

Parental Involvement in Middle School: A Meta-Analytic Assessment of the Strategies That Promote Achievement

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Early adolescence is often marked by changes in school context, family relationships, and developmental processes. In the context of these changes, academic performance often declines, while at the same time the long-term implications of academic performance increase. In promoting achievement across elementary and secondary school levels, the significant role of families, family–school relations, and parental involvement in education has been highlighted. Although there is a growing body of literature focusing on parental involvement in education during middle school, this research has not been systematically examined to determine which types of involvement have the strongest relation with achievement. The authors conducted a meta-analysis on the existing research on parental involvement in middle school to determine whether and which types of parental involvement are related to achievement. Across 50 studies, parental involvement was positively associated with achievement, with the exception of parental help with homework. Involvement that reflected academic socialization had the strongest positive association with achievement. Based on the known characteristics of the developmental stage and tasks of adolescence, strategies reflecting academic socialization are most consistent with the developmental stage of early adolescence.

Keywords: academic achievement, family–school relationships, meta-analysis, middle school, parental involvement in education

Early adolescence and entry into middle school reflect change on multiple levels. The middle school years coincide with key changes in adolescent development, including biological and cognitive growth, social development, and renegotiations of family relationships, especially the parent–adolescent relationship (Adams & Berzonsky, 2003; Grolnick, Price, Beiswenger, & Sauck, 2007; Keating, 2004; Lerner & Steinberg, 2004; Smetana, Campione-Barr, & Daddis, 2004; Steinberg & Silk, 2002). Further, the middle school context reflects a significant change compared to elementary school, including a larger, more bureaucratic system with many more teachers, peers, and curricular choices (Dauber & Epstein, 1989; Eccles & Harold, 1996; Hill & Chao, 2009). In the context of such changes and development, adolescents' academic performance often declines (Barber & Olsen, 2004; Eccles, 2004; Gutman & Midgley, 2000), while at the same time, the long-term implications of achievement for educational and occupational attainment increase (Eccles & Harold, 1993).

The confluence of these developmental and contextual changes at early adolescence increases the risk that students may not reach their potential and heightens the need to identify sources of support.

In promoting achievement across elementary and secondary school levels, theories, research, and policies have identified the significant role of families, family–school relations, and parental involvement in education (Fan & Chen, 2001; Hill & Chao, 2009; Seginer, 2006). Indeed, family–school relations and parental involvement in education have been identified as a way to close demographic gaps in achievement and maximize students' potential (Dearing, Kreider, Simpkins, & Weiss, 2006; Hampton, Mumford, & Bond, 1998; Hara, 1998). As such, federal policies like the No Child Left Behind Act (NCLB; 2002) mandate parental involvement in education and family–school relations across elementary and secondary school levels. Despite consensus about the importance of families and schools working together across developmental stages, extant theories of parental involvement in education have been based on elementary school students and elementary school contexts and do not account for the changes associated with middle school and early adolescent development (Hill & Taylor, 2004; Hill, Tyson, & Bromell, 2009). Indeed, some research has demonstrated that the strength of the relation between parental involvement and achievement declines between elementary and middle schools (e.g., Singh et al., 1995). Whereas some aspects of parental involvement in education may decline in amount or in effectiveness during middle school, like involvement at school (Singh et al., 1995; Stevenson & Baker, 1987), other aspects of involvement that are not accounted for in extant frameworks may increase in significance (Chao, Kanatsu, Stanoff, Padmawidjaja, &

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Aque, 2009). Therefore, it is imperative to identify the extent to which parental involvement in education is positively related to achievement for middle school students and which types of involvement are most effective.

In the last two decades, the amount of research on parental involvement in education, especially for middle school, has increased exponentially, but it has produced often competing findings. For example, some research has demonstrated that parental involvement in education is positively associated with adolescents' academic outcomes throughout middle and high school (e.g., Cattsambis, 2001; Hill et al., 2004). However, other research found that parental involvement is not related to achievement (e.g., Balli, Wedman, & Demo, 1997; Bronstein, Ginsberg, & Herrera, 2005). This growing but disaggregated body of research has used a variety of methods, making it difficult to draw firm conclusions for middle school. Although recent meta-analyses have focused on parental involvement (e.g., Fan & Chen, 2001; Jeynes, 2003, 2005), these meta-analyses did not consider the developmental stage of students as a unique factor in their analyses. These studies collapsed across research from prekindergarten through high school. Further, whereas Jeynes (2007) focused on secondary schools, this meta-analysis collapsed across middle and high schools and was limited to urban contexts. Unlike the high school years, when parents have gained experience with supporting more autonomous adolescents and larger, more bureaucratic schools, the middle school years reflect a renegotiation for schools, families, and students. Therefore, identifying the most effective strategies in middle school will guide programs and policies so that they can promote the most effective strategies (Hill et al., 2009). To this end, we conducted a meta-analysis of the existing research on parental involvement in middle school and situate our findings within existing theories and frameworks and within the developmental context of early adolescence. This meta-analysis addressed two broad questions. First, what is the strength of the relation between parental involvement in education and achievement during middle school? Second, which types of involvement have the strongest positive relation with achievement?

Parental Involvement in Education: Definitions and Frameworks

Although there are numerous definitions of parental involvement in education, we define it as "parents' interactions with schools and with their children to promote academic success" (Hill et al., 2004, p. 1491). This is somewhat broader than the definition articulated in the NCLB, which is "the participation of parents in regular, two-way, and meaningful communication involving student academic learning and other school activities" (No Child Left Behind Act, 2002, §9101). Consistently included in the extant theories, frameworks, and assessments are home-based and school-based involvement strategies (e.g., Kohl, Lengua, McMahon, & the Conduct Problems Prevention Research Group, 2000; Seginer, 2006). Further, such a distinction is useful as it distinguishes policy-relevant realms—home and school. The most widely cited among existing frameworks is Epstein's (1987; Connors & Epstein, 1995; Epstein & Sanders, 2002), which includes *school-based involvement* strategies (e.g., volunteering at school, communication between parents and teachers, and involvement in school governance); *home-*

based involvement strategies, including engaging in educational activities at home; school support for parenting (e.g., parent training programs); and involvement between the school and community agencies. Second, the framework undergirding Comer's (1995) School Development Program has also informed research in this field. Comer's framework also includes *school-based involvement*—such as parent-teacher conferences, volunteering and being present in the school, and participation in school governance—and *home-based involvement*, such as parental reinforcement of learning at home. Finally, Grolnick and Slowiaczek (1994) articulated a three-pronged framework: First, *behavioral involvement* includes both home-based and school-based involvement strategies, such as active connections and communication between home and school, volunteering at school, and assisting with homework. Second, *cognitive-intellectual involvement* reflects home-based involvement and includes parental role in exposing their children to educationally stimulating activities and experiences. Finally, *personal involvement* includes attitudes and expectations about school and education and conveying the enjoyment of learning, which reflects parental socialization around the value and utility of education.

Within an elementary school context, school-based involvement is associated with children's achievement, because such involvement is likely to include visits to the classroom and interactions with children's teachers. Such interactions and exposure increase parents' knowledge about the curriculum, enhance social capital, and increase the effectiveness of involvement at home (Comer, 1995; Epstein, 2001; Hill & Taylor, 2004). Further, interactions between parents and teachers may increase mutual respect and increase teachers' perceptions about how much parents value education (Comer, 1995; Epstein, 2001). However, in middle school, school-based involvement has been shown to change from assisting in the classroom to attendance at school activities (Seginer, 2006). This latter type of school-based involvement is less likely to provide middle school parents with information about pedagogy and classroom content or the opportunity to create mutual respect between parents and teachers. Therefore, its relation with academic outcomes may be weaker.

Home-based involvement has been advocated because it affirms the knowledge and instruction received at school (Comer, 1995), provides assistance and clarification with homework (Cooper, 1989), provides structure for free time and homework time (Fan & Chen, 2001), includes visiting museums and other educational venues (Reynolds & Gill, 1994), and enhances and encourages motivations (Hoover-Dempsey & Sandler, 1995). In addition, as part of home-based involvement, parents can supplement instruction through educationally based, cognitively stimulating activities (Chao, 2000; Grolnick & Slowiaczek, 1994). However, by middle school, many parents feel less able to assist with homework or provide activities and experiences that increase their adolescents' knowledge or achievement (Dauber & Epstein, 1993). Therefore, the amount and type of home-based involvement that is effective may be reduced during the middle school years (Seginer, 2006). Yet another reason why parental involvement might change in significance is that aspects of the middle school structure do not support home- and school-based involvement strategies in the same way as in elementary school.

Middle School Context and Parental Involvement

The middle school context presents a number of challenges that may undermine parents' ability to be effectively involved in their adolescents' education and work productively with schools (Dauber & Epstein, 1989; Hill & Chao, 2009; Sanders & Epstein, 2000). First, middle schools are large and complex, often making it difficult for parents to figure out how to become effectively involved. Second, middle school teachers instruct a large number of students, making it difficult for teachers to develop and maintain productive relations with the parents of each student. Further, the departmentalization or specialization of instruction by academic subject results in teachers having fewer interactions with individual students (Dornbusch & Glasgow, 1996; Eccles & Harold, 1996). Third, and in conjunction with the previous point, the increase in the number of teachers each student has across subjects makes it difficult for parents to know whom to contact to obtain information about their adolescents' progress. Fourth, the complexity of curricular choices and the often obscured nature of course tracking in middle school further complicate parental involvement (Hill & Taylor, 2004). Not only does the middle school context impact the types of involvement that matter, adolescents' development itself impacts how parents can maintain involvement and its effectiveness (Hill & Chao, 2009).

