

Parent–School Involvement and School Performance: Mediated Pathways Among Socioeconomically Comparable African American and Euro-American Families

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Children's academic and social competencies were examined as mediators to explain the often positive relation between parent–school involvement and achievement. Ethnic variations in the relation between parent–school involvement and early achievement and the mediated pathways were examined. Because much of the comparative research confounds ethnicity with socioeconomic status, the relations were examined among socioeconomically comparable samples of African American and Euro-American kindergarten children and their mothers. For reading achievement, academic skills mediated the relation between involvement and achievement for African Americans and Euro-Americans. For math achievement, the underlying process differed across ethnic groups. For African Americans, academic skills mediated the relation between school involvement and math performance. For Euro-Americans, social competence mediated the impact of home involvement on school achievement.

Although the vast majority of parents want their children to be successful in school, many parents do not know how to assist their children in ways that improve school performance (Epstein, 1986). Encompassing multiple dimensions including volunteering at school, home-learning activities, and instilling a value of education (Epstein, 1990; Grolnick & Slowiaczek, 1994), parental involvement in children's education and school achievement is consistently associated with positive outcomes (Ames & Archer, 1987; Entwisle, Alexander, Pallas, & Cadigan, 1987; Grolnick, Benjet, Kurowski, & Apostoleris, 1997; Hill, 2001; Jimerson, Egeland, & Teo, 1999; Kohl, Lengua, McMahan, & the Conduct Problems Prevention Research Group, 2000; Luster & McAdoo, 1996). Both at school and at home, parental involvement in education is associated with improvements in school behavior, social competency, and school performance (Fantuzzo, Davis, & Ginsburg, 1995; Izzo, Weissberg, Kaspro, & Frenndrich, 1999).

Although the positive impact of parent–school involvement on achievement is well documented, the mechanisms through which this process occurs are less well understood. Expected social competencies, such as sharing, turn taking, and getting along with others, and academic competencies, such as paying attention and staying on task, are often the focus of kindergarten classrooms (Bryant, Clifford, & Peisner, 1991). Thus, during kindergarten, the types of parent–school involvement that have positive influences on the development of academic and social competencies may result in better school achievement.

Parental involvement in school assists young students in obtaining the necessary academic competencies for succeeding in school.

In two intervention studies, parental involvement has improved task completion and accuracy in mathematics compared with control children (Galloway & Sheridan, 1994) and improved academic competencies including classroom participation and ability to stay “on task” (Thurston, 1989). Academic competencies in kindergarten, such as task orientation, taking initiative, and classroom participation, are positively associated with achievement outcomes, often better than ratings of cognitive abilities in kindergarten (Gottfried, Fleming, & Gottfried, 1994; Kohn & Rosman, 1974; Perry, Guidabaldi, & Kehle, 1979; Wentzel, 1991) and even after family background factors were controlled (Ladd, Birch, & Buhs, 1999). Children who participate in classroom activities are likely to have experiences that foster learning and, in contrast, not participating in the classroom may lead to disengagement, disruptive behavior, and ultimately school failure (Finn, 1989; Wentzel, 1991).

Parent–school involvement also directly improves children's social behavior and interactions among peers (Fantuzzo et al., 1995; Izzo et al., 1999; Marcon, 1999; Reynolds, 1991). Parent–child interactions about schooling are positively associated with rule compliance and sociability at school for predominately middle-class Euro-American samples (Adams, Ryan, Ketssetis, & Keating, 2000) and low-income African American samples (Fantuzzo et al., 1995). In addition, children with parents who are involved in school have better emotional adjustment (Izzo et al., 1999) and have better communication and social skills (Marcon, 1999).

Although much of the research on the relation between parent–school involvement and social competence did not examine the further impact on achievement, children's social competence is associated with early achievement outcomes. Social rejection, as early as kindergarten, is associated with academic deficits in first grade, and social acceptance buffers academic difficulties (O'Neil, Welsh, Parke, Wang, & Strand, 1997). Moreover, effective social interactions in kindergarten explained 41% of the variance in first-grade school performance after kindergarten school perfor-

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mance was controlled in Pellegrini (1992) and predicted promotion and retention of students in Agostin and Bain (1997). In the latter study, children's ability to cooperate with others was the strongest predictor of achievement and promotion.

Extant theories of the underlying mechanisms of the relation between parent-school involvement and achievement are mostly based on older children and adolescents, despite the fact that parents of early school-aged children are more involved than parents of older children (Eccles & Harold, 1996; Stevenson & Baker, 1987). With older children and adolescents, parental involvement in school increases children's perceived competence and motivations for achievement (Grolnick, Ryan, & Deci, 1991; Patterson, 1986), increases adolescents' engagement in school (Connell, Spencer, & Aber, 1994), and instills a sense of value for education in children that results in more responsible behavior in school (Epstein, 1988). These factors, in turn, improve school performance. However, younger children are still developing the cognitive and metacognitive abilities of older children. Therefore, mediators such as perceived competence and achievement motivation, which have been supported with older children and adolescents, may be less applicable for early school-aged children. Although the existing research suggests that the relation between parent-school involvement and early achievement can be explained by its effect on academic and social competence, it remains an empirical question.

