

## Evidence-Based Parent Involvement Interventions with School-Aged Children

Maria Fishel and Lucila Ramirez  
*University of Texas at Austin*

This paper reviewed 24 studies of parent involvement for school-aged children conducted between 1980 and 2002 and evaluated them according to the criteria developed by the Task Force on Evidence-Based Interventions in School Psychology. The parent involvement component of all studies had parents helping children learn at home, with most targeting a change in academic performance, including reading skills, mathematics skills, spelling, and homework completion. Results yielded a wide range of treatment effectiveness. The strongest evidence for parent involvement was provided for programs that implemented parent tutoring in the home and targeted a single academic problem of the elementary school-aged child, primarily reading and mathematics skills. Despite promising evidence for the effectiveness of parent home tutoring, it was concluded that the evidence base for the effectiveness of parent involvement as an intervention for children's academic problems is inconclusive due to methodological weaknesses in the studies reviewed. Recommendations for future empirical research are provided.

This article reviewed and evaluated parent involvement interventions with school-aged children according to the set of comprehensive criteria proposed as best practices by the American Psychological Association's Division 16 Task Force on Evidence-Based Interventions in School Psychology (hereafter referred to as Task Force) (Division 16 and Society for the Study of School Psychology Task Force, 2003). Parent involvement<sup>1</sup> generally refers to the participation of significant caregivers (including parents, grandparents, stepparents, foster parents, etc.) in the educational process of their children in order to promote their academic and social well-being (Wolfendale, 1983). For most of the 20th century, American schools were considered solely responsible for children's educa-

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<sup>1</sup>Parent involvement and parent participation are used interchangeably throughout this paper.

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Address correspondence to Maria Fishel, Department of Educational Psychology, 1 University Station, Mail Station D5800, The University of Texas at Austin, Austin, TX 78712-0383; E-mail: m\_fishel@swbell.net.

tion, and parent involvement was ignored or downplayed by educators and researchers (Zellman & Waterman, 1998). Reforms to increase academic achievement that focused exclusively on the school or classroom, however, have had limited success (Christenson, Hurley, Sheridan, & Fenstermacher, 1997). Declines in the educational outcomes of students, in combination with significant changes in the social demographics of the family, raised the possibility that educational deficits were related to factors in the home environment. This perspective has made parent involvement a priority in current national educational and social policy (Zellman & Waterman, 1998).

Advocacy for parent involvement in education is intrinsic to numerous federal initiatives, beginning in the 1960s with Head Start, and reflected today in the No Child Left Behind Act of 2001 (NCLB). Head Start provided educational interventions during the preschool years for economically disadvantaged children that included a broad parent component. Other federal projects promoting parent participation followed, including Title I of the Elementary and Secondary Education Act in 1965 and Project Follow Through in 1968 (Doernberger & Zigler, 1993). Title I broadened parental roles by mandating increased consultation and collaboration with parents (Arroyo & Zigler, 1993). Project Follow Through was effective at increasing parent participation in tutoring, volunteering, school governance, and parent education, but funding cuts undermined its initial success (Zigler & Styfco, 1993). Judicial support for the involvement of parents in the education of their children came in the 1970s and 1980s with the passage of the federal statute Public Law (PL) 94-142 (also known as Individuals with Disabilities Education Act, or IDEA) and the Education of the Handicapped Amendments of 1986 (PL 99-457). More recently, we have witnessed a consensus in policies on the local, state, and federal levels regarding the benefits of parent participation in education (Chrispeels, 1996; Mattingly, Prislin, McKenzie, Rodriguez, & Kayzar, 2002). The reauthorization of Title I by Congress in 1994 makes it clear that parent involvement at the state, district, and school levels is now viewed as crucial to student success. Increasing parent involvement in promoting children's academic, social, and emotional development was also recognized as one of the objectives included in Goals 2000: Educate America Act (U.S. Department of Education, 1996). Most recently, Section 1118 of the NCLB Act of 2001 (U.S. Department of Education, 2002) requires each school district that receives Title I funds to implement programs, activities, and procedures for the involvement of parents with participating children, including those with limited English proficiency, disabilities, and migrant children. In sum, numerous federal legislative initiatives, based on the assumption that parents are an important contributor to children's academic success and social well-being at school, have mandated the implementation of parent involvement programs and procedures (Christenson, Rounds, & Gorney, 1992; Wolfendale, 1983). Notwithstanding the considerable research that confirms the important role played by parents in the school-related success of children, the question remains: Are parent involvement programs effective in changing parents' behavior such

that children's performance at school is positively affected? The purpose of this review is to answer this question.