Early Adolescent Development and Parental Involvement in Education

The types of parental involvement used and the nature of the relation between parental involvement and achievement may be influenced by characteristics of early adolescent development and family dynamics during adolescence. As has been outlined extensively elsewhere (Adams & Berzonsky, 2003; Lerner & Steinberg, 2004), adolescence is marked by dramatic cognitive development and the development of conceptualizations of the self as an autonomous, efficacious individual. Cognitively, adolescents have an increased ability to consider multiple dimensions of problems simultaneously when making decisions (Keating, 2004). In addition, adolescents have an increased ability to anticipate the results and consequences of their actions and decisions (Halpern-Felsher & Cauffman, 2001), learn from their successes and failures and apply that knowledge to future problem solving, and strategically coordinate the pursuit of multiple goals (Byrnes, Miller, & Reynolds, 1999).

Each of these abilities enables adolescents to play a more active role in their education and educational decisions. These cognitive changes may increase adolescents' sense of efficacy, ability to make decisions about course selection, and ability to understand how courses and extracurricular activities are related to goals and aspirations in the immediate time frame and for the future and thereby decrease their need for direct parental involvement. That is, more direct involvement strategies, such as school-based involvement and direct homework assistance, may be needed less and thus are less effective (Seginer, 2006). Indeed, students' increased sense of autonomy is associated with their desire to not have their parents visit the school (Stevenson & Baker, 1987). Often parents interpret students' desire for autonomy as a cue to reduce more direct forms of parental involvement, such as home- and school-based involvement (Prescott, Pelton, & Dornbusch, 1986).

In addition to cognitive development, parent-adolescent relationships undergo a transformation and renegotiation during adolescence as they become less hierarchical and are characterized by increased bidirectional communication (Collins & Laursen, 2004; Steinberg & Silk, 2002). Early adolescence is marked by the need for a realignment of roles and expectations as adolescents question their parents' authority (Grolnick et al., 2007; Smetana et al., 2004) and as parents attempt to set boundaries and communicate expectations while promoting healthy independence. Parental influence often becomes more indirect. Parents' beliefs about adolescents' abilities, skills, and potential shape adolescents' own beliefs, which influence their performance (Bleeker & Jacobs, 2004; Jones & Schneider, 2009).

As parental influence becomes more indirect and promotes the use of adolescents' developing decision-making skills, strategies for involvement in education should change as well. For early adolescence, parental involvement may entail communicating parental expectations for education and its value or utility, linking schoolwork to current events, fostering educational and occupational aspirations, discussing learning strategies with children, and making preparations and plans for the future—that is, *academic socialization*. We hypothesize that involvement that scaffolds adolescents' burgeoning decision-making and problem solving skills and elucidates linkages between their schoolwork and future goals may be more strongly linked to achievement in middle school than is home- or school-based involvement. Parental involvement in education that reflects academic socialization allows parents to maintain their involvement while also affirming adolescents' autonomy, independence, and advancing cognitive abilities.

In this meta-analysis, we examine the relative association between three types of parental involvement in education and academic achievement. *Home-based involvement* includes strategies like communication between parents' and children about school, engagement with school work (e.g., homework help), taking children to events and places that foster academic success (i.e., museums, libraries, etc.), and creating a learning environment at home (e.g., making educational materials accessible, such as books, newspapers, educational toys). *School-based involvement* includes visits to school for school events (e.g., PTA meetings, open houses, etc.), participation in school governance, volunteering at school, and communication between parents and school personnel. Finally, *academic socialization* includes communicating parental expectations for education and its value or utility, linking schoolwork to current events, fostering educational and occupational aspirations, discussing learning strategies with children, and making preparations and plans for the future.

Ethnic Variations in Parental Involvement in Education

In addition to outlining types of parental involvement strategies, prior research has demonstrated ethnic differences in mean levels of parental involvement strategies (Baker & Stevenson, 1986; Kohl et al., 2000), parents' beliefs about involvement (Lareau, 1987; Lynch & Stein, 1987), and the relations between parental involvement and academic outcomes (e.g., Hill et al., 2004; Hill & Craft, 2003). African Americans, in particular, have had a long and tumultuous history with American schools (Cross, 2003; Spencer, Cross, Harpalani, & Goss, 2003). Whereas African American cultural heritage has

placed an emphasis on the value and utility of education, discrimination and bias experienced at school by many African Americans has resulted in a mistrust of school and teachers by many African American parents (Lareau, 1987; Ogbu, 1978). These historical and contemporary experiences may influence the nature of parental involvement and its influence. This is heightened during adolescence, because it is a time when African American students are grappling with their own ethnic identity (Hughes et al., 2006).

Prior research on ethnic differences in parental involvement has been mixed. Some research found that the relation between involvement and achievement is stronger for African Americans than European Americans (Hill et al., 2004), whereas others found that the relation is weaker (e.g., Seyfried & Chung, 2002). In a meta-analysis across prekindergarten to 12th grade, ethnicity had a negligible effect (Fan & Chen, 2001). Another meta-analysis found that the relation was positive for ethnic minorities (i.e., collapsing across African Americans, Latinos, and Asian Americans), but the strength of the relation was not compared across ethnicity (Jeynes, 2007). Although much has been written about ethnic differences in levels and types of involvement, it is unclear whether to expect the relation between involvement and achievement to vary across ethnicity.

The Meta-Analysis

The current investigation used meta-analytic techniques to synthesize the results of the existing empirical literature to determine the extent to which parental involvement is positively associated with achievement outcomes in middle school and which types of involvement have the strongest relation. We expect that involvement characterized as academic socialization will have the strongest positive relation with achievement outcomes as it empowers adolescents to act semiautonomously and understand the consequences and purposes of their actions; home-based and school-based involvement will have smaller relations. To assess the empirical evidence of ethnic variations in the relation between parental involvement and achievement, we examined differences between African Americans and European Americans in an exploratory manner.

Method

Extant Literature

To limit the potential cohort effects, we restricted our review of the literature to those studies published between 1985 and 2006. The exhaustive search of the extant literature published since 1985 produced 50 empirical reports (or articles). This set of reports represents 127 correlations and 82 beta coefficients for the relation between different types of parent involvement and an array of achievement outcomes. These reports represent three types of studies:

1. Naturalistic longitudinal and cross-sectional studies that included correlations between parental involvement and achievement ($n = 27$). These 27 articles and unpublished data sets represented 32 different samples and 92 separate correlations (see Table 1). Table 2 shows the studies that included partial correlations that

controlled for demographic or other variables ($N = 1$). Table 3 shows those studies that were longitudinal in design, which may provide some evidence of the direction of effect ($N = 2$).

2. Studies that reported on the effects of interventions designed to enhance parental involvement ($N = 5$; see Table 4).
3. Articles that reported on data from public-access, nationally representative datasets (e.g., the National Education Longitudinal Study 1988 [NELS-88], the Longitudinal Study of American Youth [LSAY], and the National Longitudinal Survey of Youth [NLSY]; $N = 13$; see Tables 5, 6, and 7).

When multiple articles use the same dataset, they pose the risk of lack of independence and overrepresentation of the data in the meta-analysis. When they provided enough information to calculate an effect size, these effect sizes were averaged using the shifting unit of analysis approach across all effect sizes and included in the meta-analysis. In addition, there were 5 studies that included middle school students and either older or younger students and 1 study that used regression analyses but did not include correlations (see Table 8).

Literature Search Procedures

To conduct a comprehensive review of the literature, we searched the major databases that catalogue research abstracts. These included PsychInfo, ERIC, Dissertation Abstracts International, and Sociological Abstracts. Due to the paucity of literature focusing solely on parental involvement in middle school as a primary emphasis, extensive hand searches were also conducted for the following journals to identify articles that included parental involvement in education as a secondary focus and thereby might have been missed in the database search. The following journals were hand searched: *American Education Research Journal*, *Child Development*, *Developmental Psychology*, *Journal of Educational Psychology*, *Journal of Family Psychology*, *Journal for Research on Adolescence*, and *Review of Education Research*.

