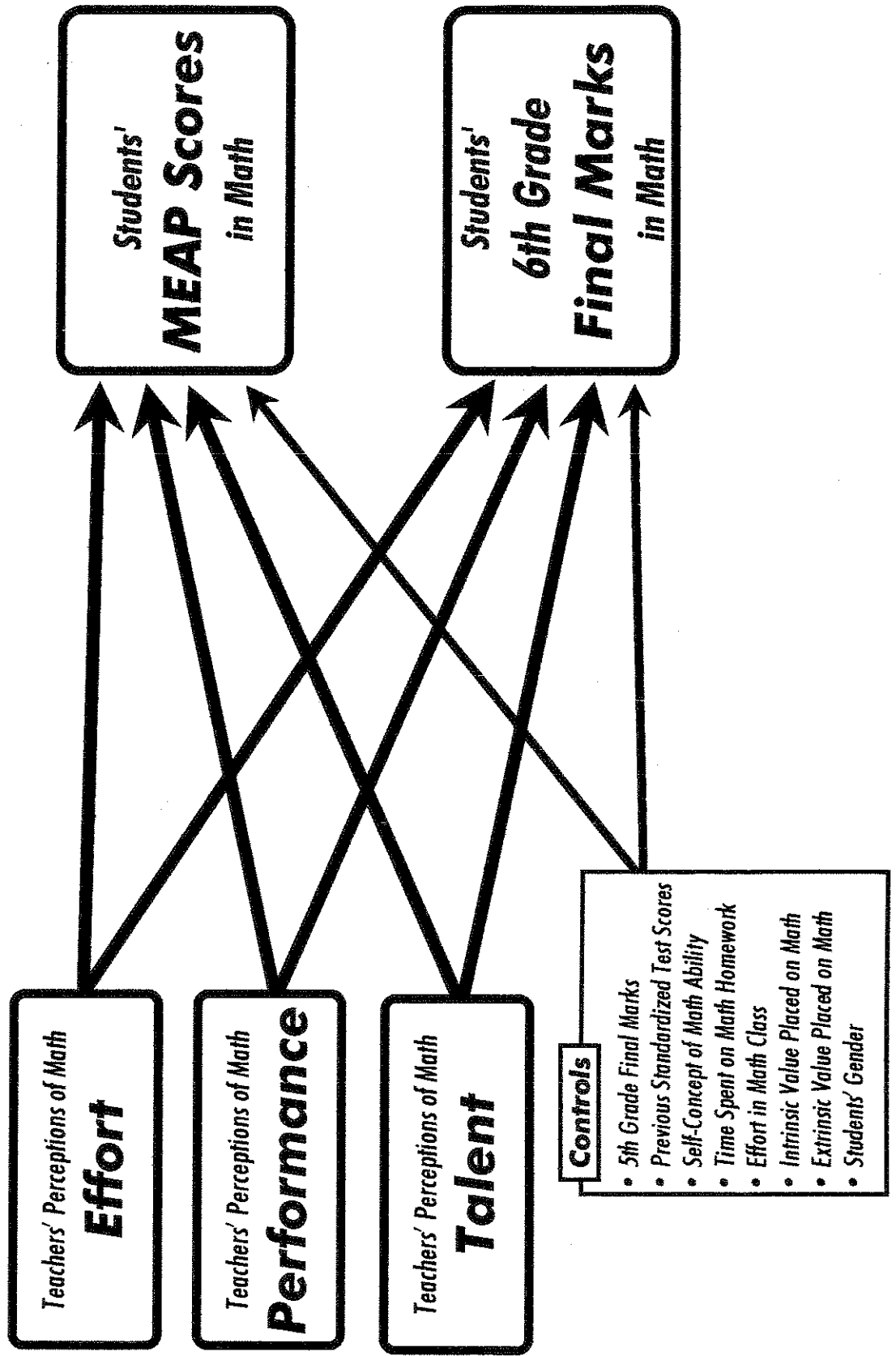