### DEFINING PARENT INVOLVEMENT

The definition of parent involvement has changed throughout the years from an exclusive focus on specific activities and roles played by caregivers to an inclusive emphasis on a wide range of parent activities that support children's learning. Specific activities defined as parent involvement in early studies included support with homework, school-home notes, school-based parent workshops with few ties to curriculum, as well as encouragement of parents to "join the PTA, provide merchandise for the bake sale, and show up at times specified by the school" (Chrispeels, 1996; Zellman & Waterman, 1998, p. 370). The most widely cited contemporary definition of parent involvement is one based on a typology proposed by Joyce Epstein and her colleagues (Epstein, 1987; Epstein, 1995). This classification consists of six categories, including (1) parenting (i.e., parents' responsibility to provide for children's basic needs of food, shelter, emotional support, etc., throughout their developmental years), (2) communicating (i.e., parents and school staying in contact), (3) learning at home (i.e., practices occurring at home in which parents interact, monitor, or assist their children in educationally related activities), (4) volunteering and/or attending (i.e., all activities in which the parents come to the school setting to either help or support), (5) decision making (i.e., parents participating in parent-teacher organizations and school advisory or governance), and (6) community connections (parents collaborating with community and other outside agencies to facilitate students' education). Epstein's typology owes its popularity to the ease with which it translates into the range of parent activities that can be implemented in the schools (Bauch, 1994).

Although many research studies continue to use Epstein's activity-based categories, rival perspectives on the construct of parent involvement have emerged. One such conceptualization views parent involvement systemically, as a home-school-community partnership (e.g., Chrispeels, 1996; Comer & Haynes, 1991; Smith, Connelly, Sizer, & Norman, 1997) that implies reciprocal interactions between the individual, family, and community. Christenson (1995), in contrast, views parent involvement and home-school partnership as distinct. Whereas the goals of the parents and the schools are mutually agreed upon and responsibilities are shared in home-school partnership, in parent involvement, schools and parents are often unequal partners working toward a common goal because parent participation is initiated or directed by the school. Thus, according to Christenson (1995), parent involvement is a one-way flow of information. Yet another challenge to Epstein's typology-based definition of parent involvement has been posed by those who argue that parent involvement is a multidimensional variable (e.g., Grolnick & Slowiaczek, 1994), which includes a varying number of behavioral, personal, and intellectual components. These components could have a di-

rect or moderating effect on the student outcomes. Although the definition of parent involvement continues to evolve, the majority of research studies on the effects of parent involvement programs either use or are consistent with the activity-based typological definition proposed by Epstein (1987, 1995). Thus, this review uses Epstein's typology to define parent involvement. Consistent with the distinction between parent involvement and home-school partnership/collaboration made by Christenson (1995), this review is limited to parent involvement programs. Studies involving home-school collaboration were examined elsewhere in this issue (see article by D. Cox).

### PARENT INVOLVEMENT: BRIEF REVIEW OF EVIDENCE

The benefits of parent involvement in education have been the focus of research for several decades (Christenson et al., 1997; Grolnick & Slowiaczek, 1994). The importance of parental involvement in education was underscored in the research of Stevenson and Stigler (1992) who found that differences between the achievement of Asian and U.S. students were related to the more active maternal involvement in education of the former (Zellman & Waterman, 1998). Parent involvement studies target primarily a change in academic achievement, and educational researchers tend to focus on a single specific parent involvement activity at a time (e.g., helping children with homework, frequency of family-school contacts, or participation in school activities and functions) (Grolnick & Slowiaczek, 1994).