The searches were conducted by combining terms reflecting middle school populations with terms reflecting parental involvement in education. The following terms and phrases were used to reflect parental involvement in education: *parent involvement*, *parent-school partnership*, *parent-school relation**, *family-school partnership*, *family-school involvement*, *parental involvement in education*, *parenting involvement in school*, *family-school relation**, *family-school involvement*, and *family involvement in education* (the asterisk indicates that all forms of that stem were included; e.g., *relation** includes *relations*, *relationship*, and *relationships*). The search was later expanded to include terms such as *parent risk factors*, as the initial search demonstrated that many articles examining achievement outcomes in middle school focused on parental influences on nonnormative developmental trajectories for middle school students. To identify studies of middle school samples, we used the following search terms: *middle school**, *middle school education*, *middle school transition*, *junior high*, *junior high school**, *junior high students*,

Table 1
Studies Including Bivariate Correlations for the Relationship Between Parent Involvement and Achievement (25 studies, 32 Independent Samples)

Author (year) and publication type	Sample size	Grade	Type of parent involvement	Category for meta-analysis	Outcome measure		
					Reading	Math	GPA
Baker & Stevenson (1986) Journal article	40	8th	Knowledge of child's schooling (knows the names of homeroom and other teachers, know how child performance compares to previous year, saw last report card) Contact w/school (number of conferences attended, contact teacher about specific school problem) Homework help (used a strategy to find out about homework assignments, number of strategies used)	Academic socialization			+ .24
				School-based			+ .10
				Home-based			-.05
			General academic strategies (used a tutor, used sanctions in reaction to school grades)	General involvement			-.35
			High school course selection (selecting college preparatory course for high school)	Academic socialization			+ .73
Balli et al. (1997) Journal article	74	6th	Homework help	Home-based	Reading achievement: -.24		
Bandura et al. (1996) Journal article	279	6th & 7th; cross-sectional	Communicating career aspirations	Academic socialization			+ .60
Bronstein et al. (2005) Journal article	77	7th	Homework surveillance ("What percentage of the time do you remind your child to do his/her homework?") Homework surveillance ("What proportion of the time do you insist that your child do his/her homework?")	Home-based	Total battery of Stanford achievement: -.35 Total battery of Stanford achievement: -.20		-.49
Driessen et al. (2005) Journal article	12,000	8th	Homework help Parents ask for information about school matters Leisure involvement (go to exhibitions, museums)	Home-based School-based Home-based	Language: -.12 Language: -.01 Language: +.13		-.21 -.02 +.10
Garcia Bacete & Ramirez (2001) Journal article	150	7th (in Spain)	Meetings with teacher Attending school events	School-based School-based			+ .39 + .43
Grolnick & Slowiaczek (1994) Journal article	302	6th, 7th, & 8th; cross-sectional	Mother behavioral involvement (attending parent-teacher conferences, open houses, open school nights, and other events) Mother personal involvement (knowing what happens at school, when the report card comes out)	School-based Academic socialization			+ .30 + .17

(table continues)

Table 1 (continued)

Author (year) and publication type	Sample size	Grade	Type of parent involvement	Category for meta-analysis	Outcome measure		
					Reading	Math	GPA
Grolnick et al. (2000) Journal article	60	6th	Mother cognitive involvement (encouraging reading newspapers and books, talking about current events, taking child to the library or museum)	Home-based			+ .14
			Father behavioral involvement	School-based			+ .19
			Father personal involvement	Academic socialization			+ .17
			Father cognitive involvement	Home-based			+ .14
Gutman & Eccles (1999) Journal article	617	7th; two waves (longitudinal)	School involvement (includes participating in events at child's school)	School-based	+ .33	+ .29	
			Cognitive involvement (intellectually stimulating activities, going to the library, discussing current events)	Home-based	+ .42	+ .42	
			Personal involvement (parent knows classmates, knows when report card comes out)	Academic socialization	+ .35	+ .27	
Gutman & Midgley (2000) Journal article	62	5th (students pre- and post transition to middle school)	Classroom volunteer	School-based			+ .14
			Open house attendance PTA attendance	School-based School-based			+ .25 + .10
Gutman et al. (2002) Journal article	837	7th	General involvement (checking homework, working as a school program supporter, chaperoning field trips, discussing assignments)	General involvement			+ .07
			Parent school involvement (parent serves on school staff, advocate, decision maker)	School-based			+ .10
Harris (1990) Dissertation	76	8th	Homework help (estimate of the extent of parental awareness and support of homework, frequency of assignments that requested parent help)	Home-based	Test scores: +.18 Language test scores: -.03 Test scores: -.01	Test scores: -.02	
			Communicating with teacher	School-based	Test scores: -.23 Language test scores: -.28	Test scores: -.23	
Hawes & Plourde (2005) Journal article	48	6th	General parent involvement (time spent helping with homework or reading, time spent conferencing with teachers)	General involvement	Reading comprehension test: +.13		
			School involvement	School-based			+ .19, + .18
Hughes et al. (2006) Unpublished data	90 European American	6th; correlations provided by ethnicity	Home involvement	Home-based			+ .26, + .01
			Parents' academic expectations	Academic socialization			+ .31, + .06

(table continues)

Table 1 (continued)

Author (year) and publication type	Sample size	Grade	Type of parent involvement	Category for meta-analysis	Outcome measure		
					Reading	Math	GPA
Hughes et al. (2006) Unpublished data	183 African American		School involvement	School-based			+ .16, + .17
			Home involvement	Home-based			-.02, + .12
			Parents' academic expectations	Academic socialization			+.39, -.11
			School involvement	School-based			-.07, -.31
	183 Chinese American		Home involvement	Home-based			+.28, + .26
			Parents' academic expectations	Academic socialization			+.23, +.10
			School involvement	School-based			+.27, +.11
			Home involvement	Home-based			-.22, +.12
Jodl et al. (2001) Journal article	444	7th	Parents' academic expectations	Academic socialization			+.19, +.03
			Academic activity involvement (help with homework, asking how the child did at school)	Home-based		Academic ability (i.e., "How good is your child in math/how well do you think your child will do in math?")	
						Mother	+ .09
						Father	+ .13
Jung & Silbereisen (2002) Journal article	641	6th (German sample)	School involvement (PTA, class trips, etc.)	School-based			+ .19
			Parents' value of education ("What are the chances your child will do well in junior high, high school, and college?")	Academic socialization			+ .06
			Educational expectations/aspirations for youth ("How far would you like your child to go in school?")	Academic socialization			+ .59
			Parent involvement (educational encouragement and stimulation, interest in adolescent's schooling)	Academic socialization		Father	+ .60
Latendresse (2005) Dissertation	309	6th	Parent expectations (parents expect excellence and have high expectations for children)	Academic socialization			+ .35
						Father	+ .42

(table continues)

Table 1 (continued)

Author (year) and publication type	Sample size	Grade	Type of parent involvement	Category for meta-analysis	Outcome measure		
					Reading	Math	GPA
Marchant et al. (2001) Journal article	230	5th & 6th; cross-sectional	Parent values and attitudes about the importance of academic success	Academic socialization			+ .25
Reynolds & Gill (1994)	729	6th; longitudinal	School involvement (attending school events and functions)	School-based			+ .26
Seidman et al. (2003) Journal article	500	6th & 7th; longitudinal	School involvement (participation in school activities, talks to teacher about child progress, PTA)	School-based	Standardized test scores: +.12	Standardized test scores: +.11	+ .07
Seyfried & Chung (2002) Journal article	372 European American 195 African American	5th grade	Going to the museum, zoo Leisure time involvement (participating in social, cultural, and athletic events) Expectations/career aspirations	Home-based Home-based Academic socialization	+ .10		+ .53 + .29
Sirin & Rogers-Sirin (2004) Journal article	75	7th & 8th; cross-sectional	Communicating the value of education; obtained through email	Academic socialization			+ .06 ^a
Useem (1992) Journal article	88	6th	Parent knowledge of the mathematics tracking system Parent integration (involvement in volunteer activities at the school or informal school networks) Parent intervention (acting on behalf of child with teachers to change or "customize" the educational experience)	Academic socialization School-based			+ .56 + .57
Xu & Corno (2003) Journal article	118	6th	Help with homework	Home-based			-.03

^a Correlation obtained from S. R. Sirin via a separate analysis conducted for 7th and 8th grade students only (article collapses across middle and high school).

Table 2
Studies Estimating the Effect of Parent Involvement Using Partial Correlations

Author (year) and publication type	Sample size	Grade	Type of parent involvement	Category for meta-analysis	Outcome measure	Correlation
Kim (2002) Journal article	245 Korean adolescents	6th–12th	General parent involvement	General involvement	GPA	Partial correlations controlling for age and parent level of education: +.16, +.25

Note. GPA = grade point average.

junior high transitions, and *early adolescence*. We combined each middle school term with a parental involvement term and then examined each study to determine whether an achievement outcome was included. Achievement outcomes included grades, course or class grades, grade point averages (GPA), test scores, and placement in advanced courses.

In addition, descendant searches were conducted on major papers in the field. Using the Social Sciences Citation Index, we located articles that cited seminal articles, such as publications outlining the major theories in the field (e.g., Comer, 1995; Connors & Epstein, 1995; Eccles & Harold, 1996; Epstein, 1987; Epstein & Sanders, 2002; Grolnick & Slowiaczek, 1994). In addition, we conducted descendent searches on papers by authors who appeared in our search at least twice. We conducted backward or ancestry searches by examining the reference lists of all papers that resulted from our search. Further, we identified key researchers in the field (defined as having two or more papers in our database; $n = 11$), contacted them, and requested relevant new work in press and unpublished findings. We received responses with data from 4 of the 11 researchers contacted. To maximize our sample size, we also contacted 4 authors of recent papers that included middle school students combined with other age groups to request correlations for just the middle-school-age sample. We received one response with correlations for the middle-school-age sample for the data reported in Sirin and Rogers-Sirin (2004).

