



Published in final edited form as:

*Dev Psychol.* 2009 May ; 45(3): 740–763. doi:10.1037/a0015362.

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

Nancy E. Hill and Diana F. Tyson

Department of Psychology and Neuroscience, Duke University

### Abstract

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, & 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., Catsambis, 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; Conners & 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 school-work 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*, *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; Conners & 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 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 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 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 heterogeneity 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 correlation 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.<sup>1</sup>

**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 effectively 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

<sup>1</sup>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.



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.

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 affects 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; Connors & 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.

## Acknowledgments

This study was funded in part by a seed grant from the National Institute on Drug Abuse Transdisciplinary Research Center at the Center for Child and Family Policy, Duke University. We thank Harris Cooper for his consultation on meta-analytic strategies. In addition, we thank Lea Bromell, Roxanne Flint, Joseph Bataille, and Andrea Malone-Reid for their assistance with coding the reports for this meta-analysis.

## References

References marked with an asterisk indicate studies included in the meta-analysis.

- Adams, GR.; Berzonsky, MD., editors. Blackwell handbook of adolescence. Blackwell; Malden, MA: 2003.
- Baker DP, Stevenson DL. Mothers' strategies for children's school achievement: Managing the transition to high school. *Sociology of Education* 1986;59:156–166.
- Balli SJ, Demo DH, Wedman JF. Family involvement with children's homework: An intervention in the middle grades. *Family Relations* 1998;47:149–157.
- Balli SJ, Wedman JF, Demo DH. Family involvement with middle-grades homework: Effects of differential prompting. *Journal of Experimental Education* 1997;66:31–48.
- Bandura A, Barbaranelli C, Caprara GV, Pastorelli C. Multifaceted impact of self-efficacy beliefs on academic functioning. *Child Development* 1996;67:1206–1222. [PubMed: 8706518]
- Barber BK, Olsen JA. Assessing the transition to middle and high school. *Journal of Adolescent Research* 2004;19:3–30.
- Bleeker MM, Jacobs JE. Achievement in math and science: Do mothers' beliefs matter 12 years later? *Journal of Educational Psychology* 2004;96:97–109.
- Bouffard, SM. Tapping into technology: Using the Internet to promote family-school communication. In: Hill, NE.; Chao, RK., editors. *Families, schools, and the adolescent: Connecting research, policy, and practice*. Teachers College Press; New York: 2009. p. 147-161.
- Bronstein P, Ginsburg GS, Herrera IS. Parental predictors of motivational orientation in early adolescence: A longitudinal study. *Journal of Youth and Adolescence* 2005;34:559–575.
- Byrnes JP, Miller DC, Reynolds M. Learning to make good decisions: A self-regulation perspective. *Child Development* 1999;70:1121–1140.
- Catsambis S. Expanding knowledge of parental involvement in children's secondary education: Connections with high school seniors' academic success. *Social Psychology of Education* 2001;5:149–177.
- Catsambis, S.; Garland, JE. Parental involvement in students' education during middle and high school. Johns Hopkins University, Center for Research on the Education of Students Placed at Risk; Baltimore, MD: 1997. Report No. 18
- Chao, RK. Cultural explanations for the role of parenting in the school success of Asian American children. In: Taylor, RW.; Wang, MC., editors. *Resilience across contexts: Family, work, culture, and community*. Erlbaum; Mahwah, NJ: 2000. p. 333-363.
- Chao, RK.; Kanatsu, A.; Stanoff, N.; Padmawidjaja, I.; Aque, C. Diversities in meaning and practice: The parental involvement of Asian immigrants. In: Hill, NE.; Chao, RK., editors. *Families, schools,*

and the adolescent: Connecting research, policy, and practice. Teachers College Press; New York: 2009. p. 110-125.

