Economically Disadvantaged Students' Failure

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The Role of Non-minority Teachers of Elementary School Students

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Biography

Dr. T. Nelson Ikegulu is the Programs Evaluator at Beaumont Independent School District (BISD), a position he's held since August 2009 after he had successfully evaluated a 3.5 million-dollar grant project from the National Science Foundation as the Project Evaluator since September 2004. He is a lifetime National and State/loxcal Alliances for Black School Educators (NABSE/TABSE/BAABSE) members with over 20 years of teaching experience in public shool and higher education institutions Curriculum/Instructional Design and Development; Statistical Computing in AMOS/EQS & LISREL, BMDP, FORTRAN, SAS, & SPSS; Statistical Modeling in ODE/PDE, and Numerical Analysis with C/C++, FORTRAN, and MAPLE; and Statistical Analyses and Modeling in Persistence/Failure-Time Survival & Time Series Analyses, Multivariate Statistical Techniques - Factor, Discriminant, and Cluster Analyses, ANOVA & ANCOVA and MANOVA & MANCOVA , Multiple Regression, Logistic (LOGIT/PROBIT) Regression, and Path Analyses, Linear Structural Equation Modeling (SEM) and Categorical Data Analyses, Statistical Estimation and Measure Theory, and Item Analysis and Multiple-Item Response Theory'; Developmental or Testimonial Transcript Tracking and Analysis; and Research Designs dealing with special interests in Case-Control and Cohort Study Designs, Longitudinal and Causal Comparative Study Designs, Quasi-Experimental (Ex-post Facto) Study Designs, and Construct Validation and Reliability Analyses/Estimates

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ABSTRACT

The present research study has shown that minority and non-minority students taught by black and white teachers in a southeastern school district in the state of Texas understood more mathematical concepts and knowledge when taught by teachers of their own ethnic background. The present investigation is relevant because it sought to either refute or support the race and gender divergence hypotheses that have polarized the education arena, especially in public schools, which is homogeneously female, dominated. Data for this present investigation were collected from the district's database and state's achieves at the campus level namely the Texas state Academic Excellence Indicator System

This investigation used a purposeful sample of 220 pupils and 19 fourth grade teachers from three elementary schools in southeast Texas. The purpose of this study was to compare minority student academic achievement by ethnicity and longevity of their teachers. Whence, I purported that: (1) Teachers' race/ethnicity, gender, and length of service or longevity and, students' race/ethnicity and gender are important factors in predicting student academic achievement. (2) Minority students who were taught by white teachers would exhibit disproportionate academic achievement than non-minority students taught by minority or black teachers. Students were drawn from three of the 19 elementary public schools in southeast Texas with similar characteristics and demography. Only one of the three schools was a school-wide Title 1 campus. The total sample consisted of 19 fourth grade teachers (one male and 18 females) with average cumulative length of service as 13.79 years (minimum was two and maximum was 31 years); and 40% and 60% of these teachers were African and Caucasian Americans respectively. About 220 fourth grade students were enrolled in three elementary schools during the 2007-2008 school year. Academically related information and other predictor variables, such as if the student in question "Met state Standard" and received state "Commended Performance" as well as the student's race and gender.

The regression analysis model defined in equation [1.1] indicated that the explicated model was significant ($\underline{F} = 23.524$; df = 3/216; & $\underline{p} < 0.001$) and explained 24.6% or R-square (multiple coefficient of determination [R] = 0.496 and Adjusted $R^2 = 0.236$) of the variance in the prediction of student mathematics TAKS scale score.

This model indicated that: (1) Minority students taught by minority teachers outperformed their non minority student counterparts who were taught by non minority teachers. (2) Asian American fourth graders taught by white teachers consistently outperformed the other minority student subgroups taught by black teachers. (3) Students taught by "Beginner/Novice" teacher (i.e., teachers with at most five years of teaching experience) had the largest mean mathematics TAKS scale score than the other teacher categories, viz "Practitioner (6-10 years of teaching)," "Scholar (11-19 years of teaching," and "Veteran/Expert (20 or over years of teaching." (4) African American teachers' students had the largest mean mathematics TAKS scale score than the other student subgroups taught by Whte teachers. This is consistent regardless of the teachers' level of experience (TEXP) and/or longevity (TLOS).