In addition, much of the research examining parental involvement among ethnically diverse populations has confounded ethnicity with socioeconomic variables, making it difficult to disentangle the influence of ethnicity from socioeconomic factors when drawing conclusions on research findings. Moreover, differences found between Euro-American and ethnic minority samples are often interpreted from a deficit framework, that is, making an assumption that Euro-Americans are the "normative" group and ways in which ethnic minorities differ from Euro-Americans are pathological or deviant (McAdoo, 1988; Phinney & Landin, 1998). Such comparative designs pose serious risks of misinterpretation unless the ethnic groups are closely matched on relevant background variables, such as socioeconomic factors (Hill, Ramirez, & Dumka, in press; Roosa, Morgan-Lopez, Cree, & Specter, 2002). Because socioeconomic background is the characteristic that is most often confounded with ethnicity, African American and Euro-American samples of similar socioeconomic backgrounds were included in the present study. Moreover, because the underlying mechanisms of the impact of parent-school involvement on children's early school performance has not been elucidated for either group, neither group in the study can be considered a "norm." However, previous research suggests that the influence of parent-school involvement on achievement may differ across ethnicity.

For several reasons, there may be ethnic differences in the underlying mechanisms explaining the relation between parent-school involvement and early school performance. First, there are often ethnic differences in mean levels of parent-school involvement. On the basis of some research, African American parents are less involved in their children's school than other parents (Kohl et al., 2000; Moles, 1993; Reynolds, Weissberg, & Kaspro, 1992), although other research has not found such differences (Harris, Kagey, & Ross, 1987). These competing findings may be due to differences in research design or confounding ethnicity with con-

structs such as socioeconomic status and community context. Second, there are ethnic differences in the relation between parent-school involvement and achievement outcomes. Among older children, parental volunteering, contact, and communication with schools were more strongly related to achievement for Euro-Americans than for African Americans (Desimone, 1999; Muller & Kerbow, 1993). Among kindergarten children, the relation between parental involvement and math performance are different for African Americans compared with Euro-Americans (Hill, 2001). Although cultural practices per se, which might explain the ethnic differences, were not measured in any of these studies, parents from different ethnic backgrounds may have different understandings of their role in their children's school context (Lareau, 1996). African American parents might define involvement in school as carefully monitoring but not intervening because they may feel limited in their ability or knowledge to intervene, consistent with Desimone's (1999) conclusion that Euro-Americans feel more efficacious in their interactions at school. In addition, parents may differ on the basis of demographic factors in the amount of information or sources of information about the school expectations (Lareau, 1996). We hypothesized in the study reported here that the relation between parent-school involvement and early achievement may differ across ethnic groups, because the process through which parent-school involvement affects achievement differs across groups.

In the present study, we examined whether the often-positive influence of parental school involvement on children's achievement outcomes can be explained either partially or wholly by its influence on children's academic or social competence and whether these relations are similar across ethnic groups. There are multiple dimensions of parental involvement, and they often have different impacts on school performance (e.g., Grolnick & Slowiaczek, 1994; Hill, 2001; Kohl et al., 2000): overt parental involvement, which involves visiting the classroom or going to school events; perception of the value parents place on education; and cognitive-intellectual involvement, including the provision of a cognitively stimulating environment for children at home. All of these dimensions of parental involvement were included in this study from both mothers' and teachers' perspectives.

Method

Participants

Because of the importance of not confounding socioeconomic factors with ethnicity when examining ethnic similarities and differences (Cauce, Coronado, & Watson, 1998), sampling was conducted to obtain socioeconomically comparable samples of African American and Euro-American kindergarten children and their mothers. Moreover, we sought to recruit socioeconomically diverse samples of African Americans and Euro-Americans because much of the comparative research including ethnic majority and minority families includes a restricted range (e.g., low-socioeconomic-status African Americans and middle-socioeconomic-status Euro-Americans; McAdoo, 1988; Phinney & Landin, 1998). To achieve this goal, three ethnically diverse elementary schools randomly selected from a public school system in a southeastern semiurban city were approached and agreed to participate. In addition, fliers were posted in community agencies and stores in the catchment areas of these elementary schools. There were no ethnic differences in recruitment (through schools or fliers) across ethnicity. As a result, 103 kindergarten children and their mothers were interviewed in their homes during the late spring of the

kindergarten year. For 93 of the 103 children, their kindergarten teachers ($n = 17$) evaluated mothers' involvement in school.