- Collins, WA.; Laursen, B. Parent-adolescent relationships and influences. In: Lerner, RM.; Steinberg, L., editors. Handbook of adolescent psychology. Vol. 2nd ed.. Wiley; Hoboken, NJ: 2004. p. 331-362.
- Comer, JP. School power: Implications of an intervention project. Free Press; New York: 1995.
- Connors, LJ.; Epstein, JL. Parents and school partnerships. In: Bornstein, MH., editor. Handbook of parenting. Vol. 4. Erlbaum; Hillsdale, NJ: 1995. p. 437-458.
- Cooper, H. Homework. Longman; New York: 1989.
- Cooper, H. The data analysis stage. In: Cooper, H., editor. Synthesizing research. Vol. 2. Sage Publications; Thousand Oaks, CA: 1998. p. 104-156.
- Cooper, H. The battle over homework: Common ground for administrators, teachers, and parents. Corwin; Thousand Oaks, CA: 2007.
- Cross WE. Tracing the historical origins of youth delinquency and violence: Myths and realities about black culture. *Journal of Social Issues* 2003;59:67-82.
- Dauber, SL.; Epstein, JL. Parents' attitudes and practices of involvement in inner-city elementary and middle schools. Johns Hopkins University, Center for Research on Elementary and Middle Schools; Baltimore, MD: 1989. Report No. 33
- Dauber, SL.; Epstein, JL. Parents' attitudes and practices of involvement in inner-city elementary and middle schools. In: Chavkin, NF., editor. Families and schools in a pluralistic society. State University of New York; Albany, NY: 1993. p. 53-71.
- Dearing E, Kreider H, Simpkins S, Weiss HB. Family involvement in school and low-income children's literacy: Longitudinal association between and within families. *Journal of Educational Psychology* 2006;98:653-664.
- Desimone L. Linking parent involvement with student achievement: Do race and income matter? *Journal of Educational Research* 1999;93:11-30.
- Deutscher, R.; Ibe, M.; Lewis Center for Educational Research. Relationships between parental involvement and children's motivation. n.d.Retrieved in May 2007 from thewebsite, <http://www.lewiscenter.org/research/relationships.pdf>
- Dornbusch, SM.; Glasgow, KL. The structural context of family-school relations. In: Booth, A.; Dunn, JF., editors. Family-school links: How to affect educational outcomes. Erlbaum; Mahwah, NJ: 1996. p. 35-44.
- Driessen G, Smit F, Slegers P. Parental involvement and educational achievement. *British Educational Research Journal* 2005;31:509-532.
- Duncan GJ, Magnuson KA, Ludwig J. The endogeneity problem in developmental studies. *Research in Human Development* 2004;1(1 2):59-80.
- Duval, S. The trim and fill method. In: Rothstein, HR.; Sutton, AJ.; Borenstein, M., editors. Publication bias in meta-analysis: Prevention, assessment and adjustments. Wiley; Hoboken, NJ: 2005. p. 127-144.
- Eamon MK. Social-demographic, school, neighborhood, and parenting influences on the academic achievement of Latino young adolescents. *Journal of Youth and Adolescence* 2005;34:163-174.
- Eccles, JS. Schools, academic motivation, and stage-environment fit. In: Lerner, RM.; Steinberg, LD., editors. Handbook of adolescent psychology. Vol. 2nd ed.. Wiley; New York: 2004. p. 125-153.
- Eccles, JS. Families, schools, and development achievement-related motivations and engagement. In: Grusec, JE.; Hastings, PD., editors. Handbook of socialization: Theory and research. Guilford; New York: 2007. p. 665-691.
- Eccles JS, Harold RD. Parent-school involvement during the early adolescent years. *Teachers College Record* 1993;94:568-587.
- Eccles, JS.; Harold, RD. Family involvement in children's and adolescents' schooling. In: Booth, A.; Dunn, JF., editors. Family-school links: How do they affect educational outcomes. Erlbaum; Mahwah, NJ: 1996. p. 3-34.
- Epstein, JL. Toward a theory of family-school connections: Teacher practices and parent involvement. In: Hurrelman, K.; Kaufman, FX.; Losel, F., editors. Social intervention: Potential and constraints. de Gruyer; Berlin, Germany: 1987. p. 121-136.



- Epstein, JL. School, family, and community partnerships: Preparing educators and improving schools. Westview; Boulder, CO: 2001.
- Epstein, JL.; Salinas, KC.; Jackson, VE. Manual for teachers and prototype activities: Teachers Involve Parents in Schoolwork (TIPS) language arts, science/health, and mathematics interactive homework in the middle grades. Vol. Rev. ed.. Johns Hopkins University, Center on School, Family, and Community Partnerships; Baltimore: 1995.
- Epstein, JL.; Sanders, MG. Family, school, and community partnerships. In: Bornstein, MH., editor. Handbook of parenting: Vol. 5. Practical issues in parenting. Erlbaum; Mahwah, NJ: 2002. p. 507-437.
- Fan X, Chen M. Parental involvement and students' academic achievement: A meta-analysis. *Educational Psychology Review* 2001;13(1):1–22.
- Garcia Bacete FJ, Ramirez JR. Family and personal correlates of academic achievement. *Psychological Reports* 2001;88:533–547. [PubMed: 11351904]
- Grolnick WS, Kurowski CO, Dunlap KG, Hevey C. Parental resources and the transition to junior high. *Journal of Research on Adolescence* 2000;10:465–488.
- Grolnick WS, Price CE, Beiswenger KL, Sauck CC. Evaluative pressure in mothers: Effects of situation, maternal, and child characteristics on autonomy supportive versus controlling behavior. *Developmental Psychology* 2007;43:991–1002. [PubMed: 17605530]
- Grolnick WS, Slowiaczek ML. Parents' involvement in children's schooling: A multidimensional conceptualization and motivational model. *Child Development* 1994;65:237–252. [PubMed: 8131650]
- Grotevant, HS. Adolescent development in family contexts. In: Damon, W.; Eisenberg, N., editors. *Handbook of child psychology: Vol. 3. Social, emotional, and personality development. Vol. 5th ed.* Wiley; New York: 1998. p. 1097-1150.
- Gutman LM, Eccles JS. Financial strain, parenting behaviors, and adolescents' achievement: Testing model equivalence between African American and European American single- and two-parent families. *Child Development* 1999;70:1464–1476. [PubMed: 10621967]
- Gutman LM, Midgley C. The role of protective factors in supporting the academic achievement of poor African American students during the middle school transition. *Journal of Youth and Adolescence* 2000;20:223–248.
- Gutman LM, Sameroff AS, Eccles JS. The academic achievement of African American students during early adolescence: An examination of risk, promotive, and protective factors. *American Journal of Community Psychology* 2002;30:376–399.
- Halpern-Felsher BL, Cauffman E. Costs and benefits of a decision: Decision-making competence in adolescents and adults. *Journal of Applied Developmental Psychology* 2001;22:257–276.
- Hampton FM, Mumford DA, Bond L. Parental involvement in inner city schools: The Project FAST extended family approach to success. *Urban Education* 1998;33:410–427.
- Hao L, Bonstead-Bruns M. Parent-child differences in educational expectations and the academic achievement of immigrant and native students. *Sociology of Education* 1998;71:175–198.
- Hara SR. Parent involvement: The key to improved student achievement. *School Community Journal* 1998;8(2):9–19.
- Harris, A. Dissertation Abstracts International. Vol. 51. Florida State University; 1990. Students' perceptions and attitudes toward parent involvement in academic homework and its relationship to academic achievement; p. 4018 Doctoral dissertation
- Hawas CA, Plourde LA. Parental involvement and its influence on the reading achievement of 6th grade students. *Reading Improvement* 2005;42:47–57.
- Hill NE. Parenting and academic socialization as they relate to school readiness: The role of ethnicity and family income. *Journal of Educational Psychology* 2001;93:686–697.
- Hill NE, Castellino DR, Lansford JE, Nowlin P, Dodge KA, Bates JE, Pettit GS. Parent academic involvement as related to school behavior, achievement, and aspirations: Demographic variations across adolescence. *Child Development* 2004;75:1491–1509. [PubMed: 15369527]
- Hill, NE.; Chao, RK. Families, schools, and the adolescent: Connecting research, policy, and practice. Teachers College Press; New York: 2009.