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OVERVIEW AND INTRODUCTION

Minority student influx is affecting many school districts across the United States (Short & Echevarria, 1999). Regardless of size or location, most districts are not immune to this influx. Hispanic students represent the fastest-growing minority population in the United States. Since the late 1970s, the percentage of Hispanic students in public schools has increased nationwide from six percent to 205% (National Center for Education Statistics [NCES], 2006). With the increased number of minority students comes the challenge of providing a free and appropriate education for this student group.

Minority students are often classified as ***'economically disadvantaged students,'*** which is defined as those students who receive free/reduced priced lunch under the Title I program (Osborne & Walker, 2006; Weiher, 2000).

The minority achievement gap remains one of the most complex issues in education (Haycock, 2006). Debates over the causes of the gap stemmed from not only academic literature and parental advocacy groups, but also in political discourse as well (Haycock, 2006). While much of the publics' understanding of the impact of decreased minority academic achievement likely stems from unreliable sources, growing populations of minority students have led educational stake holders to pay careful attention to finding solutions to this growing epidemic (Short & Echevarria, 1999).

Purpose, Significance, and Relevance of the Study

Although there are many factors contributing to the lack of progress of many minority students, one area that should be investigated is the level of academic achievement of non-white minority students (e.g., Asian and Hispanic Americans) who are being taught by a white teacher. The purpose of this study is to compare minority 9or economically disadvantaged) student academic achievement by ethnicity and longevity of their teachers.

Evidence abounds in the literature that suggests that minority and non-minority students in the same classroom exhibit differential academic achievements when the ethnic backgrounds and longevity (i.e., LOS or number of cumulative years of teaching experience) of their teachers are considered as contributing factors. Whence, it was posited that: (1) Teachers' race/ethnicity, gender, and length of service or longevity and, students' race/ethnicity and gender are important factors in predicting student academic achievement. (2) Minority or students who were taught by white teachers would exhibit disproportionate academic achievement than non-minority students taught by minority or black teachers.

This study is relevant because it seeks to either refute or support the race and gender divergence hypotheses that have polarized the education arena, especially in public schools, which is homogeneously female, dominated.

LITERATURE REVIEW

Schools play a major role in the success of minority students. Just as important are the human factors that affect the promotion of these same students. Stereotypes influence the behavior of people daily; consequently, education is plagued by the effects of many unfounded

beliefs (Aronson, 2004). The importance of beliefs and attitudes of teachers as well as parents, families, and students themselves has been well documented in empirical studies (Borman & Kimball, 2005; Sledge & Moorehead, 2006**)**. Teachers' attitudes and belief system impact how they relate to their students; and these in turn affect student academic achievement. Teachers often treat students of color differently than white middle-class students (Aronson, 2004). According to Aronson (2004), who believed that some educators simply do not either have enough faith in their students, or that they do not think that all children can learn; and therefore, they lack the will to foster equal outcomes in student achievement and higher academic performance expectations for students.

Bias Relative to Teacher Expectation, Quality Teaching, and Student Performance

Literature emphasizes that positive teacher expectation, efficacy, caring, and persistence are important correlates in student academic achievement (Haycock, 2006; Holloway, 2004; Sledge & Morehead, 2006). A teacher's perception of his/her students' performance is particularly critical for students of color (Ferguson, 1999). For example, in a series of studies conducted with students at Stanford University, psychologist Claude Steele found that the negative stereotypes about African Americans' intellectual abilities impede Blacks' performance on standardized tests - - a condition he called "stereotype threat" (Ferguson, 1998). Students of color often come from lower-income families and some of those students may also be second language learners (Osborne & Walker, 2006). Ferguson (in Jencks & Phillips) reported a study that concluded that Black students respond more strongly to teachers' beliefs than white students. This suggests that students of color are more affected by negative as well as positive attitudes and treatment of their teachers. Teacher bias' has been reported to cause students of Mexican descent to feel alienated and this treatment has been reported to hinder their academic