The African American ($n = 54$) and Euro-American ($n = 49$) samples were comparable in the range of socioeconomic status represented in each sample. Within each ethnic group, annual family income ranged from less than \$5,000 to above \$90,000; mothers' and fathers' education level ranged from completion of junior high school to graduate-professional degrees. In addition, mean levels of socioeconomic status indicators were similar across ethnic groups based on one-way analyses of variance and chi-square statistics (see Table 1). There were no significant differences between ethnic groups among children's and mothers' ages or mothers' and fathers' education levels. Mothers' occupational prestige was assessed using Duncan's socioeconomic index (Mueller & Parcel, 1981). For parents who worked outside of the home, occupational prestige was similar across ethnic groups. There were no differences in the proportion of African American or Euro-American families with family incomes above the median income for the surrounding community (i.e., \$32,000). The mean range was between \$32,000 and \$39,000. There were no ethnic differences in the number of families receiving aid for dependent children or supplemental security income supplements to their family income. Parents were similar across ethnic groups in employment status (i.e., being unemployed, employed part time, or employed full time). Across ethnic groups, the number of children in the home, the number of premature births, and the number of children weighing less than 5 pounds at birth were similar. There were no ethnic differences in children's exposure to schooling before entering kindergarten, however, African American children were more likely to attend Head Start than were Euro-American children.

Instruments

Children's school achievement. Children's school achievement was assessed in the late spring of the academic year using two subscales of the Metropolitan Readiness Test, Level 2 (Nurss & McGauvran, 1995). The Sound-Letter Correspondence scale was used to assess reading, and the Quantitative Concepts scale was used to assess math. Both scales were scored by summing the correct answers to calculate the total score. These scales were administered in the home, although they were designed for classroom administration. Interviewers in the present study used the precise instructions and wording that would be used if the measure was given in a classroom setting.

Table 1
Sociodemographic Characteristics of African American and Euro-American Samples

Characteristic	African Americans		Euro-Americans	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Child's age (years)	6.17	0.52	6.22	0.37
Mother's age (years)	36.23	6.73	34.76	4.92
Mother's education level ^a	5.74	1.96	5.74	1.80
Father's education level ^a	5.42	1.75	5.80	2.02
Mother's occupational prestige level ^b	41.61	18.95	43.82	19.02
No. of children in the home	2.35	1.41	2.08	0.73
No. of children weighing < 5 lb. at birth	13%		2%	
Private preschool	59%		82%	
Head Start attendance ^c	31%		0%	

^a For education, a score of 5 reflects 1–3 years of college with no degree, and a score of 6 reflects an associate's degree. ^b For occupational prestige, a score of 17 reflects a service occupation, a score of 45 reflects a clerical occupation, a score of 57 reflects a managerial occupation, and a score of 75 reflects a professional occupation. ^c African Americans were more likely to attend Head Start, $\chi^2(1, N = 103) = 18.16, p < .001$.

Parent involvement. Mothers and teachers reported on parental involvement in school using three subscales of the Parent Teacher Involvement Questionnaire (Conduct Problems Prevention Research Group, 1995; Kohl et al., 2000), which roughly represents the three types of involvement outlined by Grolnick and Slowiaczek (1994). Representing overt involvement, the Parental Involvement in School Activities (School Involvement) scale was used, which consisted of eight parallel items, four each for teachers and mothers, and assessed the extent to which parents were involved in school activities. Representing cognitive-intellectual involvement, the Parental Involvement in Home Activities (Home Involvement) scale, which consisted of four mother-reported items, assessed the mothers' involvement with their children in educational types of activities at home. The Teacher's Perception of Parent's Value of Education (Perceived Value for Education) scale consisted of three teacher-reported items and assessed the value or importance that parents place on education, from the teachers' perspective. Mothers and teachers responded to these scales using a 5-point Likert scale, ranging from 1 (*never*) to 5 (*more than once a week*). Average scores for each scale were used in calculations. This scale has been used successfully with African American and Euro-American children and families (Hill, 2001; Kohl et al., 2000).

Academic competence. Teachers reported on two aspects of children's academic competence using the Authority Acceptance scale of the Teacher Observation of Classroom Adaptation-Revised/Social Health Profile (Werthamer-Larsson, Kellam, & Wheeler, 1991) and the Academic Behavior Skills scale of the Children's Social Competence Scale (Gesten, 1976). The Authority Acceptance scale consisted of 10 items such as "breaks things" and "lies." Teachers responded on a 6-point scale, ranging from 1 (*almost never*) to 6 (*almost always*). The Academic Behavior Skills scale (7 items) focused on abilities that enable a child to perform well on academic tasks including "stays on task" and "is a self-starter." Teachers responded using a 5-point Likert scale, ranging from 1 (*not at all*) to 5 (*very well*). The total score for each scale was used for calculations. These scales have been validated for use with African American and Euro-American families (Wehby, Dodge, Valente, & the Conduct Problems Prevention Research Group, 1993).

Social competence. Two scales from the Children's Social Competence Scale were used to address children's ability to navigate social situations (Gesten, 1976). Mother's completed the Emotion Regulation scale (six items), which assesses children's ability to control their emotions, and the Prosocial Communication scale (six items), which examines children's communication skills and interactions with peers. Mothers responded using a 5-point Likert scale, ranging from 0 (*not at all*) to 4 (*very well*). The total score for each scale was used for calculations. As with the other instruments, the Children's Social Competency Scale has been validated for assessing African American and Euro-American children (Wehby et al., 1993).