Criteria for inclusion. The criteria for inclusion of an article in this meta-analysis were threefold. First, the report had to include a measure of parental involvement and academic achievement. Because the focus of this meta-analysis was the relation between parental practices and academic outcomes, we limited the set of research reports to those that measured academic outcomes. Second, the identified research reports needed to be based on middle school samples, which are typically defined as Grades 6 through 8. However, in an attempt to comprehensively account for middle school populations, we used explicit identification as well. For example, when fifth or ninth grade students were included in a study and the authors identified the population as middle school students, these reports were included (e.g., Gutman & Midgley, 2000; Marchant, Paulson, & Rothlisberg, 2001). Third, the report needed to include correlations (Pearson's r), d indexes, or sufficient information to calculate an estimate of the effect size. This included means and standard deviations to calculate the d index as outlined by Rosenthal (1991). Studies that used a wide variety of statistical analyses were included, such as studies that used structural equation modeling, hierarchical linear modeling, regression, and other statistical techniques, provided that the article also included information from which effect sizes could be calculated. Reports were not included in the meta-analysis if they did not include such information and it was not available from the author. However, their findings and the directions of effects were coded to

Table 3
Studies Estimating the Long-Term Effect of Parent Involvement (Longitudinal Only)

Author (year) and publication type	Sample size	Grade	Type of parent involvement	Category for meta-analysis	Outcome measure			
					Reading	Math	GPA	
Hill et al. (2004) Journal article	463	7th grade students tested at four waves (7th grade parent involvement correlated with 9th grade scores)	General involvement	General involvement	Mother report	Grade: +.13	Grade: +.09	
					Student report	Standard test: +.11	Standard test: -.00	
					Teacher report	Grade: +.06	Grade: +.11	
					Standard test: +.04	Standard test: -.01		
					Grade: +.08	Grade: +.06		
					Standard test: +.14	Standard test: +.14		
Melby & Conger (1996) Journal article	347	7th grade students tested at four waves	General involvement (setting standards for behavior, such as completing schoolwork)	General involvement				+ .22
		8th grade parent involvement predicting 11th grade GPA						

Note. GPA = grade point average.

Table 4
Interventions

Author (year) and publication type	Sample size		Grade	Type of parent intervention	Category for meta-analysis	Outcome measure	Pearson's r^a
	Treatment	Control					
Balli et. al (1998) Journal article	22	25	6th	Epstein's TIPS intervention (Epstein et al., 1995) used in math classes	Home-based	40-item mathematics posttest	$r = .29$
Keisner (1997) Dissertation	11	12	6th–8th	Parents received instruction for supervising math homework	Home-based	Math achievement test	$r = -.06$
						Cumulative math achievement test	$r = -.26$
						Class grades	$r = -.67$
Rillero & Helgeson (1995) Conference presentation	101	99	6th	Quasi-experimental study: SPLASH (Student-Parent Laboratories Achieving Science at Home) intervention where students were given homework assignments that required parent participation	Home-based	Science homework	None provided; results reported as significant, entered as $r = .20^b$
Tamayo (1992) Dissertation	16	15	7th	Parents received instruction for monitoring math homework; control group parents received no instruction	Home-based	Math grade	$r = -.07$
						Homework Stanford achievement test	$r = -.06$ $r = -.08$
Van Voorhis (2003) Journal article	146	107	6th & 8th	TIPS intervention (Epstein et al., 1995) used in science classes	Home-based	Homework grades	$r = .15$
						Science class grades	$r = .15$

^a For consistency of data presentation, the d indexes for the quasi-experimental studies have been converted to Pearson's r s. ^b Study reported the effect size as significant but did not provide an effect size. Therefore, we used the formula $r = Z/\sqrt{N}$, where $Z = 1.96$ and N is the sample size for the study.

determine whether they provided additional support to the general results of the meta-analysis.

Criteria for exclusion. We eliminated studies that used a broad conceptualization of parental involvement, such as reports that included assessments of general monitoring, parenting styles (i.e., authoritative vs. authoritarian), or discipline in their conceptualization of parental involvement in education, as this meta-analysis focused on the specific strategies parents use to foster achievement on their own and in collaboration with school. In addition, one central goal of this meta-analysis was to determine whether parental involvement in education, as defined by the prevailing theories of parental involvement and family-school relations, was related to achievement among middle school students. Studies were also eliminated if they combined middle-school-age students with other age groups, as the focus of this meta-analysis was on early adolescence and middle school as a unique developmental stage and context. Finally, studies were eliminated that demonstrated a lack of overall face validity (e.g., indicated that their focus was on parental involvement but did not assess parental involvement as defined by the prevailing theories). These criteria for inclusion resulted in 50 articles, reflecting 127 separate correlations.

Coding and Information Retrieved From Research Reports

Coding. The coding scheme was developed to extract information about the characteristics of the sample, type of publication, theories used, conceptualization and measurement of parental involvement and academic outcomes, and results (i.e.,

effect sizes, information to calculate effect sizes, and general magnitude and direction of the relation between parental involvement and academic outcomes). Each research report was coded by two coders. The primary coder was a developmental psychology graduate student with expertise in parental involvement in education, academic motivation, and academic achievement. The secondary coder was an advanced undergraduate research assistant who received extensive training on the theories and research related to parental involvement in education and the goals of the meta-analysis. After retrieving abstracts from the databases, each coder examined each abstract to determine its relevance. If either coder deemed an abstract was relevant, the full article was retrieved for further coding. Research reports received through communications with key researchers in the field were also included in this round of coding. Both coders extracted information from each report selected for inclusion. Any discrepancies between coders were discussed until consensus was reached. If agreement could not be reached, the disagreement was resolved by Nancy E. Hill. This method of discussing discrepancies until consensus is reached, as a way of assuring intercoder reliability, is consistent with the meta-analysis methodology presented in Rosenthal (1991). This meta-analysis focused on three types of involvement (home-based involvement, school-based involvement, and academic socialization). Studies were coded for these types of involvement. In addition, several studies created measures of parent involvement that combined several types of involvement into a

Table 5
Studies Using the National Education Longitudinal Study (NELS)

Author (year) and publication type	Sample characteristics	Modeling technique	Predictor variables	Outcome variable	Regression coefficient	Size and significance			
Desimone (1999) ^a Journal article	19,386 NELS 8th grade students; 13,483 European American ^b	Multiple regression	Discussion with child about high school	GPA	$\beta = .03$	$p = .050$			
			Talk w/parents about post-high school plans		$\beta = .05$	$p = .001$			
			Volunteering or fundraising		$\beta = .11$	$p = .001$			
			Rules about homework, GPA, and chores		$\beta = -.11$	$p = .001$			
			PTO involvement		$\beta = .08$	$p = .001$			
			Parent attends PTO meetings		$\beta = .00$	<i>ns</i>			
			Rules about TV, friends, & chores		$\beta = .03$	$p = .001$			
			Parents check homework		$\beta = -.06$	$p = .001$			
			Contact school about academics		$\beta = -.19$	$p = .001$			
			Discussion with parents about school		$\beta = .18$	$p = .001$			
			Talk with father about planning high school programs		$\beta = .02$	<i>ns</i>			
			Social capital: knowing parents of child's friends		$\beta = .03$	$p = .001$			
			2,334 African American		2,334 African American	Discussion with child about high school	$\beta = -.06$	$p = .057$	
						Talk w/parents about post-high school plans	$\beta = .05$	$p = .030$	
						Volunteering or fundraising	$\beta = .03$	<i>ns</i>	
	Rules about homework, GPA, and chores					$\beta = -.06$	<i>ns</i>		
	PTO involvement					$\beta = .30$	$p = .001$		
	Parent attends PTO meetings					$\beta = -.09$	<i>ns</i>		
	Rules about TV, friends, and chores					$\beta = .05$	$p = .017$		
	Parents check homework					$\beta = -.09$	$p = .001$		
	Contact school about academics					$\beta = -.05$	$p = .005$		
	Discussion with parents about school					$\beta = .08$	$p = .001$		
	Talk with father about planning high school programs					$\beta = .07$	$p = .002$		
	Social capital: knowing parents of child's friends					$\beta = .02$	$p = .007$		
	2,368 Hispanic					2,368 Hispanic	Discussion with child about high school	$\beta = -.00$	<i>ns</i>
							Talk w/parents about post-high school plans	$\beta = .02$	<i>ns</i>
							Volunteering or fundraising	$\beta = -.04$	<i>ns</i>
			Rules about homework, GPA, and chores		$\beta = .00$		<i>ns</i>		
			PTO involvement		$\beta = .16$		$p = .051$		
			Parent attends PTO meetings		$\beta = -.02$		<i>ns</i>		
			Rules about TV, friends, and chores		$\beta = .05$		$p = .013$		
			Parents check homework		$\beta = -.06$		$p = .001$		
			Contact school about academics		$\beta = -.12$		$p = .001$		
			Discussion with parents about school		$\beta = .19$		$p = .001$		
			Talk with father about planning high school programs		$\beta = .03$		<i>ns</i>		
			Social capital: knowing parents of child's friends		$\beta = -.00$		<i>ns</i>		
			1,201 Asian		1,201 Asian		Discussion with child about high school	$\beta = -.06$	<i>ns</i>
							Talk w/parents about post-high school plans	$\beta = -.04$	<i>ns</i>
							Volunteering or fundraising	$\beta = .05$	<i>ns</i>
	Rules about homework, GPA, and chores					$\beta = .12$	$p = .029$		
	PTO involvement					$\beta = -.04$	<i>ns</i>		
	Parent attends PTO meetings					$\beta = .10$	<i>ns</i>		
Rules about TV, friends, and chores	$\beta = .05$	<i>ns</i>							
Parents check homework	$\beta = -.09$	$p = .001$							
Contact school about academics	$\beta = -.08$	$p = .005$							
Discussion with parents about school	$\beta = .08$	$p = .010$							
Talk with father about planning high school programs	$\beta = .09$	$p = .045$							
Social capital: knowing parents of child's friends	$\beta = -.03$	$p = .015$							