achievement (Wayman, 2002). They also felt that their Mexican background kept them from being part of the "in-group" and this often lead to differential treatment by faculty (Sledge & Moorehead, 2006). Being told they were not capable of high school work, falling victim of unfair disciplinary actions, and often told not to speak their native language are only a few of the injustices they encounter (Wayman, 2002). Wayman's 2002 study further revealed that Hispanic students felt their teachers preferred non-Latino white students over students of Mexican descent. He discussed the importance of inequities of this sort being addressed by the school in an effort to prevent hindering academic achievement. In 1966, the Coleman Report concluded that teacher characteristics were responsible for more variance in student achievement than any other school resource and teacher attitudes. And these beliefs continue to be overwhelmingly cited as a major predictor of student success (Figlio, 2004; Oberman & Symonds, 2005). According to these researchers, students from minority backgrounds are most severely affected by those whose charge it is to educate them. Statistics show that minority students are less likely to be enrolled in rigorous programs: (1) advanced placement classes, (2) scholastic extracurricular activities, and (3) enrollment in higher-level mathematics and sciences courses (Wayman, 2002; Holloway, 2004; Sledge & Moorehead, 2006). Some teachers recognize early on that they need to begin to rethink their biases and question assumptions they have long taken for granted (Michie, 2007). However, far too many white teachers tend to cling to a "color-blind" approach and remain resistant to examining their own cognitive circumflex, racial identity development, and the ways racism is played out (Michie, 2007).

Teacher Expectation and Efficacy and, Student Performance.

Many researchers cite teachers' expectations about students' ability to be the most influential student characteristic affecting their behavior. However, if teachers have low

expectations of their students' ability to learn, these low expectations can contribute to a low sense of teacher efficacy and lessened effort in teaching the students they believe to have low ability (Michie, 2007). White teachers have been shown to perceive black students more negatively than black teachers and black students more often perceive rejection from their white teachers; thus, these diminished expectations can lead to a reduction in student achievement (Sheehan & Marcus, 2001). Holloway (2004) noted that low efficacious teachers explained low achievement in terms of the students' failure or lack of cognitive circumflex: these students "lack cognitive ability" and "motivation," have "character deficiencies," or "have poor familial background/home environments," and/or "are environmentally incognizant." In contrast, he found that highly efficacious teachers expressed the importance of developing warm relationships with students and the view that they could take positive actions to avoid problems when he acquiesced" "High sense-of-efficacy teachers were" more likely to demonstrate to students that they care about them and were concerned about their progress and their problems (p. 85). According to Michie (2007), white teachers who found success in urban schools were the ones who "hang-in there" for the kids and were not seen as just another white person abandoning them; but one who cared enough to help them make it.

Many studies have documented the importance of caring about all students, but students in poverty overwhelmingly show that caring plays a major role in their academic success in school (Brownell, 1996; Holloway, 2004). Children require what Carl Rogers calls an unconditional positive regard. They need to feel that their opinions matter, and that the teacher is interested in knowing something about them outside of pure academics; thus, indicating that they care for them as students and as people (Wayman, 2002). Explicit caring has been shown to create the necessary bonds to ensure learning (Brownell, et al. 1996).

Quality Teaching and Student Performance.

Persistence or perseverance is another quality that benefits low-achieving students (Brownell, et al. 1996). The authors describe teachers who were “tough” and “take no stuff” and who were respected and revered by their students. Good teachers, according to students in one study, are “respectful of them, care about them, provide choices for them, and are tenacious in their efforts to make the information taught more understandable for them” (Brownell, et al. 1996). Middle school students interviewed by Wilson and Corbett (2002) emphasized the importance of their teachers who never quit or give up on them. Effective teachers adhered to a “no excuses” policy, that there were no good reasons why a teacher would give up on a child. These students wanted to be in classrooms where teachers ‘stayed on students’ to complete assignments” and the teacher went out of his or her way to provide help (Haycock, 2006).

Finally, teachers need to reflect and evaluate their own behavioral practice. Teachers may not be conscious of inequities in their behavior toward students (Aronson, 2004). Using videotaping, asking peers to observe and mirror back what they see, or asking students for their perspectives on classroom activities are ways to collect data that can provide insight into teacher instruction and expectations. Awareness programs can also help teachers identify needs and make changes in this area.