Procedure

Letters describing the study and requesting permission to contact families were sent home with kindergarten children. Classroom level incentives were used to increase the return rate regardless of agreement to participate. Three hundred seventy-nine families were contacted, and 191 returned their forms (50.3%). Those who agreed were called and screened for eligibility on the basis of ethnicity (i.e., child, biological mother, and biological father were African American or Euro-American) and socioeconomic status (i.e., to assure that a range of socioeconomic status was represented among both ethnic groups). On determining eligibility, ethnically matched, trained interviewers arranged for an in-home interview at the convenience of the family. Interviewers had at least a bachelor's degree and had prior experience working with ethnically diverse children and families. Each interviewer received 15 hr of training on cultural sensitivity, interviewing skills, and dealing with sensitive issues (e.g., emotional distress). Interviewers conducted practice interviews to familiarize them-

selves with the structure of the interview. In-home interviews lasted approximately 90 min for mothers and included a scheduled break. Mothers were compensated \$50 for their time. Interviews with children lasted approximately 45 min. Children chose among small toys and stickers as compensation. Mothers' and children's interviews were conducted simultaneously but in different rooms within the home. This assured that mothers and children did not hear each other's responses. With permission of each child's mother, teachers were asked to complete a survey for each participating child in their class. Although an effort was made to collect data from each child's teacher, 21% of the teachers who were approached, representing 5 students, chose not to respond. We were unable to locate the remaining five teachers. Teachers were compensated \$5 per completed survey.

Results

Overview of Results

In each of the analyses, math and reading performance were analyzed separately because previous research has shown that parental involvement does not affect all academic areas equally (Epstein, 1995; Tangri & Moles, 1987). Mean differences and intercorrelations across ethnicity on parental involvement, academic competence, social competence, and achievement outcomes were examined. Next, the extent to which the relations between parental involvement and achievement outcomes were similar across ethnic groups was tested. A dummy variable for ethnicity was created (0 = Euro-American and 1 = African American). Interaction terms were created between ethnicity and each parental-involvement variable. If the addition of interaction terms into the regression model (after the main effects were in the model) significantly increased the amount of variance explained and the interaction term was significant, then we concluded that the relation was different across ethnic groups, and tests of mediation were conducted separately for each ethnic group. Finally, to test the mediating roles of academic and social competence, we calculated regression analyses on the basis of the method outlined by Baron and Kenny (1986). Evidence of mediation is based on three conditions: (a) The independent variables (parental involvement) must be related to the dependent variable (achievement outcomes), (b) the independent variables (parental involvement) must be related to the mediators (academic and social competence), and (c) the mediators must be related to the dependent variables (achievement outcomes). If these conditions are met, and if the relation between parent-school involvement and achievement is reduced when the mediator is controlled, then one can conclude that the relation between parent-school involvement and achievement is indirect through the mediator variable. Although these conditions meet the requirements of mediation, Baron and Kenny (1986) and Sobel (1981) suggested an even more stringent test of mediation by calculating the indirect effect (IE), the standard error, and thus the significance of the IE. This more stringent test was applied in the present study.

Preliminary Analysis

The internal consistency coefficients (Cronbach's alphas) for each scale by ethnicity is presented in Table 2. With the exception of Home Involvement for African Americans, the coefficients were at acceptable levels. Although Home Involvement ($\alpha = .55$) was lower than typical accepted levels, it was not significantly

Table 2
Cronbach's Alphas as an Indicator of Internal Consistency for Each Scale by Ethnicity

Variable	African Americans	Euro-Americans
Readiness		
Pre-reading	.76	.84
Pre-math	.78	.76
Involvement		
School Involvement	.82	.80
Home Involvement	.55	.62
Perceived Value of Education	.94	.92
School Behavior		
Authority Acceptance	.94	.92
Academic Behavior Skills	.96	.92
Social Competency		
Emotion Regulation	.80	.84
Prosocial Communication	.67	.78

lower than the alpha for the Euro-American sample, based on Feldt's approach for determining the equality of two Cronbach's alpha statistics, $W(48, 53) = 1.18, ns$ (Feldt, 1969; Feldt, Woodruff, & Salih, 1987). The statistic W is distributed as F . The means of each variable were compared across ethnicity using a multivariate analysis of variance (see Table 3 for means, standard deviations, and intercorrelations). The omnibus F was significant, $F(9, 79) = 3.97, p < .01$. Euro-Americans scored higher than African Americans on the Quantitative Concepts test, $F(1, 89) = 14.28, p < .01$. Euro-Americans were also rated by teachers as having higher levels of accepting authority, $F(1, 89) = 7.14, p < .01$, academic behavior skills, $F(1, 89) = 13.59, p < .01$, and perceived value for education, $F(1, 89) = 9.11, p < .01$. African Americans and Euro-Americans had similar scores on reading, the Social Competence Scales, and Home and School Involvement. For Euro-Americans, reading and math were positively related to the Social Competence variables and teachers' perception of the family value for education. For African Americans, the pattern of intercorrelations was different for math compared with reading, with more constructs being related to reading compared with math. Whereas academic behavior skills and emotion regulation were significantly correlated with math and reading, School Involvement, perceived value for education, and prosocial communication were related to reading only.