(table continues)

Table 5 (continued)

Author (year) and publication type	Sample characteristics	Modeling technique	Predictor variables	Outcome variable	Regression coefficient	Size and significance
Hao & Bonstead-Bruns (1998) Journal article	25,000 NELS 8th grade students	HLM	Parent expectations for schooling	HLM estimate		
				Math	3.92	$p < .01$
				Reading	3.74	$p < .01$
				GPA	0.33	$p < .01$
Kelly (2004) Journal article	13,548 NELS (Parent involvement in 8th grade predicting math track placement in 9th grade)	Logit models	Block One	Math track placement		
			Parental education			
			Parental income			
			Parental occupation			
			Block Two			
			Skipped a grade		0.27	
			Held back a grade		-0.32	$p < .001$
			Parent decides which courses student takes		0.0074	
			Parent requested current math course		0.42	$p < .05$
			Number of times parent contacted school about academic program		-0.049	
			Neutral contact with school (volunteer, fundraising)		-0.15	$p < .01$
			Involvement in PTO activities		0.11	$p < .005$
			Discussion about school		0.021	
Talking about school	0.029					
Parent knows parents of student's friends	-0.0037					
McNeal (1999) ^c Journal article	11,401 NELS (8th grade parent involvement predicting achievement in 10th grade)	Not specified	(Controlling for GPA, hours worked, hours of homework, having been retained a grade in school, and gender)			
			Black			
			Hispanic			
			Asian			
			SES			
			Base-achievement			
			Single-headed household			
			Social capital			
			Parent-child discussion	0.150	$p < .01$	
			PTO involvement	-0.115	$p < .01$	
Monitoring	-0.071	$p < .10$				
Educational support strategies	-0.014					
Muller (1995) Journal article	13,881 NELS students (analysis of 8th grade test scores)	Hierarchical multiple regression	Block One	8th grade mathematics achievement test score		
			Family income, parents' highest education, gender, single mother, mother/stepfather, Asian American, Hispanic, African American, Catholic, other religious school, independent private, urban, suburban, 8th grade math grades, part-time, not in labor force, number of children home			
			Block Two			
			Talk about school experiences			
			Talk about high school program w/father			
			Talk about high school program w/mother			
			Parents check homework		$b = -1.053$	$p < .001$
			Parents restrict TV			
			Child enrolled in extra music class			
			Time unsupervised after school			
			Number of friends' parents know			
			PTO participation		$b = -0.231$	$p < .01$
			Parents contact school		$b = -0.653$	$p < .001$
			Parent volunteers at school		$b = 0.058$	<i>ns</i>

(table continues)

Table 5 (continued)

Author (year) and publication type	Sample characteristics	Modeling technique	Predictor variables	Outcome variable	Regression coefficient	Size and significance			
Peng & Wright (1994) Journal article	24,599 NELS (overlap: includes 8th–10th grade)	Multiple regression	Asian vs. Hispanic	Achievement test scores					
			Asian vs. Black						
			Asian vs. White						
			Asian vs. Indian						
			School control						
			Parental education						
			Family income						
			Family composition						
			Homework						
			Television						
Sui-Chi & Willms(1996) Journal article	25,000 NELS (8th grade)	Hierarchical linear modeling	Adjusted school mean SES, family and student background, parent involvement factors	Achievement test scores					
			Home discussion (talks with parents, discusses school activities)				Reading	$\beta = .124$	$p < .01$
							Math	$\beta = .124$	$p < .01$
			Home supervision (monitor homework, limits TV time, home after school)				Reading	$\beta = .009$	<i>ns</i>
							Math	$\beta = .033$	$p < .01$
			School communication (school contacts parents, parents contact school)				Reading	$\beta = -.051$	$p < .01$
							Math	$\beta = -.056$	$p < .01$
			School participation (volunteer at school, PTO)				Reading	$\beta = .030$	$p < .01$
							Math	$\beta = .026$	$p < .01$
				$\beta = -.03$	$p < .01$				
				$\beta = -.17$	$p < .01$				

Note. GPA = grade point average; PTO = parent-teacher organization; HLM = hierarchical linear modeling; SES = socioeconomic status.

^a Actual report examines GPA, reading, and math scores as a function of ethnicity and SES in multiple regressions. For the purposes of this analysis, only GPA is reported by ethnicity. ^b Results are presented by ethnicity and SES in the article. ^c Actual report also includes a breakdown by ethnicity. However, for the purposes of this report, we used results that were collapsed across ethnic groups.

single construct. The code “general involvement” was used when the report did not specify a specific type of involvement or used a unidimensional construct of parental involvement. In the meta-analysis, the construct *general involvement* was created for all reports by combining across all indicators of involvement.

Information Retrieved From Research Reports

The main information coded for each article included characteristics of the publication, the independent variables, the sample characteristics, and the outcomes measures of interest.

Characteristics of the publication. First, the authors of the research report and the date of publication were recorded. Next, information about the type of publication or report was recorded. These included peer-reviewed journal articles, dissertations, private reports (i.e., the author provided correlations not originally included in a publication), government reports, conference papers, and unpublished datasets. In addition, the type of study was coded; that is, whether the study was a naturalistic correlational study, controlled for a third variable, used advanced statistics and did not include correlations (i.e., structural equation modeling, hierarchical linear modeling), was an intervention trial, or used public-access datasets.

Characteristics of the sample. Demographic information about samples was gathered and coded, including sample size,

ethnic or racial background of the sample, gender of the target child, specific grade levels or ages of adolescents included in the study, socioeconomic status of the families (including parental education level), and any labels that were given to the samples (e.g., “at risk,” “exceptional students”).

Characteristics of the independent variables. Studies were coded and correlations gathered for each type of involvement, along with the effect size for the overall relation between parental involvement and achievement (i.e., general involvement). As mentioned previously, if the research report did not allow for distinctions between the types of involvement, they were coded as having an assessment of general parental involvement.

Characteristics of the dependent variables. The main outcome of interest for this meta-analysis was academic achievement, conceptualized as class grades, GPA, standardized test scores, track placement, and other tests designed to measure achievement.

Information to calculate an effect size. Effect sizes were ascertained from each research report for each relation between a type of parental involvement and the outcomes. A single article could provide more than one effect size if multiple dimensions of parental involvement or multiple outcomes were included. If effect sizes were not included in the research report, information that could be used to calculate an effect size was gathered and input into the Comprehensive Meta-Analysis program (CMA; Version 2.0; Biostat, Englewood, NJ) to calculate the appropriate effect

Table 6
Studies Using National Education Longitudinal Study (NELS) and Structural Equation Modeling

Author (year) and publication type	Sample characteristics	Modeling technique	Predictor variables	Outcome variable	Regression coefficient	Size and significance
Keith et al. (1993) Journal article	21,814 NELS 8th grade students	SEM	Parent involvement composite	GPA	$\beta = .29$	Not mentioned
Keith & Lichtman (1994) Journal article	1,714 NELS Mexican American 8th grade students	SEM	Parent involvement composite	Overall GPA Reading Math Science Social studies	$\beta = .12$ $\beta = .12$ $\beta = .08$ $\beta = .10$ $\beta = .12$	$p < .05$ $p < .05$ $p < .05$ $p < .05$ $p < .05$
Singh et al. (1995) Journal article	25,000 NELS 8th grade students	SEM	Parent aspirations Participation at school Home environment	GPA	$\beta = .28$ $\beta = -.02$ $\beta = -.10$	Not mentioned

Note. SEM = structural equation modeling; GPA = grade point average.

size (e.g., correlations and Cohen's d index). In calculating the effect size, we incorporated the shifting unit of analysis approach to account for independence assumptions among the variables. According to this approach, all study effect sizes are coded as independent events (Cooper, 1998). Then, when the overall result for the meta-analysis was generated, the effect sizes were weighted in CMA so that each study contributed to the overall finding on the basis of its sample size and other characteristics. The shifting unit of analysis approach takes into account the fact that one study can contribute multiple effect sizes (Cooper, 1998). For example, Marchant et al. (2001) contributed two effect sizes from the same sample: one for the relationship between academic socialization and GPA and one for the relationship between school involvement and GPA. As such, the shifting unit of analysis approach takes the average of these correlations and contributes one effect size for the purposes of examining the relation between general parental involvement and achievement. However, when conducting moderator analyses, the study effect sizes are only examined across the separate categories of the moderator (Cooper, 1998). When analyses of each type of involvement are considered separately, this approach counts one effect size per category. Thus, in the case of Marchant et al. (2001), when the impact of different forms of parent involvement is examined, each of the two correlations counts independently in the analysis.