RESEARCH DESIGN, METHODOLOGY, AND ANALYTICAL PROCEDURES

Given the abundance of factors and their interacting effects, the potential discriminatory attitudes of teachers, the lack of students’ affiliation with their teachers and/or the school (which tantamount to eventual student malintegration), the lack of holistic student-teacher classroom interaction, the feelings of rejection of minority students, and the possibility that teacher attitude are reflected in student overall academic performance, it would appear that students would

perform better, academically, if taught by teachers of the same ethnic background. Thus, the present study was conducted to ascertain the extent that teachers' characteristic (e.g., gender, ethnicity, and longevity) are predictors of student academic achievement relative to the students' minority status and academic prowess.

To make these determinations, mathematics achievement test scale score (MSCORE) data as well as other demographic information were gathered for fourth grade pupils enrolled in mathematics using the Texas state's standardized test - - Texas Assessment of Knowledge and Skills (TAKS) - - for fourth graders enrolled during the spring 2008 test administration. This grade level was chosen because TAKS test results are readily available and the test is only administered once at this grade level; therefore, there was no need for subsequent retrofitting and/or duplication errors. Hence, it suffices to say that the sample design for the present investigation was purposeful.

Population and Sample Characteristics

The population (with 19 elementary schools), from which the sample was drawn can be characterized as homogeneous with gender and ethnic distributions as: (1) Gender - - 8% male and 92% female teachers and (2) Ethnicity - - 3.5% Asian, 34% African, 18% Hispanic, 44% Caucasian, and 0.5% Native Americans.

Students were drawn from three of the 19 elementary public schools in southeast Texas with similar characteristics and demography. Only one of the three selected schools was a school-wide Title 1 campus. The total sample consisted of 19 fourth grade teachers (one male and 18 females) with average cumulative length of service as 13.79 years (minimum was two and maximum was 31 years); and 40% and 60% of these teachers were African and Caucasian Americans respectively. About 220 fourth grade students were enrolled in these three elementary

schools during the 2007-2008 school year. Academically related information and other predictor variables, such as if the student in question "Met state Standard" and received state "Commended Performance" and the student's race and gender.

Data Collection and Analytical Procedures

Data for this present investigation were collected from the district's database and state's achieves at the campus level namely the Texas state Academic Excellence Indicator System (AEIS) database of the State of Texas Education Agency (TEA) for the 2007-2008 school year. Within the TEA database are information about individual students and teachers and campuses. These information were subjected to exploratory and inferential data analyses to respond to the proposed hypotheses. First, summary statistical measures were computed to describe the sample characteristics; whereafter, the entire sample was analyzed using correlation, multiple regression (RegAna), simple factorial analyses of variance (ANOVA), and general Linear Models (GLM) analyses with students mathematics scale score (MSCORE) as the outcome variable and other contributing variables as factors. The extracted model was then subjected to post-hoc analyses to determine the underlying factors contributing to student academic achievement.

For the present investigation, the following models would be analyzed and explicated:

Regression Model:

$$\mathbf{MSCORE = ß_0 + ß_1\,(TRACE) + ß_2(TLOS) + ß_3(STURACE) + Error \quad [1.1]}$$

Simple Factorial and General Linear Main/ and Interaction Effects ANOVA Models:

$$\mathbf{Factorial\ Main\ Effects = Y - (ß + MX) + Error \quad [1.2]}$$

$$\mathbf{General\ Linear\ Model = Y - (ß_0 + ß_{ij}\,X) + Error \quad [1.3]}$$

RESULTS

Information gathered on the students revealed that about 140 (67%) and 80 (36%) of the fourth graders "Met state Standards," 120 (54.5%) and 100 (45.5%) received Texas state "Commended Performance" respectively on Mathematics TAKS during the 2007-2008 school year. Furthermore, there were 113 (51.4%) male and 107 (48.6$) female students in the sample; and the student sample could be characterized as heterogeneous with respect to gender: (1) 7 (3.2%) Asian Americans, (2) 113 (51.4%) African Americans, 32 (14.5%) Hispanic Americans, and 68 (30.9%) Caucasian/White Americans. It was purported that some of these variables would contribute to the prediction of student performance and/or academic achievement relative to their teachers' characteristics. Consequently, the teacher length of service (LOS) was discretized: (1) If "Teacher LOS was at least five years of service, then "Teacher Experience (TEXP) = 1 or "Beginner/Novice Teacher." (2) If "Teacher LOS was between six and ten years of service, then "Teacher Experience (TEXP) = 2 or "Practitioner Teacher." (3) If "Teacher LOS was between 11 and 20 years of service, then "Teacher Experience (TEXP) = 3 or "Scholar Teacher." If "Teacher LOS was at most 20 years (20+) , then "Teacher Experience (TEXP) = 4 or "Veteran/Expert Teacher."