- Hill NE, Craft SA. Parent-school involvement and school performance: Mediated pathways among socioeconomically comparable African American and Euro-American families. *Journal of Educational Psychology* 2003;95:74–83.
- Hill NE, Taylor LC. Parental school involvement and children's academic achievement: Pragmatics and issues. *Current Directions in Psychological Science* 2004;13:161–164.
- Hill, NE.; Tyson, DF. Family-school involvement: Developmental and demographic variations during the transition to middle school; Paper presented at the Carolina Consortium on Human Development: Series on School Transitions; Chapel Hill, NC. 2005, February;
- Hill, NE.; Tyson, DF.; Bromell, L. Parental involvement in middle school: Developmentally appropriate strategies across SES and ethnicity. In: Hill, NE.; Chao, RK., editors. *Families, schools, and the adolescent: Connecting research, policy, and practice*. Teachers College Press; New York: 2009. p. 53-72.
- Hoover-Dempsey, KV.; Ice, CL.; Whitaker, MC. "We're way past reading together": Why and how parental involvement in adolescence makes sense. In: Hill, NE.; Chao, RK., editors. *Families, schools, and the adolescent: Connecting research, policy, and practice*. Teachers College Press; New York: 2009. p. 19-36.
- Hoover-Dempsey, KV.; Sandler, HM. *Teachers' College Record*. Vol. 97. 1995. Parent involvement in children's education: Why does it make a difference; p. 310-331.
- Hughes D, Rodriguez J, Smith EP, Johnson DJ, Stevenson HC, Spicer P. Parents' ethnic-racial socialization practices: A review of research and directions for future study. *Developmental Psychology* 2006;42:747–770. [PubMed: 16953684]
- Hughes, D. Unpublished raw data. 2004. Data from the Center on Research, Culture, Development and Education on a multiethnic sample of middle school students.
- Jeynes WH. A meta-analysis: The effects of parental involvement on minority children's academic achievement. *Education and Urban Society* 2003;35:202–218.
- Jeynes WH. A meta-analysis of the relation of parental involvement to urban elementary school student academic achievement. *Urban Education* 2005;40:237–269.
- Jeynes WH. The relationship between parental involvement and urban secondary school student academic achievement: A meta-analysis. *Urban Education* 2007;42:82–110.
- Jodl KM, Michael A, Malanchuk O, Eccles JS, Sameroff A. Parents' roles in shaping early adolescents' occupational aspirations. *Child Development* 2001;72:1247–1265. [PubMed: 11480945]
- Jones, N.; Schneider, B. Rethinking the role of parenting: Promoting adolescent academic success and emotional well-being. In: Hill, NE.; Chao, RK., editors. *Families, schools, and the adolescent: Connecting research, policy, and practice*. Teachers College Press; New York: 2009. p. 73-90.
- Jordan, WJ.; Plank, SB. Talent loss among high-achieving poor students. In: Sanders, MG., editor. *Schooling students placed at risk: Research policy and practice in the education of poor and minority adolescents*. Erlbaum; Mahwah, NJ: 2000. p. 83-108.
- Juang LP, Silbereisen RK. The relationship between adolescent academic capability beliefs, parenting and school grades. *Journal of Adolescence* 2002;25:3–18. [PubMed: 12009746]
- Keating, DP. Cognitive and brain development. In: Lerner, RM.; Steinberg, L., editors. *Handbook of adolescent psychology*. Vol. 2nd ed.. Wiley; Hoboken, NJ: 2004. p. 45-84.
- Keisner, JW. *Dissertation Abstracts International*. Vol. 58. University of Oregon; 1997. The effects of a parental homework monitoring intervention on school engagement of high risk middle school students; p. 0980Doctoral dissertation1997
- Keith PB, Lichtman MV. Does parental involvement influence the academic achievement of Mexican-American eighth graders? Results from the National Education Longitudinal Study. *School Psychology Quarterly* 1994;9:256–273.
- Keith TZ, Keith PB, Troutman GC, Bickley PG. Does parental involvement affect eighth-grade student achievement? Structural analysis of national data. *School Psychology Review* 1993;22:474–496.
- Kelly S. Do increased levels of parental involvement account for social class differences in track placement? *Social Science Research* 2004;33:626–659.
- Kim E. The relationship between parental involvement and children's educational achievement in the Korean immigrant family. *Journal of Comparative Family Studies* 2002;33:529–563.