Data Integration and Meta-Analysis Plan

We used meta-analytic techniques to calculate the relations between parental involvement and achievement and the 95% confidence interval. A random effects model was used, which extrapolates to the entire possible pool of studies that may potentially examine the relation between parent involvement and achievement. Thus, random effects models make the current meta-analysis generalizable to all possible studies. This is important because it attempts to account for unpublished studies or studies not published in peer-reviewed journals and book chapters. In addition to determining whether the relation between parental involvement and achievement was significantly different from zero, we examined the heterogeneity of the distribution of the effect sizes using the Q statistic (Rosenthal, 1991). Heterogeneity may be due to the

inclusion of outliers, multiple underlying dimensions within the distribution, or sampling error. We used the significance of the Q_w to determine the appropriateness of conducting the moderator analyses. We conducted moderator analyses using meta-analytic strategies to compare the strength of the relations between parental involvement and achievement across the three types of involvement (i.e., school-based, home-based, and academic socialization), which were our planned comparisons. The Q_B statistic was used to determine whether the groups of effect sizes for each type of parental involvement differed from each other. Due to potential violations of independence at the sample and item level, studies that used public-access datasets were grouped together. These studies did not include correlation matrices, likely due to the large sample sizes. Rather, authors used a variety of modeling techniques (i.e., multiple and hierarchical regression) to examine the relation between parent involvement and achievement. We examined and reported the range of the betas for these studies, which included an array of control variables in addition to parent involvement items. Finally, we conducted exploratory meta-analyses to examine variations in the relation between parental involvement and achievement between African Americans and European Americans.

Results

Overall Relation Between General Parental Involvement and Achievement

Overall, the meta-analysis of the correlational studies demonstrated a positive relation between general parental involvement and achievement in middle school. The correlations ranged from $-.49$ to $.73$; the average weighted correlation across the 32 independent samples was $r = .18$, 95% confidence interval (CI) = $.12, .24$, $Q(31) = 1,581.10$, $p < .0001$. The distribution of these is represented in the funnel plot in Figure 1. Because the confidence interval does not include zero, we concluded that the relation between general parental involvement and academic achievement is positive and significantly different from zero. However, due to the size and the significance of the Q statistic, which is an assessment of the hetero-

Table 7
National Datasets Other Than the National Education Longitudinal Study (NELS)

Author (year) and publication type	Sample characteristics	Modeling technique	Predictor variables ^a	Outcome variable	Regression coefficient	Size and significance
Eamon (2005) Journal article	388 Latino youth from the NLSY, ages 10–14	Hierarchical multiple regression	Block 1 Ethnicity, gender, age, Block 2 Youth's English language problem, mother's age at 1st birth, mother's years of education, mother's AFQT score, no English language problem, mother born in U.S., average adult-child ratio, proportion of youth's lives poor Block Three School environment, neighborhood quality Block Four Cognitive stimulation, parent-youth conflict, <i>academic involvement</i>	Reading achievement Math achievement	$\beta = .09$ $\beta = .11$	$p < .05$ $p < .05$
Ma (1999) Journal article	3,116 students from the LSAY (longitudinal analysis, 7th–12th grade)	Logistic survival analysis/event history analysis	<i>Parent expectations</i> <i>Parent college planning</i> <i>Volunteering</i>	Participation in advanced math from Grades 8–12	^b Parent expectations and college planning linked to increased achievement. ^b Students of parents who volunteer were 9 times more likely to take advanced mathematics in Grade 12.	
Shumow & Miller (2001) Journal article	1,670 seventh and 8th grade students from the LSAY ^c	Hierarchical multiple regression	Block 1 Parent gender, child gender, past school adjustment, parent education level Block 2 <i>Parent involvement at home</i> (parental assistance with homework including writing, mathematics, and special projects) <i>Parent involvement at school</i> (school visits, level of parent-teacher organization membership, attentiveness to school issues)	GPA Achievement test scores GPA Achievement test scores	$\beta = -.10$ $\beta = -.14$ $\beta = .05$ $\beta = .02$	$p < .001$ $p < .001$ $p < .01$ ns

Note. NLSY = National Longitudinal Survey of Youth; LSAY = Longitudinal Study of Adolescent Youth; GPA = grade point average; AFQT = Armed Forces Qualification Test Score.
^a Predictor variables in italics are the parent involvement variables; regression coefficients for each parent involvement predictor available are listed. ^b No effect size reported. ^c 11.3% African American; 3.9% Asian American; 10.3% Hispanic American; 67.7% Caucasian American.

Table 8
Studies Including Bivariate Correlations for the Relationship Between Parent Involvement and Achievement Where There Is an Age-Group Overlap

Author (year) and publication type	Sample size	Grade	Type of parent involvement	Category for meta-analysis	Outcome measure	Correlation
Deutscher & Ibe (n.d.) Web-based article	400	7th–11th	Volunteering at school	School-based	California Standards Test	+ .19 + .23 – .29 + .28
Pedregina et al. (2003) Journal article	323	Adolescents, 11–15 years old	Reading school newsletter Checking student planner Grolnick & Slowiaczek (1994): Parent involvement scale, combined as general involvement	Home-based Home-based General involvement	GPA (math, language, and science)	+ .29
Salazar et al. (2001) Journal article	400	7th–12th	Parent involvement (general)	General involvement	Student involvement (measure of effort, persistence, and interest in various subjects)	+ .28
Shumow & Lomax (2002) Journal article	929 students (677 mothers, 322 fathers)	10- to 17-year-old students from the Survey of Parents and Children (1990)	Parent involvement (attending events and activities, talking to teachers, attending PTA meetings)	School-based	GPA (overall)	+ .21
Stevenson & Baker (1987) Journal article	179	5–17 years old: 5–8, 21.2% 9–11, 25.8% 12–14, 26.2% 15–17, 26.8%	Parental involvement in school activities (teacher report of the extent to which parents participate in PTO and conferences)	School-based	GPA European Americans GPA African Americans GPA Latinos Child performance (i.e. how well is the student performing relative to his/her ability, rated on a scale from 1 to 5)	+ .21 + .24 + .16 + .34

Note. GPA = grade point average; PTO = parent-teacher organization.

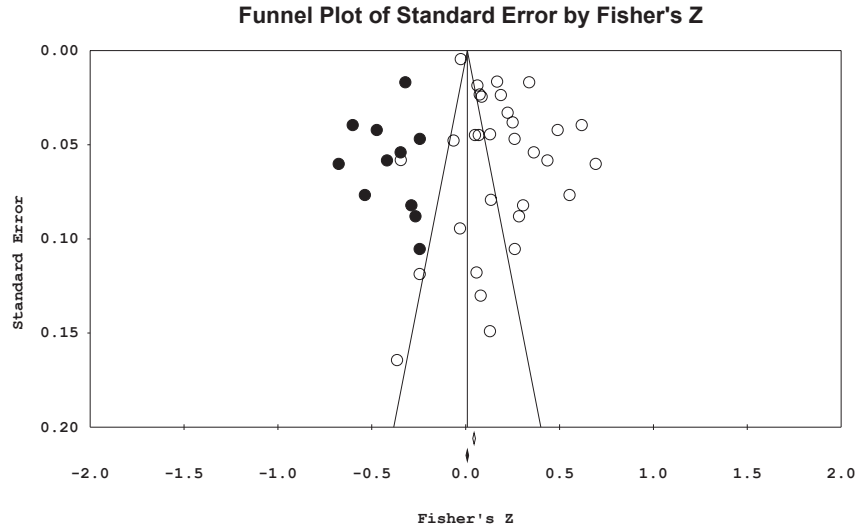


Figure 1. Funnel plot for the random effects model. The trim and fill technique imputes 11 studies to the left of the mean. White circles represent the effect sizes of all samples from studies providing bivariate correlations. Filled circles represent the imputed effect size.

generality of the distribution of correlations, there is likely more than one underlying construct of parental involvement with differing associations with academic outcomes.

When a meta-analysis is conducted, one common concern is publication bias. That is, the field often has a bias against publishing null results, which may render a meta-analysis based on published studies biased in favor of statistical significance. To prevent this, we attempted to obtain unpublished data from key researchers in the field. However, this is not always possible. To obtain an estimate of the publication bias, the “trim and fill” technique was used to impute potentially missing studies (Duval, 2005; Taylor & Tweedie, 2000). The trim and fill technique is based on the assumption that the full set of possible studies on a topic will be distributed symmetrically around a true mean. To estimate the number of plausibly missing studies, the trim and fill method “trims” the outlying studies that do not have a counterpart on the other side of the mean. The mean effect is recalculated, often resulting in a more conservative effect size; the outlying studies are returned, and their counterparts are estimated based on the new mean level effect size. Using this method, we estimated that 11 studies were potentially missing. These imputed studies were each below the mean and had a negative correlation between parental involvement and achievement (see Figure 1).

Next, we conducted moderator analyses to determine whether the strength of the relation between parental involvement and achievement varied among the three types of involvement.

Are All Types of Involvement Equally Effective?

All but six samples provided separate correlations for specific types of parental involvement (i.e., they only included assessments of general forms of parental involvement or collapsed across the different types of involvement). To determine the extent to which each type of involvement was similarly related to achievement, we

first examined whether the simple relation between each type of involvement and achievement was significantly different from zero. Second, we compared the magnitudes of the relations across type of involvement using the Q_B statistic to determine whether one type of involvement was more strongly related to achievement than another.

Average weighted correlations between parental involvement and achievement were positive and significantly different from zero for school-based involvement and academic socialization (See Table 9). For home-based involvement, the relation was not significant. The 95% CI included zero, indicating that we could not rule out that the relation between home-based involvement and achievement was not significantly different from zero.