Exploratory Data Analyses

The distribution of this newly computed variable indicated that there were 53 (24.1%) Beginner/Novice, 44 (20%) Practitioner, 78 (Scholar, and 45 (30.5%) Veteran/Expert Teachers in the sample who were likely to influence these 220 fourth graders' academic progress. With this new variable, together with other variables extracted from the TEA and campus/district databases, a descriptive summary statistics was employed to describe students' overall average mathematics scale score and the teachers' length of service relative to ethnicity (See Table 1).

The overall mean (standard deviation) of the student mathematics TAKS scale score and teachers' length of service are 2246.81 (359.70) and 13.79 years (8.96). By the same token, Table 2 summarizes the students' overall average mathematics scale score and the teachers' teaching experience relative to ethnicity.

Table 1

Descriptive Summary Measures: Average (STD. DEV.) Students' Mathematics Scale Score (N = 220) and Teachers' Length of Service by Teachers' Ethnicity

Teacher Race	Student Math Scale Score	Teacher Length of Service
African American		
Mean (STD DEV)	2418.86 (216.68)	9.82 (8.18)
Caucasian American		
Mean (STD DEV)	2132.11 (389.83)	16.43 (8.50)

Table 2

Descriptive Summary Measures: Average (STD. DEV.) Students' Mathematics Scale Score (N = 220) and Teachers' Length of Service and by Teachers' Level of Experience

Teaching Experience	Student Math Scale Score	Teacher Length of Service
Beginner/Novice (N = 53)		
Mean (STD DEV)	2321.38 (320.48)	3.77 (0.99)
Practitioner (N = 44)		
Mean (STD DEV)	2421.66 (234.10)	8.50 (1.13)
Scholar (N = 78)		
Mean (STD DEV)	2162.18 (369.43)	14.96 (2.96)
Veteran/Expert (N = 45)		
Mean (STD DEV)	2134.71 (409.12)	28.71 (4.5)
Overall (N = 220)		
Mean (STD DEV)	2246.81 (359.20)	13.79 (8.96)

It seems that with respect to level of teaching experience, the variances are within manageable proportions than within the overall variance proportion. Results of Table 2 are quite the opposite than those from Table 1; indicating more plausible roles of teachers' ethnicity and levels of teaching experience in subsequent analyses. This role was explored using the Pearson Product Moment correlation analysis to determine the extent to which teacher and/or student characteristics impact student overall academic achievement.

Predicting Students' Overall Academic Achievement

Results of Table 2 were used as inputs in the subsequent correlation analyses (See Table 3), which revealed that the teachers' ethnic background ($R = -0.391$, $p < 0.001$); length of service ($R = -0.212$, $p < 0.001$); and level of experience ($R = -0.245$, $p < 0.001$), as well as the ethnicity of the students ($R = 0.275$, $p < 0.001$) are important predictors of students' overall academic performance. Furthermore, teachers' ethnic background ($R = 0.362$, $p < 0.001$) and length of service ($R = 0.226$, $p < 0.001$) are positively correlated with teachers' length of service and gender respectively. It is also obvious that teachers' level of teaching expiring is an important correlate with respect to teachers' ethnicity ($R = 0,513$, $p < 0.001$) and gender ($R = 0.294$, $p < 0.001$). A more expectant and observed correlation is that between teacher' length of service and level of teaching experience ($R = 0.936$, $p < 0.001$). This is because teachers' level of experience (TEXP) is derivative of the corresponding teachers' length of service (TLOS).