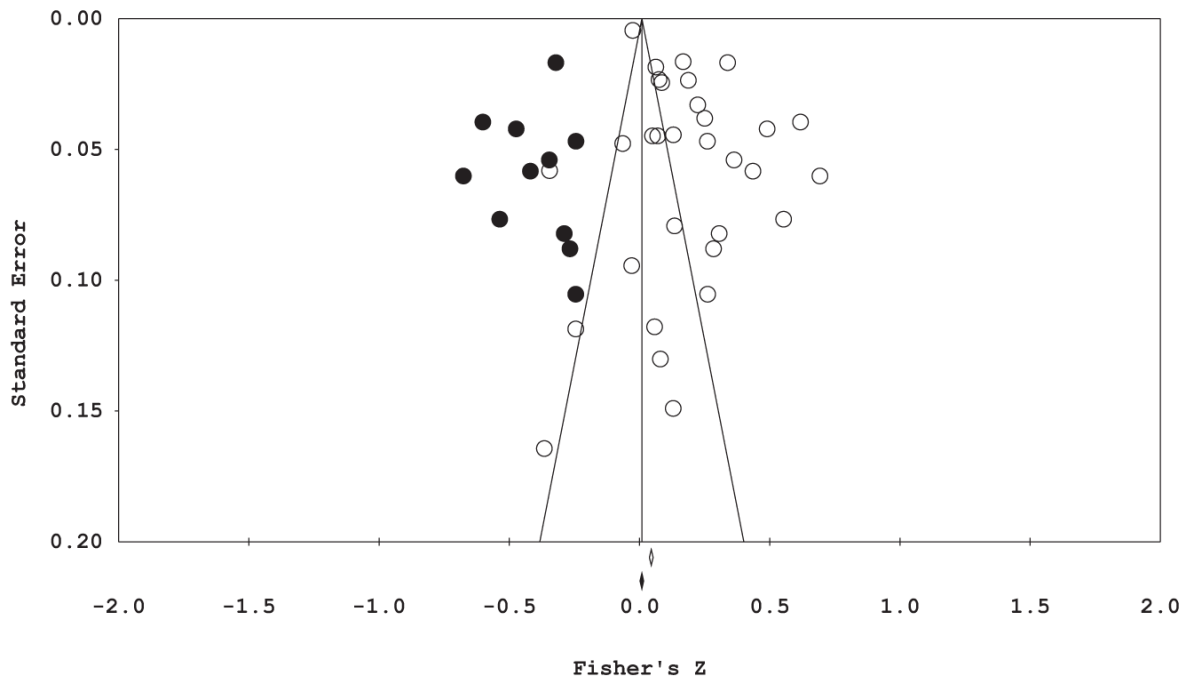
- Kim K, Rohner RP. Parental warmth, control, and involvement in schooling: Predicting academic achievement among Korean American adolescents. *Journal of Cross-Cultural Psychology* 2002;33:127–140.
- Kohl GO, Lengua LJ, McMahon RJ, the Conduct Problems Prevention Research Group. Parent involvement in school: Conceptualizing multiple dimensions and their relations with family and demographic risk factors. *Journal of School Psychology* 2000;38:501–538.
- Lareau A. Social class differences in family-school relationships: The importance of cultural capital. *Sociology of Education* 1987;60:73–85.
- Lareau, A. *Unequal childhoods: Class, race and family life*. University of California; Berkeley, CA: 2003.
- Lareau A, Horvat EM. Moments of social inclusion and exclusion: Race, class, and cultural capital in family-school relationships. *Sociology of Education* 1999;72:37–53.
- Latendresse, S. Dissertation Abstracts International, Session B: The Sciences and Engineering. Vol. 65. 2005. Perceptions of parenting among affluent youth: Exploring antecedents of middle school adjustment trajectories; p. 3746 Doctoral dissertation
- Lerner, RM.; Steinberg, LD., editors. *Handbook of adolescent psychology*. Vol. 2nd ed.. Wiley; New York: 2004.
- Lynch EW, Stein RC. Parent participation by ethnicity: A comparison of Hispanic, Black and Anglo families. *Exceptional Children* 1987;54(2):105–111. [PubMed: 3678330]
- Ma X. Dropping out of advanced mathematics: The effects of parental involvement. *Teachers College Record* 1999;101:60–81.
- Marchant GJ, Paulson SE, Rothlisberg BA. Relations of middle school students' perceptions of family and school contexts with academic achievement. *Psychology in the Schools* 2001;38:505–519.
- McNeal RB. Parental involvement as social capital: Differential effectiveness on science achievement, truancy, and dropping out. *Social Forces* 1999;78:117–144.
- Melby JN, Conger RD. Parental behaviors and adolescent academic performance: A longitudinal analysis. *Journal of Research on Adolescence* 1996;6:113–137.
- Miller, JD.; Kimmel, L.; Hoffer, T.; Nelson, C. *Longitudinal study of American youth: User's manual*. International Center for the Advancement of Scientific Literacy at Northwestern University; Chicago: 2001.
- Muller C. Maternal employment, parent involvement, and mathematics achievement among adolescents. *Journal of Marriage & the Family* 1995;57:85–100.
- National Education Longitudinal Study of 1988. National Center for Education Statistics; Washington, DC: Data file
- National Longitudinal Survey of Youth. Bureau of Labor Statistics; Washington, DC: 1997. Data file
- No Child Left Behind Act of 2001. 2002. Pub. L. No. 107-110, 114 Stat. 1425 Retrieved February 26, 2009, from <http://www.ed.gov/policy/elsec/leg/esea02/107-110.pdf>
- Ogbu, JU. *Minority education and caste: The American system in cross-cultural perspective*. Academic Press; New York: 1978.
- Pelegrina S, García-Linares M, Casanovam PF. Adolescents and their parents' perceptions about parenting characteristics. Who can better predict the adolescent's academic competence? *Journal of Adolescence* 2003;26:651–665. [PubMed: 14643738]
- Peng SS, Wright D. Explanation of academic achievement of Asian American students. *Journal of Educational Research* 1994;87:346–352.
- Prescott BL, Pelton CL, Dornbusch SM. Teacher perceptions of parent-school communication: A collaborative analysis. *Teacher Education Quarterly* 1986;13:67–83.
- Reynolds AJ, Gill S. The role of parental perspectives in the school adjustment of inner-city Black children. *Journal of Youth and Adolescence* 1994;23:671–695.
- Rillero, P.; Helgeson, SL. An evaluation of the use of hands-on science homework assignments by sixth grade students and their parents; Paper presented at the annual meeting of the National Association for Research in Science Teaching; San Francisco, CA. 1995, April;
- Rosenthal, R. *Meta-analytic procedures for social research*. Vol. Rev. ed.. Sage; Newbury Park, CA: 1991.