In comparing the strength of the relations across types of parental involvement, we found that the average weighted correlation for each type of involvement and achievement was significantly different, $Q_B(2) = 38.10, p < .0001$. Three planned contrasts were conducted to examine the differences between types of involvement. These included a comparison between academic socialization and home-based involvement, between academic socialization and school-based involvement, and between home- and school-based involvement. Academic socialization was more strongly related to achievement than was home-based involvement. The average weighted correlation between academic socialization and achievement and between home-based involvement and achievement were $r = .39$ and $.03$, respectively; $Q_B(1) = 36.68, p < .0001$. For the comparison between academic socialization and school-based involvement and their relation to achievement outcomes, the relation was also stronger for academic socialization. Whereas the average weighted correlation for academic socialization and achievement was $.39$, it was $.19$ for school-based involvement and achievement, $Q_B(1) = 13.30, p < .0001$. Finally, the average weighted correlation between school-based involvement and achievement was stronger than the average weighted correla-

Table 9
 Moderator Analyses: Examining the Correlation Between Parent Involvement and Academic Achievement

Analysis	<i>k</i>	<i>r</i>	95% CI		<i>Q_w</i>
			Low estimate	High estimate	
Overall	32	.04** (.18)	.04 (.12)	.05 (.24)	1,581.10**
Moderators					<i>Q_b</i>
Type of parent involvement					1,206.92** (38.10)**
School-based	21	.19**	.10	.21	
Home-based	19	.03, <i>ns</i>	-.02	.11	
Academic socialization	16	.39**	.26	.44	
Type of home-based involvement					937.81** (7.61)*
Help with homework	6	-.11**	-.04	-.25	
Activities at home	5	.12**	.05	.19	
Ethnicity					32.67** (1.80), <i>ns</i>
African American	7	.11**	.05	.17	
European American	11	.19**	.09	.29	

Note. Random effects *Q* values and point estimates are presented in parentheses. CI = confidence interval.

* $p < .005$. ** $p < .0001$.

tion between home-based involvement and achievement, $Q_B(1) = 12.30$, $p < .0001$. In summary, parental involvement in education is positively associated with academic outcomes during middle school. Further, among the types of parental involvement, academic socialization emerged as a critical component of parental involvement in middle school that had the strongest positive relation with achievement.

As further evidence of the differences in the strength of the relations between the types of involvement and achievement, the range of the beta weights were examined for the studies using the public-access dataset (e.g., NELS-88, NLSY, LSAY) that could not be included in the meta-analysis. Indeed, the examination of the range suggests that the relation is stronger and more positive for academic socialization (betas ranged from .00 to .42 for studies using the NELS-88 and .11 for the study using the NLSY), compared to school-based involvement (betas ranged from -.06 to .11 for studies using the NELS-88 and -.02 to .05 for studies using the LSAY) and home-based involvement (betas ranged from -.17 to .08 for studies using the NELS-88 and -.14 to -.11 for studies using the LSAY).

The relation between home-based involvement and achievement was not significant, and it was weaker than the relation between other types of involvement and achievement. The *Q* statistics for home-based involvement suggest that there may be subtypes of home involvement. Because prior research had suggested that home-based involvement should be positively related to achievement, we attempted to identify which types of home involvement were positively related to achievement and whether some types of involvement had a negative relation.

Are There Subtypes of Home Involvement?

To examine potential multidimensionality among studies of home-based involvement, we examined the types of home-based involvement that were assessed. Prior research suggested that helping with homework is the most controversial type of home-based involvement. Homework help has been shown to both accelerate and interfere with achievement (Cooper, 1989, 2007;

Wolf, 1979). The negative relation may be due to parental interference with students' autonomy, to excessive parental pressure, or to differences between parents and schools in how they present the material. Further, help with homework may be elicited by poor school performance, also resulting in a negative relation between homework help and achievement. Other types of home-based involvement—such as providing educationally enriching activities at home, making books and other educational materials available, and taking children to museums, libraries, the zoo, and other educational outlets—have been shown to have a more consistent positive relation with achievement (Reynolds & Gill, 1994). Therefore, we coded the studies into these two types of home-based involvement and tested the relations with achievement using meta-analytic techniques. There were five correlations representing involvement in activities at home and six correlations representing homework help.

Consistent with our post hoc hypothesis, help with homework was negatively related to achievement, whereas other types of involvement at home were significantly and positively related to achievement. The average weighted correlation between activities at home and achievement was .12 (95% CI = .05, .19), whereas involvement in homework produced a significant but negative average weighted correlation with achievement ($r = -.11$; 95% CI = -.25, -.04). These average weighted correlations were significantly different from each other, $Q_B(1) = 7.61$, $p < .006$. Overall, among the types of home involvement, educationally enriching activities were positively related to achievement, but helping with homework was associated with lower levels of performance.

In summary, parental involvement is positively related to achievement in middle school. Further, parental involvement characterized as academic socialization has the strongest and most positive relation and helping with homework has the strongest negative association with achievement. Other types of home-based and school-based involvement demonstrated significant positive relations with achievement. However, the strength of these relations was more moderate. Our final two questions were whether

the relations between parental involvement and achievement varied across ethnicity and whether any evidence on the direction of effect can be ascertained from the results of the five intervention studies and the two longitudinal studies.

Ethnic differences in the relation between involvement and achievement. Although most studies did not provide separate correlations for each ethnic group, 15 studies did provide such information for African Americans and European Americans. Six studies and 7 samples provided data from African American participants, and 9 studies with 11 samples provided data for European Americans. The overall weighted correlations suggested similarities across ethnicities in the strength of the relation. For African Americans, the average weighted correlation was .11 (95% CI = .05, .17); for European Americans, it was .19 (95% CI = .09, .29). Whereas each was positive and significantly different from zero, they were not significantly different from each other, $Q_B(1) = 1.80, ns$, suggesting that the strength of the relation is similar between African Americans and European Americans.¹

Attempts at discerning directions of effect and causality from longitudinal and intervention studies. Much debate in psychological research has focused on the ability to discern directions of effects (e.g., Duncan, Magnusson, & Ludwig, 2004). Duncan et al. suggested that research capitalize on natural experiments, use longitudinal designs, and use quasi-experimental designs as a way to attempt to establish causality and directions of effect. Longitudinal and experimental studies are presented in Tables 3 and 4. As can be seen, longitudinal studies show a moderate positive relation between parental involvement at Time 1 and achievement at Time 2. Further, five studies employed an experimental design that attempted to increase parental involvement in education—specifically, involvement in homework—and in turn, increase adolescents' school performance.

The studies that used experimental designs to examine the impact of parent training for homework were evaluated using meta-analytic techniques to determine the nature of the relation. The weighted mean d index was .21 and was not statistically different from zero (95% CI = -.54, .98). The weighed mean correlations is .11 (95% CI = -.26, .44). However, the test of the distribution of d indexes was very large and significant, $Q_w(3) = 15,074.48, p < .0001$. Part of the heterogeneity may be due to the fact that these studies were extremely different in terms of design. Ideally, moderator analyses could be conducted to determine whether there were subtypes of homework help that were differently related to achievement, given the heterogeneity in the distribution of correlations; however, three of the five intervention studies explicitly stated that parents were given multiple types of instructions, precluding our ability to examine subtypes. Based on the intervention studies, parental involvement in homework shows a minor effect on achievement, according to the d index.

Overall Summary

Overall, parental involvement during middle school is positively related to achievement. However, the types of involvement in which parents engage matter. Among the types of involvement, parental involvement that creates an understanding about the purposes, goals, and meaning of academic performance; communicates expectations about involvement; and provides strategies that students can effec-

tively use (i.e., academic socialization) has the strongest positive relation with achievement. Involvement pertaining to homework assistance and supervising or checking homework was the only type of involvement that was not consistently related with achievement. Whereas school-based involvement—including visiting the school, volunteering at school, and attending school events—was moderately positive in its association with achievement, our evidence suggests that the most salient type of parental involvement is involvement that relates to achievement, results in socialization around the goals and purposes of education, and provides adolescents with useful strategies that they can use in semiautonomous decision making.

Discussion

In the face of declines in academic achievement during middle school and increased barriers associated with maintaining parental involvement with adolescents (who are increasingly autonomous and independent) and in middle schools (that are larger and more bureaucratic), the synthesis of the extant literature confirms that parental involvement is positively associated with achievement. Moreover, through this meta-analysis, we identified a specific type of involvement, namely academic socialization, that has the strongest positive relation with achievement during middle school. School-based involvement was also positively related to achievement, but less strongly so. Finally, the results for home-based involvement were mixed. Involvement that entailed assisting with homework was not consistently associated with achievement, whereas other types of home-based involvement were positively related to achievement.

Academic socialization includes parents' communication of their expectations for achievement and value for education, fostering educational and occupational aspirations in their adolescents, discussing learning strategies with children, and making preparations and plans for the future, including linking material discussed in school with students' interests and goals. An adolescent's ability to engage in logical and analytic thinking, problem solving, planning, and decision making increase during adolescence (Halpern-Felsher & Cauffman, 2001; Keating, 2004). Further, it is during adolescence that goals, beliefs, and motivations are internalized and such inner processes shape adolescents' academic performance and course selection (Wigfield, Byrnes, & Eccles, 2006). Academic socialization includes the types of strategies that will scaffold adolescents' burgeoning autonomy, independence, and cognitive abilities. In addition, this type of involvement represents developmentally appropriate strategies of involvement, as it fosters and builds upon the development of internalized motivation for achievement, focuses on future plans, provides a link between school work and future goals and aspirations, and is consistent with the needs of middle school students. Further, it provides young adolescents with the tools to make semiautonomous decisions about their academic pursuits.