Table 3

Results of the Correlation Analysis: Predictive Validity of the Proposed Model [1.1]

MSCORE	TRACE	TLOS	STUGEN	STURACE	TGEN	TEXP
MSCORE 1.0	-0.391**	-0.212**	-0.024	0.275**	-0.045	-0.245
TRACE	1.0	0.362**	0.033	0.073	0.253**	0.513**
TLOS		1.0	0.088	-0.132	0.226	0.936**
STUGEN			1.0	0.007	-0.120	0.094
STURACW				1.0	-0.108	-0.096
TGEN					1.0	0.294**
TEXP						1.0

Note: MSCORE = Student Mathematics TAKS Scale Score, TRACE = Teacher Race, TLOS = Teacher Length of Service, STUGEN = Student Gender, STURACE = Student Race, TGEN = Teacher Gender, and TEXP = Teacher Level of Teaching Experience.

* ➔ Significance at 0.05 alpha and ** ➔ Significance at 0.001 alpha.

The regression analysis model defined in equation [1.] indicated that the explicated model was significant ($F = 23.524$; df = 3/216; & $p < 0.001$) and explained 24.6% or R-square (multiple coefficient of determination [R] = 0.496 and Adjusted $R^2 = 0.236$) of the variance in the prediction of student mathematics TAKS scale score.

Table 4

ANOVA Results of the Regression Analyses: Predictive Validity of the Proposed Model [1.1]

	Sum of Squares (SS)	df	Mean Square (MS)	F*	p-value
Model	697766	3	2325889	23.524	0.000
Error	2.1×10^{07}	216	98874.15		
Total	2.8×10^{07}	219			

The proposed regression model proposed in [1.1] can be explicated as follows:

Unstandardized Regression Equation:

MSCORE = 2420.21 + 147.97 (TRACE) – 1.05 (TLOS) + 115.16 (STURACE) + 98874.15 [1.1(a)]

{OR}

Standardized Regression Equation:

MSCORE = -6.319 (TRACE) – 0.026(TLOS) + 0.301(STURACE) + 98874.15 [1.1(b)]

The first proposed hypothesis that teachers' race/ethnicity, gender, and length of service or longevity and, students' race/ethnicity and gender are likely predictors for student academic achievement was tested using the regression analysis. The significance of the model is indicative that the aforementioned concomitant variables - - teachers' ethnicity and length of service and students' ethnicity did predict the fourth grader students overall academic achievement in mathematics to within 98% precision and the model explained almost all of the variance associated with these variables.

Race Divergence Hypotheses and Student Overall Academic Performance

The second hypothesis - - Minority or students who were taught by white teachers would exhibit disproportionate academic achievement than non-minority students taught by minority or black teachers was tested using main/interaction effects simple factorial ANOVA model and the general linear model with main and interaction effects where these main and interaction effects were defined as defined in equations [1.2] and [1.3].

Results of the simple main and interaction effects NAOVA model ([1.2]) did not yield significant interactions for the combined main effects; and as such was discarded. The only significant main effects due to the model specified in [1.2] were attributed to teachers' ethnic affiliation and level of experience and, students' ethnicity. None of the other main and

interaction effects due to teachers' and students' gender with the other factors of interest deemed significant. Whence, model [1.2] was reduced to a 4 X 2 X 4 (students' ethnicity-by-teachers' ethnicity-by-teachers' level of experience or STURACE X TRACE X TEXP) general linear model as proposed by equation [1.3].

The Levene's test for equality of variance across all groups of participants is significant ($\underline{F} = 2.165$, df = 24/195, & $\underline{p} = 0.002$); indicating that there are variations in the mean mathematics TAKS scale scores for all categories of participants (i.e., students and teachers) in this study. The model under investigation as depicted in equation [1.3] and accounted for 99.2% of the variance in the specified model is given by:

MSCORE = TRACE + TEXP + STURACE + TRACE*TEXP + TRACE*STURACE + TEXP*STURACE + TRACE*TEXP*STURACE + ERROR [1.3(a)]

The estimated marginal grand mean (and standard error [SE]) for the fourth graders' TAKS mathematics scale score is 2235.94 (SE = 24.682). The estimated mean (and SE) for the teachers' ethnicity (TRACE) are African Americans, 2303.90 (SE = 36.354) and White/Caucasian Americans, 2173.20 (SE = 33.662). This means that students in this study, no matter their racial/ethnic background, outperformed the students who were taught by white teachers. For the main effects due to teachers' level of experience (TEXP), the estimated students' mean (SE) TAKS mathematics scale score are Beginner/Novice teachers, 2227.16 (SE = 39.281); Practitioner teachers, 2236.71 (SE = 56.149); Scholar teachers, 2290.49 (SE = 35.516); and Veteran/Expert teachers, 2194.59 (SE = 53.888). The test of between subject effects is as shown in the ANOVA Table below.