- Salazar LP, Schuldermann SM, Schuldermann EH, Huynh CM. Filipino adolescents' parental socialization for academic achievement in the United States. *Journal of Adolescent Research* 2000;15:564–586.
- Sanders, MG.; Epstein, JL. Building school-family-community partnerships in middle and high schools. In: Sanders, MG., editor. *Schooling students placed at risk: Research, policy, and practice in the education of poor and minority adolescents*. Erlbaum; Mahwah, NJ: 2000. p. 339-361.
- Seginer R. Parents' educational involvement: A developmental ecological perspective. *Parenting: Science and Practice* 2006;6:1–48.
- Seidman E, Allen L, Aber JL, Mitchell C, Feinman J. The impact of school transitions in early adolescence on the self-system and perceived social context of poor urban youth. *Child Development* 1994;65:507–522. [PubMed: 8013237]
- Seidman E, Lambert LE, Allen L, Aber JL. Urban adolescents' transition to junior high school and protective family transactions. *Journal of Early Adolescence* 2003;23:166–193.
- Seyfried SF, Chung IJ. Parent involvement as parental monitoring of student motivation and parent expectations predicting later achievement among African American and European American middle school age students. *Journal of Ethnic & Cultural Diversity in Social Work* 2002;11:109–131.
- Shumow L, Lomax R. Parental efficacy: Predictor of parenting behavior and adolescent outcomes. *Parenting: Science and Practice* 2002;2:127–150.
- Shumow L, Miller JD. Parents' at-home and at-school academic involvement with young adolescents. *Journal of Early Adolescence* 2001;21:68–91.
- Singh K, Bickley P, Trivette P, Keith TZ, Keith PB, Anderson E. The effects of four components of parental involvement on eighth grade student achievement: Structural analysis of NELS-88 data. *School Psychology Review* 1995;24:299–317.
- Sirin SR, Rogers-Sirin L. Exploring school engagement of middle-class African American adolescents. *Youth & Society* 2004;35:323–340.
- Smetana JG, Campione-Barr N, Daddis C. Longitudinal development of family decision making: Defining healthy behavioral autonomy for middle class African American adolescents. *Child Development* 2004;75:1418–1434. [PubMed: 15369523]
- Spencer, MB.; Cross, WE.; Harpalani, V.; Goss, TN. Historical and developmental perspectives on Black academic achievement: Debunking the “acting White” myth and posing new directions for research. In: Yeakey, CC.; Henderson, RD., editors. *Surmounting all odds: Education, opportunity, and society in the new millennium*. Information Age; Greenwich, CT: 2003. p. 273-303.
- Steinberg L, Lamborn SD, Dornbusch SM, Darling N. Impact of parenting on adolescent achievement: Authoritative parenting, school involvement, and encouragement to succeed. *Child Development* 1992;63:1266–1281. [PubMed: 1446552]
- Steinberg, L.; Silk, JS. Parenting adolescents. In: Bornstein, MH., editor. *Handbook on parenting*. Vol. 1. Erlbaum; Mahwah, NJ: 2002. p. 103-134.
- Stevenson DL, Baker DP. The family-school relation and the child's school performance. *Child Development* 1987;58:1348–1357. [PubMed: 3665650]
- Sui-Chi HE, Willms DJ. Effects of parental involvement on eighth-grade achievement. *Sociology of Education* 1996;69:126–141.
- Survey of Parents and Children. Inter-University Consortium for Political and Social Research; Ann Arbor, MI: 1990. Data filedoi: 10.3886/ICPSR09595
- Tamayo, LF. Dissertation Abstracts International. Vol. 53. University of Massachusetts; 1992. Hispanic parent monitoring of seventh grade mathematics homework assignments and relationship with achievement and self-esteem; p. 1805 Doctoral dissertation 1992
- Taylor S, Tweedie R. Trim and fill: A simple funnel plot based method of testing and adjusting for publication bias in meta-analysis. *Biometrics* 2000;56:455–463. [PubMed: 10877304]
- Toney, LP.; Kelley, ML.; Lanclos, NF. *Child and Family Behavior Therapy*. Vol. 25. 2003. Self- and parental monitoring of homework in adolescents: Comparative effects on parents' perceptions of homework behavior problems; p. 35-51.
- Useem EL. Middle schools and math groups: Parents' involvement in children's placement. *Sociology of Education* 1992;65:263–279.