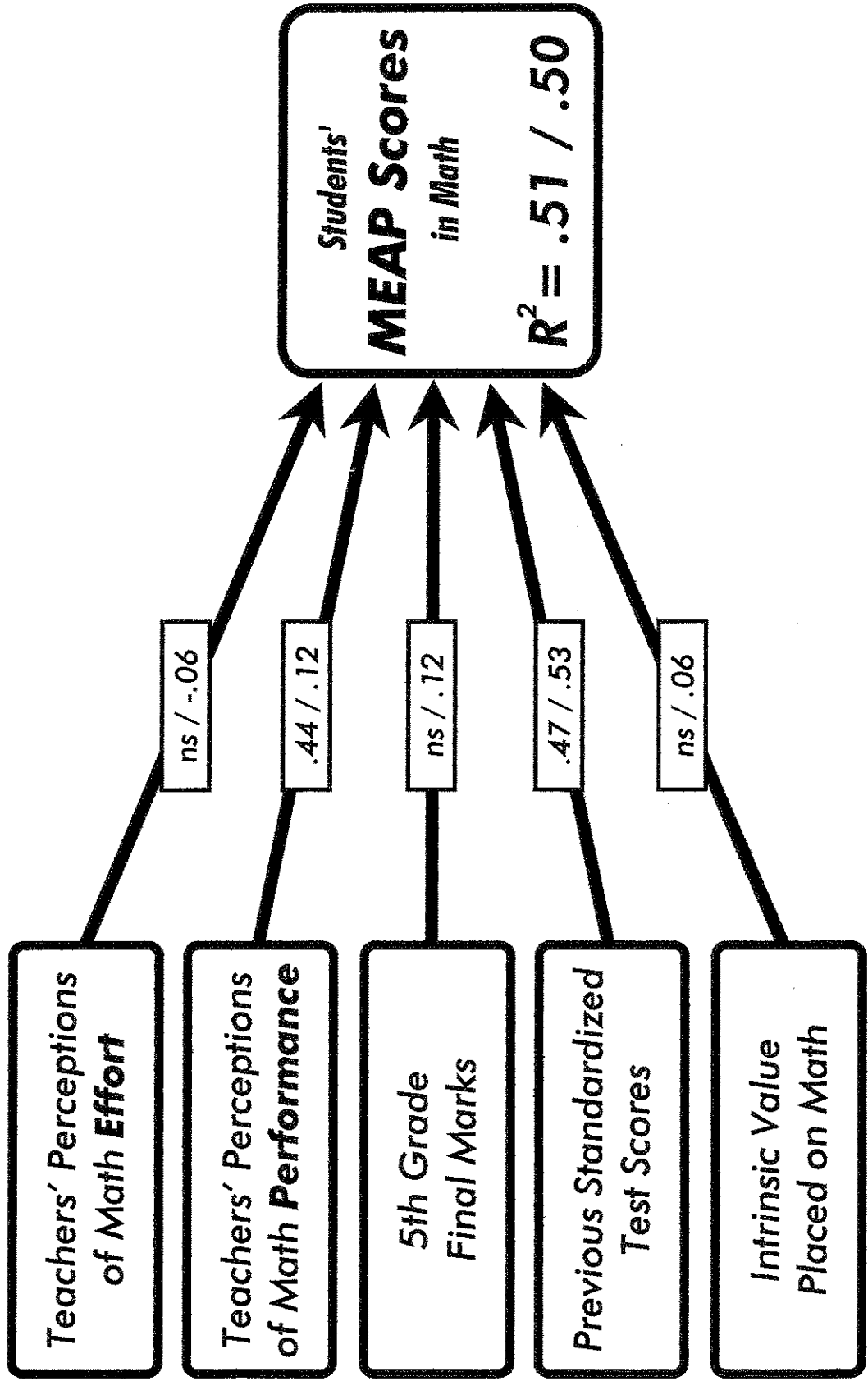