Tests of Between-Subjects Effects

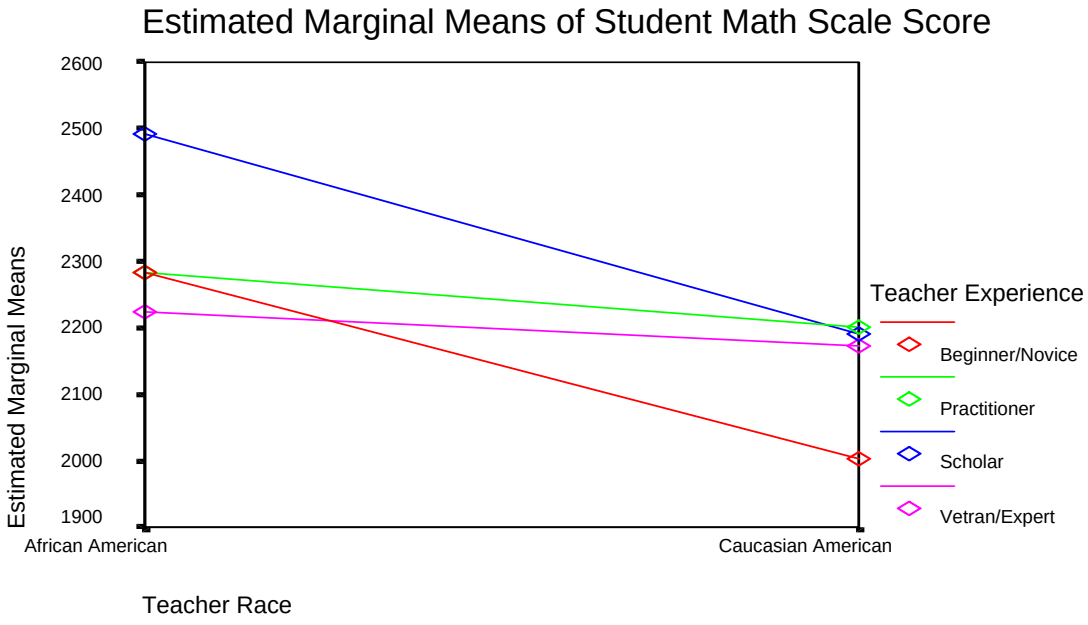
Dependent Variable: Student Math Scale Score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power[a]
Model	1.1E+09[b]	25	4.5E+07	982.691	.000	24567.284	1.000
TRACE	972991.9	1	972991.9	21.211	.000	21.211	.996
TEXP	322086.9	3	107362.3	2.340	.075	7.021	.582
STURACE	739398.8	3	246466.3	5.373	.001	16.118	.931
TRACE * TEXP	129721.5	3	43240.484	.943	.421	2.828	.256
TRACE * STURACE	2627561	2	1313780	28.640	.000	57.279	1.000
TEXP * STURACE	335239.8	8	41904.976	.914	.506	7.308	.419
TRACE * TEXP * STURACE	370018.2	3	123339.4	2.689	.048	8.066	.648
Error	8945215	195	45872.897				
Total	1.1E+09	220					