- Van Voorhis F. Interactive homework in middle school: Effects on family involvement and science achievement. *Journal of Educational Research* 2003;96:323–338.
- Wigfield, A.; Byrnes, JP.; Eccles, JS. Development during early and middle adolescence. In: Alexander, PA.; Winne, PH., editors. *Handbook of educational psychology*. Vol. 2nd ed.. Erlbaum; Mahwah, NJ: 2006. p. 87-113.
- Wolf, RM. Achievement in the United States. In: Walberg, HJ., editor. *Educational environments and effects*. McCutchan; Berkeley, CA: 1979. p. 313-330.
- Xu J, Corno L. Family help and homework management reported by middle school students. *Elementary School Journal* 2003;103:503–517.



## Funnel Plot of Standard Error by Fisher's Z



**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.

**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) General academic strategies (used a tutor, used sanctions in reaction to school grades) High school course selection (selecting college preparatory course for high school) Homework help	Academic socialization			+0.24
Balli et al. (1997) Journal article	74	6th		School-based			+0.10
Bandura et al. (1996) Journal article	279	6th & 7th; cross-sectional	Communicating career aspirations	Home-based			-0.05
Bronstein et al. (2005) Journal article	77	7th	Homework surveillance ("What percentage of the time do you <b>remind</b> your child to do his/her homework?") Homework surveillance ("What proportion of the time do you <b>insist</b> that your child do his/her homework?")	General involvement Academic socialization Home-based	Reading achievement: -0.24		-0.35 +0.73
Driessen et al. (2005) Journal article	12,000	8th	Homework help Parents ask for information about school matters Leisure involvement (go to exhibitions, museums) Meetings with teacher Attending school events 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) Mother cognitive involvement (encouraging reading newspapers and books, talking about current events, taking child to the library or museum) Father behavioral involvement Father personal involvement	Academic socialization	Total battery of Stanford achievement: -0.35 Total battery of Stanford achievement: -0.20		-0.49 -0.27
Garcia Bacete & Ramirez (2001) Journal article	150	7th (in Spain)		Home-based School-based Home-based School-based School-based	Language: -0.12 Language: -0.01 Language: +0.13		+0.39 +0.43 +0.30
Grolnick & Slowiaczek (1994) Journal article	302	6th, 7th, & 8th; cross-sectional		Academic socialization			+0.17
Grolnick et al. (2000) Journal article	60	6th	Father cognitive involvement (includes participating in events at child's school)	Home-based School-based Academic socialization Home-based School-based		+0.33	+0.14 +0.19 +0.17 +0.14
							+0.29

Author (year) and publication type	Sample size	Grade	Type of parent involvement	Category for meta-analysis	Outcome measure		
					Reading	Math	GPA
Gutman & Eccles (1999) Journal article	617	7th; two waves (longitudinal)	Cognitive involvement (intellectually stimulating activities, going to the library, discussing current events) Personal involvement (parent knows classmates, knows when report card comes out) Classroom volunteer Open house attendance PTA attendance General involvement (checking homework, working as a school program supporter, chaperoning field trips, discussing assignments)	Home-based  Academic socialization School-based School-based School-based General involvement	+42  +35  +27	+42  +14 +25 +10 +07	
Gutman & Midgley (2000) Journal article	62	5th (students pre- and post transition to middle school)	Parent school involvement (parent serves on school staff, advocate, decision maker) Homework help (estimate of the extent of parental awareness and support of homework, frequency of assignments that requested parent help)	School-based Home-based	Test scores: +.18 Language test scores: -.03 Test scores: -.01	Standardized test scores: +.07 Test scores: -.02	
Gutman et al. (2002) Journal article	837	7th	Communicating with teacher	School-based	Test scores: -.23	+10	
Harris (1990) Dissertation	76	8th			Language test scores: -.28 Reading comprehension test: +.13		
Hawes & Plourde (2005) Journal article	48	6th	General parent involvement (time spent helping with homework or reading, time spent conferencing with teachers)	General involvement			
Hughes et al. (2006) Unpublished data	90 European American	6th; correlations provided by ethnicity	School involvement Home involvement Parents' academic expectations	School-based Home-based Academic socialization		+19, +18 +26, +01 +31, +06	
Hughes et al. (2006) Unpublished data	183 African American		School involvement Home involvement Parents' academic expectations	School-based Home-based Academic socialization		+16, +17 -.02, +12 +39, -11	
Jodl et al. (2001) Journal article	183 Chinese American		School involvement Home involvement Parents' academic expectations	School-based Home-based Academic socialization		-07, -31 +28, +26 +23, +10	
Jodl et al. (2001) Journal article	161 Hispanic		School involvement Home involvement Parents' academic expectations	School-based Home-based Academic socialization		+27, +11 -22, +12 +19, +03	
Jodl et al. (2001) Journal article	444	7th	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 Father Mother Father	+09 +13 +19 +06	