Similarly, most reviews of parent involvement have focused on a subset of parent involvement behaviors. Toomey (1993) reviewed over 40 mostly British and Australasian studies, with and without a control group, in which parents listened to their children read at home. He concluded that studies with an explicit "parent training" component (where parents not only received explanation and modeled appropriate behaviors, but also were monitored and received guided practice) were more successful than studies without parent training. Miller and Kelley (1991), when examining the body of research on parent involvement in homework, found no consistent support for a positive association between parent participation in homework and academic achievement. In contrast, a more recent review of this literature by Hoover-Dempsey and colleagues (2001) concluded that parent involvement in homework was positively related to student achievement, although the authors noted that the influence may be mostly indirect, via moderating variables. Bempechat's (1992) review of literature examined descriptive and correlational studies in several areas of parent involvement, including socialization practices, parent education, and parent involvement programs. She concluded that parent involvement is positively associated with children's academic performance.

Overall, the effects of parent involvement on children's academic performance have been inconclusive, with some research studies yielding results supporting the beneficial role of parent involvement (e.g., Christenson et al., 1992;

Epstein, 1991; Keith, et al., 1993; Shaver & Walls, 1998; Zellman & Waterman, 1998), whereas the results of other studies are less promising (e.g., Keith, Reimers, Fehrman, Pottebaum, & Aubey, 1986; Natriello & McDill, 1986). Unfortunately, the parent involvement literature is characterized by a prevalence of descriptive and nonexperimental studies, many with archival data, which have used correlational analytic methods (e.g., Epstein, 1991; Falbo, Lein, & Amador, 2001; Keith et al., 1993; Zellman & Waterman, 1998). Despite methodological weaknesses in the literature, most researchers and reviewers of research tend to concur that parent involvement is associated with achievement gains for students (e.g., Bempechat, 1992; Zellman & Waterman, 1998).

The most comprehensive evaluation of the parent involvement literature to date was recently completed by Mattingly and colleagues (2002). The authors analyzed the effectiveness of 41 parent involvement programs that included an evaluation of study characteristics, research design, significant outcomes, and data analytic methods. Mattingly et al. found insufficient empirical evidence for the positive effect of parent involvement on either the academic or social well-being of children. Because the Mattingly et al. review of the parent involvement literature bears a close resemblance to the current review, a clarification of the distinctions is relevant. The differences lie primarily in the inclusion criteria, goals, and evaluation methods. First, the Mattingly et al. criteria were more inclusive. Mattingly et al. used a broad definition of parent involvement, which allowed for the inclusion of home-school collaboration programs. These reviewers also included multicomponent programs that did not isolate the parent involvement component, programs without control groups, programs with post-test data only, and studies that used qualitative interview and survey data. In terms of goals, Mattingly et al.'s review aimed at pinpointing how the effectiveness of programs differed based on the quality of methodology. They did not evaluate the effectiveness of each program separately; therefore, the reader could not draw clear conclusions about which assessment, design, or methodology flaws might have influenced the effectiveness of the interventions. In comparison with the current review, Mattingly et al. used an effectiveness ratio and not an effect size. Thus, Mattingly et al. provide a methodological review of the parent involvement literature but provide the practitioner with little guidance regarding evidence-based parent involvement interventions.

In summary, reviews of the evidence supporting the effectiveness of parent involvement in enhancing the academic performance of children are inconclusive. Clarifying the evidence that supports the beneficial impact of parent involvement programs on children's school outcomes is paramount given its financial and social importance in education (Mattingly et al., 2002). This review used a standardized coding system to compare the effectiveness of parent involvement programs. To clarify the unique effect of parent involvement on children's performance in school, the review was limited to studies in which the parent involvement component was identifiable and child outcomes were measured.

## METHODS

### Review Strategy

The present review encompassed empirical studies of parent involvement published between 1980 and early 2003. Only studies with a target population of school-aged children and adolescents (K–12) were included. To find appropriate studies, the authors conducted a thorough search of relevant databases. Search terms included but were not limited to the general terms of “parent involvement,” “parent participation” and more specific activities involving parents, such as “parent tutoring,” “parent volunteering,” and “parenting.” To narrow the wealth of studies, the terms above were crossed with outcome-related terms such as “academic achievement,” “education,” “behavior,” and/or “school.” In addition, a manual search was conducted by tracking the relevant references in articles and books on parent involvement. This process yielded hundreds of studies of varying quality and design, requiring refinement in the selection of appropriate studies for this review.