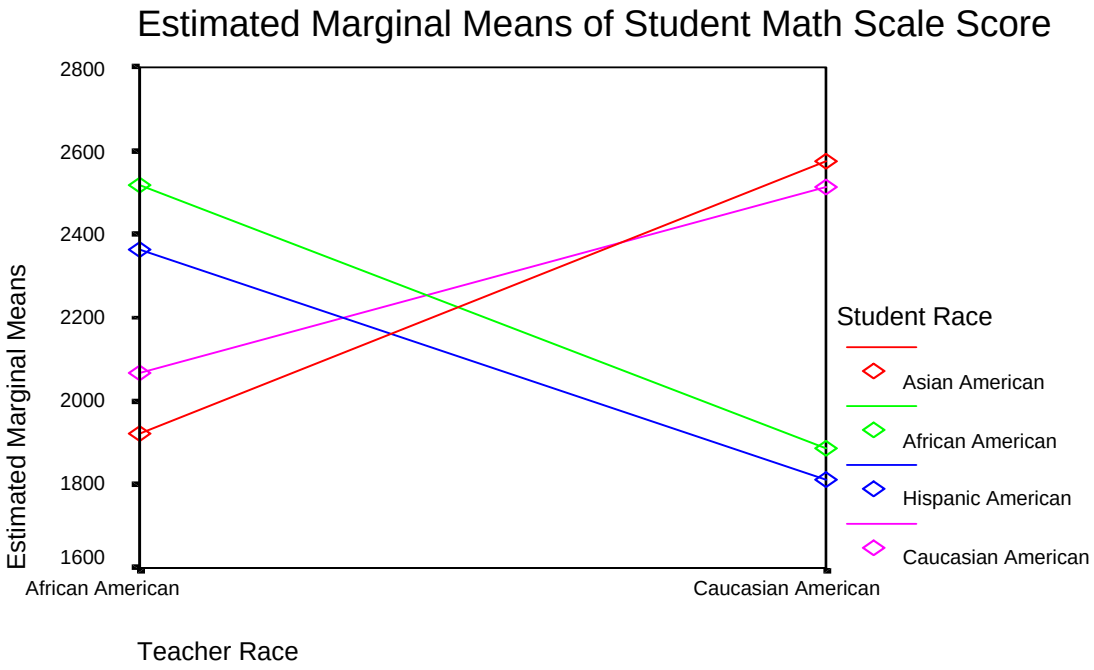
a. Computed using alpha = .05

b. R Squared = .992 (Adjusted R Squared = .991)

The fully specified model (See [1.3] and [1.3(a)] indicated that: (1) Minority students taught by minority teachers outperformed their non minority student counterparts who were taught by non minority teachers.(2) Asian American fourth graders taught by white teachers consistently outperformed the other minority student subgroups taught by black teachers.



(3) Students taught by “Beginner/Novice” teacher (i.e., teachers with at most five years of teaching experience) had the largest mean mathematics TAKS scale score than the other teacher categories, viz “Practitioner (6-10 years of teaching),” “Scholar (11-19 years of teaching,” and “Veteran/Expert (20 or over years of teaching.” (4) African American teachers’ students had the largest mean mathematics TAKS scale score than the other student subgroups taught by white teachers. This is consistent regardless of the teachers’ level of experience (TEXP) and/or longevity (TLOS).



DISCUSSION AND IMPLICATION FOR FURTHER STUDIES

The present investigation has shown that minority and non-minority students taught be black and white teachers in a southeastern school district in the state of Texas understood more mathematical concepts and knowledge when taught by teachers of their own ethnic background.

Future studies of student academic performance and/or achievement could be conducted in a more heterogeneous environment where the sample selection is not convenient, purposeful, and the campuses are somewhat more diverse than the one presented in this study.

Students' academic variables may prove more evinced and/or protective if they are pre-defined to within the scope of the population characteristics. It is noteworthy to mention that students' ethnic background accounted for only 12% of the explained variance in the predictive model for students' mathematics TAKS performance. But learning styles differentials and teachers' efficacy, age, level of education, and other concomitant variables were not considered in the present investigation; thus lending the results to lack of generalizability.

Educators do not have to be inexorable to be felicitous. To teach them all is to know them all; and sameness in teaching is diversity for all is an educational philosophy that most educators have embraced. The pluralistic underpinning of this philosophy stemmed from the behavioral and constructivists' instructional models taught and learned yesteryears. Yet, when it comes to lesson plans, instructional delivery, extended-day/after-school tutorial, and/or instructional juxtaposition to reach the most at-promise students in our classrooms, educators often fall short to meet these demands. It is our vary professional pledge to teach both the mediocre and academically able students in our classrooms; to not subject our students to a revolving policy and the practice 'me.com.' and to always understand that "all sizes do not fit them all."

Future empirical studies should endeavor to incorporate more of the subtle and less of the obvious correlates that have the potential to predict the overall student performance. Easily identifiable teacher and student correlates that have the predicative validity for student performance must be derived based on the prevailing theories in education and the less likely ones identified as inconsequential.

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