Association Between Parental Involvement and Academic Achievement

For math achievement, school involvement, home involvement, and valuing education were significant predictors and explained a significant amount of variance. However, the relations differed across ethnic groups. Using hierarchical regression analyses, the main effect for ethnicity was significant in the first step, $B = -3.72, SE B = 0.99, \beta = -.37, t = -3.76, p < .01, R^2 = .14, F(1, 89) = 14.20, p < .01$. The addition of the main effects of parental involvement in the second step did not significantly add to the amount of variance explained, $\Delta R^2 = .06, F(3, 86) = 1.94, ns$. However, the addition of the interactions of ethnicity with each parental involvement scale significantly increased the amount of variance explained, and the regression coefficient for each interaction term was significant, $\Delta R^2 = .08, F(7, 83) = 4.49, p < .01$.

Table 3

Means, Standard Deviations, and Correlations for All Variables for African Americans (Above the Diagonal) and Euro-Americans (Below the Diagonal)

Variable	African Americans		Euro-Americans		1	2	3	4	5	6	7	8	9
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>									
1. Reading	9.6	2.7	10.4	2.5	—	.66**	.22	.48**	.37**	.36**	-.01	.36*	.39**
2. Math	16.5	5.1	20.3	4.3**	.52**	—	-.07	.29*	.29*	.20	-.05	.25	.14
3. Authority Acceptance	38.7	9.7	43.6	7.5**	.19	.13	—	.56**	.15	.05	.02	.17	.52**
4. Academic Behavior Skills	2.4	1.0	3.1	0.9**	.17	.22	.64**	—	.38**	.31*	.11	.33*	.49**
5. Emotion Regulation	2.0	0.7	2.1	0.7	.30*	.40**	.56**	.45**	—	.69**	.24	.29*	.16
6. Prosocial Communication	2.7	0.6	2.9	0.6	.36*	.50**	.61**	.51**	.81**	—	-.01	.12	-.07
7. Home Involvement	2.4	0.6	2.4	0.5	.14	.24	.18	.08	.43**	.38**	—	.33*	.27
8. School Involvement	1.5	0.6	1.8	0.6	.17	.14	-.00	.03	.39**	.26	.41**	—	.75**
9. Teachers's perceived family value for education	2.9	1.1	3.5	0.7**	.48**	.40**	.17	.19	.36**	.26	.13	.53**	—

* $p < .05$. ** $p < .01$.

Thus, ethnicity moderated these relations. Using Aiken and West's (1991) method for interpreting interactions using simple slopes, we found that the relationship between School Involvement and math was positive for African Americans ($\beta = .19$) and negative for Euro-Americans ($\beta = -.23$). Home Involvement and valuing education were positively related to math for Euro-Americans ($\beta = .32$ and $\beta = .57$, respectively) and not related to math for African Americans ($\beta = -.02$ and $\beta = .06$, respectively).

For reading achievement, only perceived value for education was significantly related to reading scores, on the basis of hierarchical regression analyses. The main effect of ethnicity in the first step of the regression equation was not significant. In Step 2, the addition of the three parental involvement main effects significantly increased the amount of variance explained, and the regression coefficient for perceived value for education was significantly associated with reading scores, $B = 1.29$, $SE B = 0.36$, $\beta = .48$, $t = 3.58$, $p < .01$, $R^2 = .19$, $F(3, 86) = 6.93$, $p < .01$. In Step 3, the addition of the interaction terms did not significantly increase the amount of variance explained. Thus, the relations between parental involvement and reading scores were similar across ethnic groups.

On the basis of these analyses, the mediating roles of academic and social competence for the relation between parent-school involvement and math performance were tested separately for African Americans and Euro-Americans. For reading performance, mediation was tested only for its relation to perceived value for education, because the other parental involvement scales were not significantly associated with reading. Also, because the relation with perceived value for education was similar across ethnic groups, the combined sample was used for analyses with perceived value for education and reading.

Is the Influence of Parental Involvement on Reading and Math Performance Explained by Its Effect on Academic Competence?

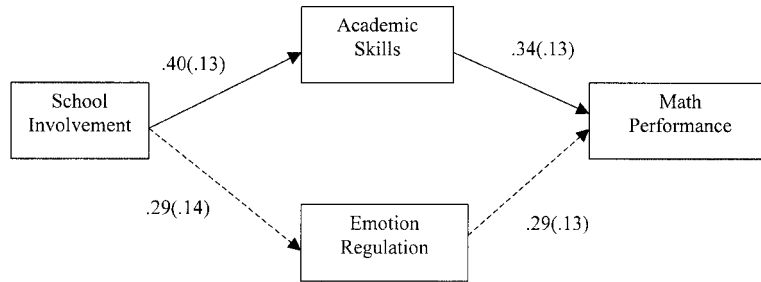
Math performance. Academic behavior skills mediated the relationship between school involvement and math for African Americans only (see top of Figure 1). First, School Involvement