¹ Based on the fixed effects model, which does not generalize to the broader literature but reflects the current set of studies, the average weighted correlation was .07 (95% CI = .04, .11) for African Americans and .20 (95% CI = .17, .23) for European Americans. These average weighted correlations were significantly different from each other ($Q(1) = 32.67, p < .001$), suggesting that the relation between parental involvement and achievement is stronger for European Americans, albeit positive and significant for both groups.

In addition to being developmentally appropriate for adolescents, academic socialization strategies are developmentally appropriate for middle school contexts. One of the largest challenges for middle school teachers in their attempts to involve parents is the large number of parents with whom they must develop relationships. Middle school teachers instruct many more students than elementary school teachers. Moreover, because students have multiple teachers, it is difficult for parents to develop productive relationships with their adolescent's teachers (Hill & Chao, 2009). Academic socialization as a parental involvement strategy is adaptive for middle school contexts because it is not dependent on the development of deep, high-quality relationships with each teacher—a goal that is often not feasible even for the most motivated teacher. It is dependent on parents' knowledge about how to navigate the middle school context, which is information that can more easily be provided to parents through communications between the school and home and through electronic communications (e.g., Bouffard, 2009), and builds upon the relationship between the adolescent and the parent. This type of involvement can be more easily solicited by adolescents as they assess their own needs and direct their interests and trajectories. Further, students' academic promise may elicit this level of involvement and planning from parents.

School-based involvement was also positively related to achievement, although the relation was weaker than the relation for academic socialization. Whereas prior research and theory have demonstrated the positive effect of school-based involvement (Comer, 1995; Epstein & Sanders, 2002; Grolnick & Slowiaczek, 1994; Hill, 2001; Hill & Craft, 2003; Lareau, 1987), it is possible that the processes through which school-based involvement has its effect (e.g., increasing social capital or knowledge) are more difficult to realize in middle school. School-based involvement during middle school is less likely to entail involvement directly in one's child's classroom. It is more likely to entail assisting teachers with preparation (e.g., bulletin boards, setting up classrooms), fundraising, administrative duties in the office, or committee work. Whereas this type of involvement is important for the functioning of the school, it often does not directly provide parents with knowledge about instructional styles and course content that will facilitate their involvement with their students' schoolwork. Further, because students have multiple teachers in middle school, parents would need to spend a considerable amount of time at school to build relations with each teacher and spend time in each classroom. Finally, as adolescents become more independent, they do not want their parents to visit the school (Stevenson & Baker, 1987); they want to be trusted that they will manage their responsibilities. That is, adolescents often indicate that they want their parents' help but do not want their parents to visit the school (Collins & Laursen, 2004; Grotevant, 1998). Given adolescents' increased sense of efficacy, autonomy, and problem-solving skills, they may have a greater role in soliciting the type of involvement they need from their parents, which would make active school-based involvement less effective than other types of involvement.

Home-based involvement entails a range of activities from supporting achievement by providing appropriate structure and intellectually engaging materials in the home to monitoring and checking homework. The provision of an educationally supportive home environment consistently has been shown to be positively related to achievement (Chao et al., 2009; Reynolds & Gill, 1994). In contrast, helping with homework has been shown to both accelerate and

interfere with achievement (Cooper, 1989, 2007; Wolf, 1979). The negative relation may be due to parental interference with students' autonomy, to excessive parental pressure, or to differences in how parents and schools present the material. On the contrary, supporting a student who is having trouble completing or understanding homework can deepen and further the student's understanding of the material. The meta-analysis of the extant literature demonstrated that, on the whole, parental assistance with homework is not consistently associated with achievement. It is plausible that, rather than undermining achievement, parental engagement in homework is elicited by poor school performance, which also results in a negative relation between homework help and achievement.

Attempts at disentangling the direction of effect are futile with correlational research. Longitudinal, natural, and experimental designs provide the best context for social scientists to infer causality or direction of effect (Duncan et al., 2004). The synthesis of interventions designed to increase the amount and quality of parental involvement in homework demonstrated only a weak association between homework help and achievement, and in some cases a negative effect. Whereas in some cases parents' direct involvement in homework may rescue a failing student, the provision of support and structure that enable middle school students to function semiautonomously, understand the value and utility of education for their future, and understand how the knowledge gained at school links to their interests, talents, and current events seems most significant.

In the context of these consistent findings showing that parental involvement in education is positively associated with achievement during middle school (with the exception of homework help), there are a number of limitations to the existing literature that give us some pause in the confidence we have in our conclusions and provide fruitful ground for future research. First, we have attempted to be careful in our discussion of the findings to refrain from making causal inferences. Whereas most theories suggest that parental involvement improves achievement, there is also a growing body of literature that points to the motivating effect of prior achievement in increasing or decreasing levels of parental involvement (Eccles, 2007; Hoover-Dempsey, Ice, & Whitaker, 2009). For example, the negative relation between parental homework help and achievement may reflect parents' appropriate response for children who are not performing well, rather than demonstrating that parental homework help undermines achievement. Further, adolescents' increased cognitive abilities, sense of efficacy, and confidence may result in soliciting advice and involvement from parents, which also impacts our understanding of the nature of the dynamic relation between involvement and achievement. Second, the studies included in this meta-analysis reflect incredible heterogeneity in measurement and study design. Indeed, based on our review of the literature, there is not a standard measure of involvement that is used consistently in studies of middle school families. Rarely does one see the same measure used across studies (Hill & Tyson, 2005). The most consistently used measure is from Steinberg et al. (1992; five items). Three studies cited it; however, two studies modified it. Even when researchers used the same national datasets (e.g., NELS-88), different items were used to assess parent involvement across studies. Although such heterogeneity might undermine our ability to identify consistent patterns in the relation between parental involvement and achievement, the meta-analysis still points to the conclusion that parental involvement that reflects academic socialization has the strongest positive relation with achievement.

Finally, the state of the extant literature did not permit a thorough examination of ethnic and socioeconomic variations in involvement and their relation with academic outcomes. The findings suggested that there is no difference in the strength of the relation between involvement and achievement for European Americans compared to African Americans when considering the findings from the random effects models, which extrapolate to the broader literature (i.e., random-effects design). However, the fixed effect models demonstrated that the relation was positive for both African American and Euro-American families, but stronger for European Americans. Some research suggests that parental involvement has different meanings and motivations across ethnicity (Hill & Craft, 2003; Lynch & Stein, 1987), and those from varying economic background engage in parental involvement with different levels of social capital (i.e., resources, knowledge; Hill et al., 2004; Lareau, 2003; Lareau & Horvat, 1999). It is possible that seemingly ethnic differences are ultimately the result of differences in economic resources. Thus, ethnic differences found in the fixed effects model may be due to the potential confounding of ethnicity and other contextual factors in the studies in this meta-analysis. Supporting this contention, Jeynes's (2005) meta-analysis found no statistical differences in the strength of the relation between studies reflecting "mostly ethnic minority" samples and Euro-American samples when socioeconomic indicators were controlled. Similarly, Fan and Chen (2001) did not find ethnicity to be a significant moderator in their meta-analysis. It is also possible that ethnic differences in beliefs, practices, and processes are not related to involvement as defined in this study. For example, prior research has found that African American parents' involvement has entailed monitoring the school and teachers rather than forming partnerships with them (Lareau & Horvat, 1999), and African American parents of high achievers have indicated that they are involved at school, in part, to demonstrate to school personnel their commitment to education.

Other than with African Americans, the body of literature on parental involvement in middle school does not include sufficient studies of other sizable ethnic groups, such as Latinos or Asian Americans. Although there is evidence that Asian American students have the highest average achievement levels, their parents are the least involved in education as defined by the prevailing theories (Chao, 2000). Given current demographic trends that predict that Latinos will become the largest ethnic minority group in the United States, it is imperative that psychologists conduct research to understand how Latino families and schools work together most productively. In addition, it is important to identify the types of involvement strategies used by Asian American families. This is particularly important because academic socialization as a parental involvement strategy is more dependent on parents' knowledge and resources and schools' ability to provide such information to parents than are other types of involvement.

In the current policy climate—one that requires schools to maintain policies and support parental involvement in education—it is imperative that the scientific field identify developmentally appropriate practical strategies for middle schools. Although the NCLB Act (2002) requires parental involvement in education, largely defined as accountability and communication between families and schools, the results of this meta-analysis suggest that programs and policies need to consider a broader range of involvement strategies. In their mandates, policies such as the NCLB

should carefully consider the specific needs of middle school students, including the provision of information about tracking and placement as it effects college access, the ways in which curriculum can be linked to students' interests and current events, and linkages between the middle school curriculum and students' long term goals. Lack of guidance was the primary reason that academically able students did not attend postsecondary institutions after high school (Catsambis & Garland, 1997; Conners & Epstein, 1995; Jordan & Plank, 2000). In the current context of increased demand for parental involvement in education (e.g., school choice, tracking, course selection), without effective parental involvement, adolescents' opportunities are often foreclosed, leading to lost potential, unrealized talent, diminished educational and vocational attainment, and widening demographic gaps in achievement.

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