Figure 6

Stage II – Results

Predicting Students' MEAP Scores

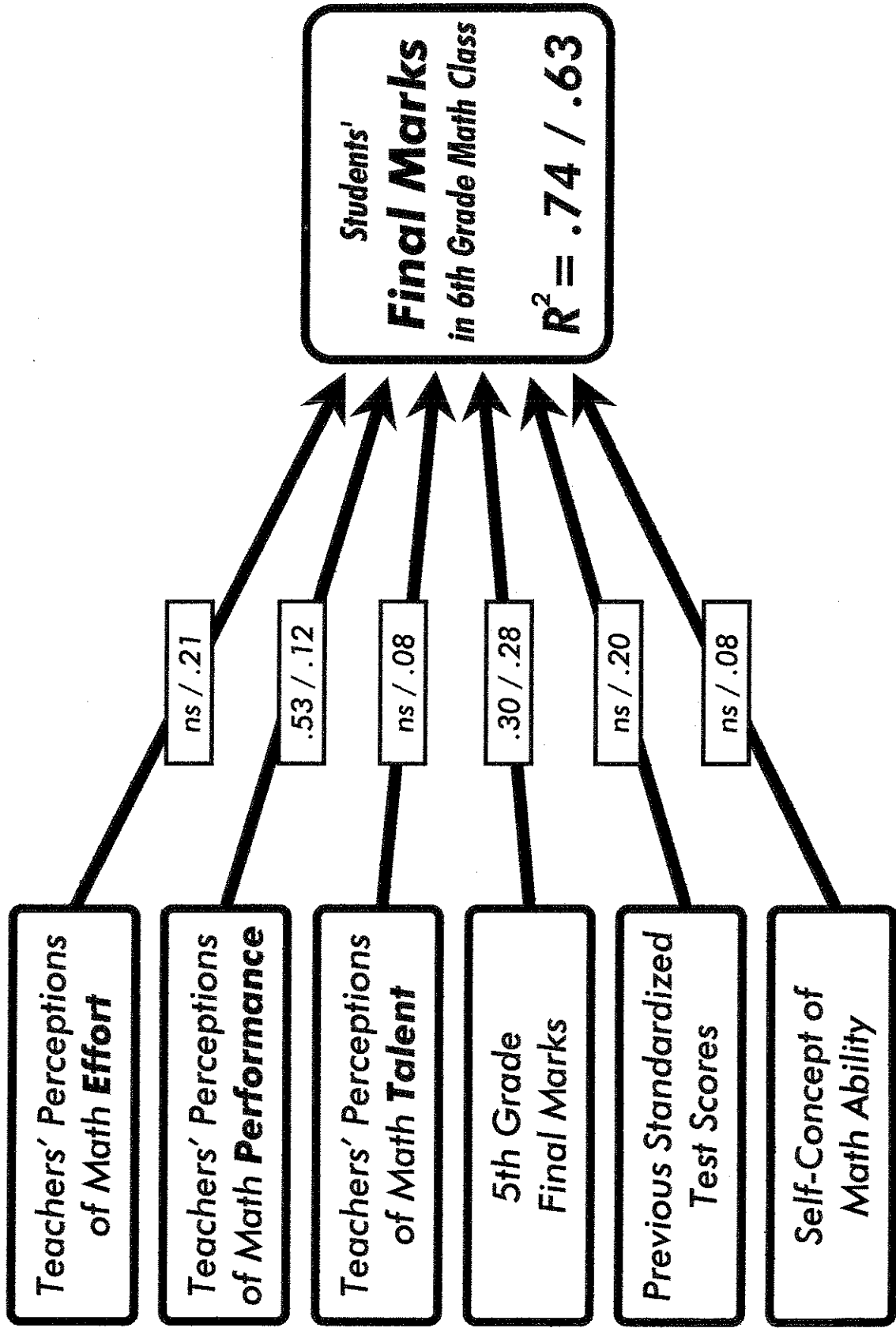


Notes: Paths are reported in the form African-American / White

Figure 7

Stage II – Results

Predicting Students' Final Marks



Notes: Paths are reported in the form African-American / White