Author (year) and publication type	Sample size	Grade	Type of parent involvement	Category for meta-analysis	Outcome measure		GPA
					Reading	Math	
Juang & Silbereisen (2002) Journal article	641	6th (German sample)	Parents' value of education ("What are the chances your child will do well in junior high, high school, and college?") Educational expectations/aspirations for youth ("How far would you like your child to go in school?") Parent involvement (educational encouragement and stimulation, interest in adolescent's schooling)	Academic socialization	Mother Father	+;.59 +.60	
Latendresse (2005) Dissertation	309	6th	Parent expectations (parents expect excellence and have high expectations for children)	Academic socialization	Mother Father	+;.35 +.42	
Marchant et al. (2001) Journal article	230	5th & 6th; cross-sectional	Parent values and attitudes about the importance of academic success	Academic socialization		+;.52	
Reynolds & Gill (1994)	729	6th; longitudinal	School involvement (attending school events and functions) School involvement (participation in school activities, talks to teacher about child progress, PTA)	School-based	Standardized test scores: +.12	+;.26	
Seidman et al. (2003) Journal article	500	6th & 7th; longitudinal	Going to the museum, zoo	Home-based		+;.07	
Seyfried & Chung (2002) Journal article	372 European American 195 African American	5th grade	Leisure time involvement (participating in social, cultural, and athletic events) Expectations/career aspirations	Home-based	+;.10	+;.53	
Sirin & Rogers-Sirin (2004) Journal article	75	7th & 8th; cross-sectional	Communicating the value of education; obtained through email	Academic socialization		+;.29	
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)	Academic socialization	Standardized test scores: +.11	+;.06 <sup>d</sup>	
Xu & Corno (2003) Journal article	118	6th	Parent intervention (acting on behalf of child with teachers to change or "customize" the educational experience) Help with homework	Academic socialization Home-based		+;.56 +.57 +.43 -.03	

<sup>d</sup>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.

**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 Standard test: +.11	Grade: +.09 Standard test: -.00	
				Student report	Grade: +.06 Standard test: +.04	Grade: +.11 Standard test: -.01	
				Teacher report	Grade: +.08 Standard test: +.14	Grade: +.06 Standard test: +.14	
Melby & Conger (1996) Journal article	347	7th grade students tested at four waves 8th grade parent involvement predicting 11th grade GPA	General involvement (setting standards for behavior, such as completing schoolwork)	General involvement			+ .22 + .27

*Note.* GPA = grade point average.



## Interventions

Table 4

Author (year) and publication type	Sample size		Grade	Type of parent intervention	Category for meta-analysis	Outcome measure	Pearson's $r^d$
	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	$r = -.06$
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	Cumulative math achievement test Class grades Science homework	$r = -.26$
Tamayo (1992) Dissertation	16	15	7th	Parents received instruction for monitoring math homework; control group parents received no instruction	Home-based	Math grade Homework Stanford	None provided; results reported as significant, entered as $r = .20^b$
Van Voorhis (2003) Journal article	146	107	6th & 8th	TIPS intervention (Epstein et al., 1995) used in science classes	Home-based	achievement test Homework grades Science class grades	$r = -.07$ $r = -.06$ $r = -.08$

<sup>a</sup>For consistency of data presentation, the  $d$  indexes for the quasi-experimental studies have been converted to Pearson's  $r$ s.

<sup>b</sup>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.

**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) <sup>a</sup> Journal article	19,386 NELS 8th grade students; 13,483 European American <sup>b</sup>	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	$\beta = .03$	$p = .001$	
			Discussion with child about high school	$\beta = -.06$	$p = .057$	
			Talk w/parents about post-high school plans	$\beta = .05$	$p = .030$	
			2,334 African American			Volunteering or fundraising
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	$\beta = .02$	$p = .007$				
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>				
Discussion with child about high school	$\beta = -.06$	<i>ns</i>				
Talk w/parents about post-high school plans	$\beta = -.04$	<i>ns</i>				
1,201 Asian			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>	

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	Rules about TV, friends, and chores Parents check homework Contact school about academics Discussion with parents about school Talk with father about planning high school programs Social capital: knowing parents of child's friends Parent expectations for schooling	HLM estimate Math Reading GPA Math track placement	$\beta = .05$ $\beta = -.09$ $\beta = -.08$ $\beta = .08$ $\beta = -.09$ $\beta = -.03$	<i>ns</i> $p = .001$ $p = .005$ $p = .010$ $p = .045$ $p = .015$
Kelly (2004) Journal article	13,548 NELS (Parent involvement in 8th grade predicting math track placement in 9th grade)	Logit models	Block One Parental education Parental income Parental occupation Block Two Skipped a grade Held back a grade Parent decides which courses student takes Parent requested current math course Number of times parent contacted school about academic program Neutral contact with school (volunteer, fundraising) Involvement in PTO activities Discussion about school Talking about school Parent knows parents of student's friends (Controlling for GPA, hours worked, hours of homework, having been retained a grade in school, and gender)		0.27 -0.32 0.0074 0.42 -0.049 -0.15 0.11 0.021 0.029 -0.0037	$p < .001$ $p < .05$ $p < .01$ $p < .005$
McNeal (1999) <sup>c</sup> Journal article	11,401 NELS (8th grade parent involvement predicting achievement in 10th grade)	Not specified	Black Hispanic Asian SES Base-achievement Single-headed household Social capital Parent-child discussion PTO involvement Monitoring Educational support strategies Block One 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		0.150 -0.115 -0.071 -0.014	$p < .01$ $p < .01$ $p < .10$
Muller (1995) Journal article	13,881 NELS students (analysis of 8th grade test scores)	Hierarchical multiple regression		8th grade mathematics achievement test score		