was positively related to math scores, as shown previously. Second, School Involvement was related to academic behavior skills (the mediator), $B = 0.67$, $SE B = 0.21$, $\beta = .40$, $t = 3.15$, $p < .01$, $R^2 = .16$, $F(1, 52) = 9.93$, $p < .01$. Third, academic behavior skills was positively related to math scores, $B = 1.66$, $SE B = 0.62$, $\beta = .34$, $t = 2.66$, $p < .01$, $R^2 = .12$, $F(1, 53) = 7.10$, $p < .01$. With all conditions met, we tested whether the relation between School Involvement and math performance was reduced when academic behavior skills were controlled. This was, indeed, the case. With academic behavior skills in the model at Step 1, the addition of School Involvement did not increase the amount of variance explained, $\Delta R^2 = .03$, $F(1, 44) = 1.34$, ns , and the regression coefficient for School Involvement was reduced to nonsignificance, $B = 1.43$, $SE B = 1.24$, $\beta = .17$, $t = 1.16$, ns . The IE of school involvement on math performance through the increase in academic behavior skills was significant for African Americans (IE = 1.11, $SE = .53$, $t = 2.09$, $p < .05$). This mediated pathway was not significant for Euro-Americans because School Involvement was not significantly related to academic behavior skills, $B = -0.28$, $SE B = 0.28$, $\beta = -.19$, $t = -.98$, ns , $R^2 = .08$, $F(3, 41) = 1.20$, ns . Thus, the second condition of mediation was not met.

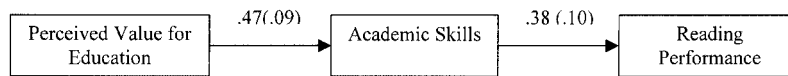
Academic behavior skills did not mediate the relations between Home Involvement and math or between perceived value for education and math for African Americans or Euro-Americans. The relations between Home Involvement and academic skills and between perceived value for education and academic behavior skills were not significant for either ethnic group. Thus, the second condition of mediation was not met. In addition, Authority Acceptance was not a significant mediator of the relations between parental involvement and math because authority acceptance was not significantly related to math scores for either ethnic group. Thus, the third condition of mediation was not met.

Reading performance. Academic behavior skills mediated the relation between perceived value for education on reading performance for both Euro-Americans and African Americans (see middle of Figure 1). Because the relation between perceived value for education and reading scores was similar for Euro-Americans and

For African Americans:



For African Americans and Euro-Americans:



For Euro Americans:

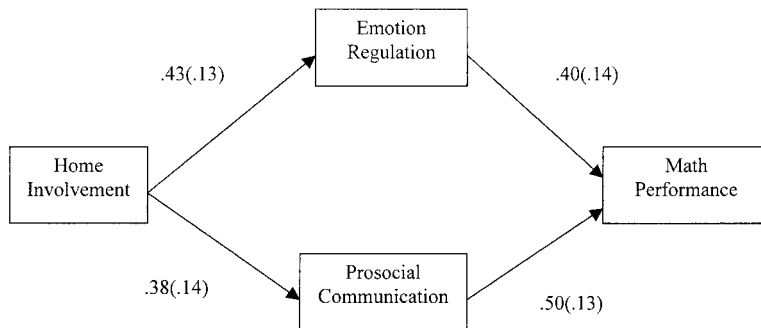


Figure 1. The mediating effects of achievement behavior and social competency for the relations between parent-school involvement and achievement outcomes. Standardized coefficients are presented with standard errors in parentheses.

African Americans, the combined sample was used in these analyses. The first condition of mediation—parental involvement was related to academic achievement—was met (see analyses in previous section). Second, perceived value of education was associated with academic behavior skills, $B = 0.49$, $SE B = 0.10$, $\beta = .47$, $t = 5.07$, $p < .01$, $R^2 = .22$, $F(1, 91) = 25.71$, $p < .01$. For the third condition, academic behavior skills were related to reading performance, $B = 0.96$, $SE B = 0.25$, $\beta = .38$, $t = 3.87$, $p < .01$, and the model was significant, $R^2 = .14$, $F(1, 90) = 14.97$, $p < .01$. Moreover, the IE was significant (IE = .47, $SE = .16$, $t = 2.93$, $p < .01$).

In summary, academic behavior skills mediated the relation between School Involvement and math performance for African Americans. In addition, academic behavior skills mediated the relation between perceived value for education and reading performance for African Americans and Euro-Americans. Thus, for African Americans, the relation between parents' active involvement in the classroom and children's math performance can be explained by improvements in children's skills in completing

classroom assignments. In addition, increasing teachers' perceptions about the value parents place on education was associated with better academic skills, which was associated with better reading performance among Euro-American and African American children. Accepting authority was not a mediator of these relations.

Can the Relation Between Parent-School Involvement and Achievement Be Explained by Children's Social Competence?