Several exclusion criteria were applied to the initial pool of studies. Descriptive studies, case studies, and correlational studies were excluded. Studies were included only if they measured a behavioral outcome, included a control group (applied only to group design studies), and used pre- and post-test results. To further narrow the field of studies to a manageable number for coding, studies were excluded in which the primary student outcomes were health-related, such as drug and alcohol use or food consumption. Due to differences in the education systems, which may have limited generalization of conclusions, studies conducted outside of North America were excluded from analysis.<sup>2</sup>

### Coding

After the studies were identified as meeting the selection criteria, they were coded by the authors using the coding manual developed by the Division 16 Task Force on Evidence-Based Interventions in School Psychology (*Procedural and Coding Manual for Review of Evidence-Based Interventions*, March 21, 2003 version). Each author coded half of the articles. Interrater reliability was established on a sample of nine articles. If during coding an interrater reliability coefficient was lower than .80, and/or systematic differences were discovered in how a specific rating was assigned, the coders reached consensus and adjusted the ratings accordingly. The final interrater reliability coefficient, based on percent agreement on the Summary Key Evidence ratings, was .85.

Effect sizes were calculated according to the procedures suggested by the Manual. For group designs, the Cohen *d* method was used. For single-participant

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<sup>2</sup>A list of parent involvement studies conducted outside of the United States is available from the first author.

designs, similar to the effect size for the group design, the baseline was subtracted from the treatment mean and divided by the baseline standard deviation. This latter method was outlined as Method 1 of effect size calculation in the Manual (Division 16 and Society for the Study of School Psychology Task Force, 2003). Whether effect sizes were considered large, medium, or small varied, depending on which statistical procedure was used. The same procedures were used to calculate and evaluate effect sizes with and without covariates (i.e., ANOVA and ANCOVA). Where multiple outcomes were listed, effect sizes were listed as ranges and included effect sizes for both main effects and interactions, provided that they lend themselves to calculation.

## RESULTS

### Descriptive Analysis

Twenty-four studies from 22 articles were selected and coded. The majority of studies ( $n = 14$ ) utilized a between-subject group design; however, a substantial number ( $n = 8$ ) used single-participant or mixed designs ( $n = 2$ ). Descriptive characteristics of the studies appear on Tables 1 and 2 for between-group and single-participant/mixed designs, respectively. Most studies were conducted in the 1980s and 1990s in the United States, with only two studies published in the 2000s. More than half of all studies (58%) involved treatment of children with ongoing school problems, while the remainder were selective or targeted prevention, and one study involved both prevention and intervention. Few studies collected follow-up data. Typical intervention duration was 10 or more weeks, although duration varied widely.

Most studies utilized a single type of parent involvement, learning at home, in which the parents worked directly with children at home assisting them in learning school-relevant skills. Activities included parent-implemented tutoring, parent reinforcement/encouragement, and parents reading to their children. Few studies compared parent involvement with another treatment. In those that did, parent involvement was compared to another intervention (typically, peer or paraprofessional tutoring) (e.g., Fantuzzo, Davis, & Ginsburg, 1995; Heller & Fantuzzo, 1993) or two types of academic interventions by parents were compared (Powell-Smith, Stoner, Shinn, & Good, 2000). The primary outcomes in most reviewed studies were students' academic performance/achievement, including reading or pre-reading skills and mathematics skills. Other outcomes included spelling and appropriate behaviors. Few studies focused on auxiliary (secondary) goals, such as self-concept.