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	Talk about school experiences Talk about high school program w/father w/mother Parents check homework Parents restrict TV Child enrolled in extra music class Time unsupervised after school Number of friends; parents know PTO participation Parents contact school Parent volunteers at school Asian vs. Hispanic Asian vs. Black Asian vs. White Asian vs. Indian School control Parental education Family income Family composition Homework Television Educational activity Outside classes Educational aspirations Discuss school Assist in homework Adjusted school mean SES, family and student background, parent involvement factors	Achievement test scores	$b = -1.053$  $b = -0.231$ $b = -0.653$ $b = 0.058$	$p < .001$  $p < .01$ $p < .001$ <i>ns</i>
Sui-Chi & Willms (1996) Journal article	25,000 NELS (8th grade)	Hierarchical linear modeling	Home discussion (talks with parents, discusses school activities) Home supervision (monitor homework, limits TV time, home after school) School communication (school contacts parents, parents contact school) School participation (volunteer at school, PTO)	Achievement test scores  Reading Math Reading Math Reading Math Reading Math	$\beta = .25$ $\beta = -.03$ $\beta = -.17$  $\beta = .124$ $\beta = .124$ $\beta = .009$ $\beta = .033$ $\beta = -.051$ $\beta = -.056$ $\beta = .030$ $\beta = .026$	$p < .01$ $p < .01$ $p < .01$ <i>ns</i> $p < .01$ $p < .01$ $p < .01$ $p < .01$ $p < .01$ $p < .01$ $p < .01$

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

<sup>a</sup> 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.

<sup>b</sup> Results are presented by ethnicity and SES in the article.

<sup>c</sup> Actual report also includes a breakdown by ethnicity. However, for the purposes of this report, we used results that were collapsed across ethnic groups.

**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 & Lichman (1994) Journal article	1,714 NELS Mexican American 8th grade students	SEM	Parent involvement composite	Overall GPA	$\beta = .12$	$p < .05$
				Reading	$\beta = .12$	$p < .05$
				Math	$\beta = .08$	$p < .05$
				Science	$\beta = .10$	$p < .05$
				Social studies	$\beta = .12$	$p < .05$
Singh et al. (1995) Journal article	25,000 NELS 8th grade students	SEM	Parent aspirations Participation at school Home environment	GPA	$\beta = .28$	Not mentioned
					$\beta = -.02$	
					$\beta = -.10$	

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

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

Author (year) and publication type	Sample characteristics	Modeling technique	Predictor variables <sup>a</sup>	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> <i>Parent expectations</i> <i>Parent college planning</i> <i>Volunteering</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	<sup>b</sup> Parent expectations and college planning linked to increased achievement. <sup>b</sup> Students of parents who volunteer were 9 times more likely to take advanced mathematics in Grade 12.	$p < .001$ $p < .001$
Shumow & Miller (2001) Journal article	1,670 seventh and 8th grade students from the LSAY <sup>c</sup>	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	$\beta = -.10$ $\beta = -.14$ $\beta = .05$ $\beta = .02$	$p < .01$ ns $p < .01$ ns

Note. NLSY = National Longitudinal Survey of Youth; LSAY = Longitudinal Study of Adolescent Youth; GPA = grade point average; AFQT = Armed Forces Qualification Test Score.

<sup>a</sup>Predictor variables in italics are the parent involvement variables; regression coefficients for each parent involvement predictor available are listed.

<sup>b</sup>No effect size reported.

<sup>c</sup>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 English Math Math Math	+0.19 +0.23 -0.29 +0.28
Pelegrina 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)	+0.29
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)	+0.28
Shumow & Lomax (2002) Journal article	929 students (677 mothers, 322 fathers)	10- to 17-year-old students	Parent involvement (attending events and activities, talking to teachers, attending PTA meetings)	School-based	GPA (overall) GPA European Americans GPA African Americans	+0.21 +0.21 +0.24
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 Latinos Child performance (i.e. how well is the student performing relative to his/her ability, rated on a scale from 1 to 5)	+0.16 +0.34

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

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

**Table 9**

Analysis	k	r	95% CI		Q <sub>w</sub>
			Low estimate	High estimate	
<b>Overall</b>	<b>32.04**</b>	<b>(.18)</b>	<b>.04 (.12)</b>	<b>.05 (.24)</b>	<b>1,581.10***</b>
<b>Moderators</b>					
Type of parent involvement					<i>Q<sub>b</sub></i>
School-based	21	.19**	.10	.21	1,206.92*** (.38.10)
Home-based	19	.03, <i>ns</i>	-.02	.11	
Academic socialization	16	.39**	.26	.44	
Type of home-based involvement					
Help with homework	6	-.11**	-.04	-.25	937.81*** (7.61)*
Activities at home	5	.12	.05	.19	
Ethnicity					
African American	7	.11**	.05	.17	32.67** (1.80), <i>ns</i>
European American	11	.19**	.09	.29	

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

\*  $p < .005$ .

\*\*\*  $p < .0001$ .