Math performance. For African Americans, being able to regulate one's emotions mediated the relation between School Involvement and math performance (see top of Figure 1). School Involvement was related to emotion regulation, $B = 2.03$, $SE B = 1.01$, $\beta = .29$, $t = 2.02$, $p < .05$, $R^2 = .08$, $F(1, 45) = 4.07$, $p < .05$. In addition, emotion regulation was positively related to math performance, $B = 0.34$, $SE B = 0.16$, $\beta = .29$, $t = 2.18$, $p < .05$, $R^2 = .08$, $F(1, 52) = 4.75$, $p < .05$. Moreover, when emotion

regulation was in the equation, the addition of School Involvement did not significantly increase the amount of variance explained, $\Delta R^2 = .03$, $F(1, 44) = 1.45$, *ns*, and the coefficient for School Involvement was reduced to nonsignificance, $B = 1.46$, $SE B = 1.21$, $\beta = .18$, $t = 1.20$, *ns*. The more stringent test of the significance of the indirect mediating effect of emotion regulation was not significant, however (IE = .69, $SE = 0.46$, $t = 1.50$, *ns*; note dashed lines in Figure 1). For African Americans, prosocial communication skills did not mediate the relation between School Involvement and math performance because prosocial skills were not related to math performance, $B = 1.61$, $SE B = 1.06$, $\beta = .20$, $t = 1.52$, *ns*, $R^2 = .04$, $F(1, 52) = 2.26$, *ns*. In addition, home involvement and perceived value for education were not related to math performance (see previous analyses). So, mediational analyses for those relations were not considered.

For Euro-Americans, both social competence variables mediated the relation between home involvement and math performance (see bottom of Figure 1). Home Involvement was positively related to emotion regulation, $B = 0.56$, $SE B = 0.17$, $\beta = .43$, $t = 3.23$, $p < .01$, $R^2 = .18$, $F(1, 47) = 10.46$, $p < .01$. Emotion regulation was positively related to math performance, $B = 2.39$, $SE B = 0.81$, $\beta = .40$, $t = 3.94$, $p < .01$, $R^2 = .16$, $F(1, 46) = 8.67$, $p < .01$. Moreover, when emotion regulation was in the model, the addition of the Home Involvement construct did not increase the amount of variance explained nor was the regression coefficient significant, $B = 0.94$, $SE B = 1.22$, $\beta = .11$, $t = .77$, *ns*, $\Delta R^2 = .01$, $F(1, 45) = 0.59$, *ns*. Furthermore, the indirect effect was significant (IE = 1.34, $SE = 0.63$, $t = 2.13$, $p < .05$). Thus, Euro-American children's ability to regulate their emotions accounted for the relation between Home Involvement and math performance.

Prosocial communication skills mediated the relation between Home Involvement and math performance for Euro-Americans. Home Involvement was positively related to prosocial communication, $B = 0.42$, $SE B = 0.15$, $\beta = .38$, $t = 2.80$, $p < .01$, $R^2 = .14$, $F(1, 47) = 7.80$, $p < .01$. Also, prosocial communication was positively related to math performance, $B = 3.49$, $SE B = 0.89$, $\beta = .50$, $t = 3.92$, $p < .01$, $R^2 = .25$, $F(1, 46) = 15.38$, $p < .01$. When prosocial communication was in the model predicting math performance, the addition of the Home Involvement construct did not increase the amount of variance explained, nor was the regression coefficient significant, $B = 0.71$, $SE B = 1.15$, $\beta = .08$, $t = .62$, *ns*, $\Delta R^2 = .01$, $F(1, 45) = 0.38$, *ns*. The IE was significant (IE = 1.46, $SE = 0.66$, $t = 2.23$, $p < .05$). Thus, Euro-American parents' involvement in educational activities at home with their children improved their math performance by increasing their children's ability to interact positively with their peers (see bottom of Figure 1).

Reading performance. The social competence constructs were not significant mediators of this relation. Teachers' perceptions of family values regarding education were not related to children's social competency in the classroom. Thus, at least one of the conditions of mediation was not met.

In summary, although based on cross-sectional data, parents' involvement in educational activities at home and at school and the perceptions that teachers have about parents' commitment to education seems to improve children's school performance because it improves their academic skills and their competence in social interactions.

Discussion

As expected, academic behavior skills mediated the relation between parent-school involvement and school achievement. Specifically, parents' involvement at school, including volunteering in the classroom and sending materials to school, improved children's academic skills, which in turn improved math performance for African American children. This is consistent with the underlying process expected based on previous research demonstrating that parental involvement increases academic skills (e.g., Thurston, 1989) and that academic skills improve school performance (e.g., Gottfried et al., 1994). For both ethnic groups, academic skills mediated the relation between perceived value for education and reading performance. Teachers' perception about the importance parents place on education was positively related to children's academic skills, which in turn was related to reading performance. Perceived value for education may reflect actual parental sentiments about education that may improve academic skills and in turn improve school performance. However, teachers' perceptions may be unrelated to parents' actual value for education and may be based on stereotypes associated with demographic characteristics or whether parents are involved in school (Becker & Epstein, 1982; Epstein, 1990). Although this may be true, the significant impact of teachers' perceptions on academic skills and in turn achievement demonstrates the importance of teachers' perceptions on children's performance.

Social competence mediated the relation between home involvement and math performance for Euro-Americans. Considered in the context that teachers rated Euro-American children as having higher academic skills than did African Americans, it may be that Euro-American children fall behind in math not because of their academic skills but because of their poor social interactions, consistent with Agostin and Bain (1997). Thus, parental involvement in educational activities at home that improves prosocial behavior and children's ability to control their emotions enables Euro-American children to use the academic skills they have to perform better. Home involvement was not related to achievement for African Americans.

The ethnic differences in the mediating pathways suggest that parent-school involvement is different for Euro-American and African American families, and thus their meaning and impact may also be different. For African-Americans, parental involvement may improve achievement through its impact on academic skills, because African Americans are less likely to have informal social networks that include parents of other children in the school (Lareau, 1996) and thus may be less aware of school expectations. Because of these informal networks, Euro-American parents may have more extensive information about their child's school climate and school activities. Thus, African American parents' presence in the classroom may provide them with information about the skills required by the teacher and enhance their ability to promote and develop these skills in their children. This may be especially important for assisting their children in areas that promote math performance compared with reading performance. Many parents may already engage their children in activities that promote reading performance, including mealtime conversation, reading to their children, and general language use (Christenson, Rounds, & Gorney, 1992). However, parents may have less information about how to promote early math skills. Involvement in the classroom

may provide that information for African American parents. Moreover, school involvement was negatively related to achievement for Euro-Americans. Perhaps parents become involved at school when their children performed poorly. The positive relation between school involvement and math performance for African Americans might be explained as involvement leading to more proactive development of skills for African American children.

In addition to the relations between parent-school involvement and achievement, the mean comparisons across ethnic groups were noteworthy. African Americans and Euro-Americans were similar in their reading performance, but Euro-Americans scored higher on math compared with African Americans. African American children are at risk for lower school performance as early as the third grade (cf. Jencks & Phillips, 1998). However, it is unclear whether African American students enter school with lower levels of readiness or whether the ethnic differences develop over the course of early schooling. The present sample was unique because the African American and Euro-American samples were from similar socioeconomic backgrounds. Thus, there was especially convincing evidence here that ethnic differences in reading achievement that are often seen at later grades may develop during early school experiences, whereas differences in math performance are present early on.

Consistent with previous research on the multidimensional nature of the influence of parent-school involvement on school performance, the effects and the pathways of influence varied by type of involvement (i.e., home, school, teacher impressions) and targeted outcomes (math, reading; Epstein, 1995; Grolnick & Slowiaczek, 1994; Kohl et al., 2000; Tangri & Moles, 1987). Across outcomes, all three parent-school involvement constructs were related to math performance, whereas only perceived value for education was related to reading. The often-standard practices at home that many parents may already engage their children in may promote reading performance. Because of this, parent-school involvement in school may not increase their reading performance as much as it might increase math performance. Therefore, parents may be less familiar with how to promote math performance for their children. Involvement with school, apart from what parents might already be doing at home, may provide parents with opportunities and ideas for enhancing their children's math performance (Christenson et al., 1992).

Although social and academic competencies mediate the relation between parent-school involvement and early school performance, there are some limitations. First, this study was cross sectional, and thus causal relations and directions of effect cannot be determined. Second, the sample size was small, and thus we were unable to test the mediated pathways simultaneously. Third, the reliability coefficient for Home Involvement for African Americans was lower than we would like. Thus, null findings for the relation between Home Involvement and achievement for African Americans should be interpreted with caution. Finally, the value parents place on education was assessed only from the teachers' perspective, and home involvement was assessed only from mothers' perspectives. Although teachers' perceptions of the value parents place on education is arguably not the best perspective of this construct, teachers' perceptions, whether based on accurate or stereotypical foundations, seem to impact children's performance. However, multiple perspectives, including other family members, of these variables are necessary to fully assess parental involve-

ment at home and value for education. Thus, further research based on longitudinal data and multiple reporters is warranted.

Whereas the vast majority of parents want their children to be successful in school, many do not know the best ways to enhance their children's school performance (Epstein, 1986). Knowing how parental involvement in schooling results in better achievement may improve parents' knowledge of how to become effectively involved in their children's education. Policy and curriculum implications include targeting academic skills for African Americans and social competencies for Euro-Americans as means of improving math performance. If there is some difficulty in engaging parents in the classroom or in educational activities at home, targeting children's academic skills (for African Americans) and social competencies (for Euro-Americans), through intervention, may be a way to compensate for the benefit children might receive from their parents' involvement and still improve children's school performance. Moreover, programs that target the reading curricula may assure that African American children do not fall behind in reading after entering school, and providing math readiness intervention to children prior to coming to school may further enhance achievement outcomes. Finally, it is important to view these comparative findings in a "culturally variant" (Allen, 1978), multicultural framework that appreciates that families from different ethnic or cultural backgrounds are often qualitatively different from one another and that as scientists and practitioners we should value and build on the unique strengths across ethnic groups.

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