Participating children represented a wide range of demographic characteristics, including academic, sensory, and cognitive delays/deficits, identified disabilities, and varying grade placements (kindergarten–seventh grade); however, no studies examined the efficacy of parent involvement with high school populations. Group design studies typically demonstrated gender-balanced samples,

TABLE 1. Descriptive Characteristics of Parent Involvement Intervention Outcome Studies with Group Design

Study #	Reference	Type of Program/ Description	N/Participant Characteristics	Target Behavior	Setting, Locale, & Length	Findings
1	Faires, Nichols, & Rickelman (2000)	Intervention/Treatment; Parent training and involvement: In-home parent-implemented reading lessons based on Reading Recovery model	N = 8; first graders; three Caucasian boys; one ESL girl; one African American boy, & three African American girls; 38% low SES, 37% low middle or middle SES, 12% upper SES, & 12% not specified; age not specified	Reading proficiency	U.S. [public] school program & home treatment; 5 weeks, 20-30 minutes, three times per week	Intervention successful: Experimental group made gains from pre- to post-test in reading proficiency, whereas control group did not.
2	Fantuzzo, Davis, & Ginsburg (1995)	Targeted Prevention; Parent and peer involvement: Parent-implemented tutoring alone (PI) and in combination with reciprocal peer-implemented tutoring (PI + RPT)	N = 72; fourth and fifth graders; African American students with difficulties in computational skills; mean age 10 years; 54% girls; SES not specified	Mathematics achievement and self-concept	U.S. public school program & home tutoring; 10 weeks, 45 min., two times per week; PI: intensity varied	Intervention partially successful: Academic results not significant for PI alone (improved math computational skills and self-perception of social confidence for PI + RPT compared to controls and PI alone). Improved perception of scholastic competence and behavioral conduct for PI + RPT and for PI alone compared to controls.



3	Heller & Fantuzzo (1993)	Targeted Prevention; Parent and peer involvement: Reciprocal peer-implemented tutoring alone (RPT) and in combination with parent-implemented tutoring (RPT + PI)	N = 84; fourth- and fifth-graders; African American students at risk for math achievement, mean age 9 years 9 months; 50% girls; lower to middle SES	Mathematics achievement and self-concept	U.S. public school program & home treatment; 8 months for both PI and RPT, 45 min., 2 times per week	RPT + PI group did better than RPT group and control group on both measures of math achievement. Intervention successful for secondary goals of positive learning skills, assertiveness, and task orientation. Most measures of school adjustment not significant.
4	Jason, Kurasaki, Neuson, & Garcia, (1993)—pilot for Jason, Weine et al. (1993). Also, see Jason, Weine, et al. (1993) below-Year 2	Selective Prevention; Paraprofessional and parent involvement: Orientation program plus paraprofessional tutoring at school alone and in combination with parent-implemented tutoring at home	N = 55; third through fifth graders; 49% girls; 51% African American, 36% Hispanic, 11% Caucasian; children at risk based on lower SES, life event stressors, spelling, reading, and mathematics achievement; age not specified	Academic achievement/performance in mathematics, spelling, and reading	U.S. parochial school (paraprofessional treatment) & home (parent treatment); Paraprofessional tutoring: approx. one academic year, for one hour, two times per week. Parent training: one one-hour session; treatment duration and intensity not specified	Intervention improves mathematics achievement/performance. No significance for spelling and reading. Intervention not successful for secondary goals of social concept, behavior, tutor competence, and social aspects of classroom experience.

TABLE 1. Descriptive Characteristics of Parent Involvement Intervention Outcome Studies with Group Design (continued)

Study #	Reference	Type of Program/ Description	N/Participant Characteristics	Target Behavior	Setting, Locale, & Length	Findings
5	Jason, Weine, et al., (1993)-Year 3	Selective Prevention; Paraprofessional and parent involvement: Orientation program plus paraprofessional tutoring at school alone and in combination with parent-implemented tutoring at home	N = 150-180; third through fifth graders; 50% girls, diverse sample, mostly African American and Hispanic; children at risk based on lower SES, life event stressors, and grades in spelling, reading, and mathematics; age not specified	Academic achievement/ performance in mathematics, spelling, and reading	U.S. parochial school (paraprofessional treatment) & home (parent treatment); Approximately one academic year, each component for 40-60 minutes, two times per week	Significant gains in reading achievement and spelling performance. Treatment of secondary goals is mostly unsuccessful: significant for social withdrawal and inattention but not for social concept, behavior, tutor competence, and social aspects of classroom experience.
6	Mehran & White (1988)	Selective Prevention; Parent training and involvement: Parents were trained in and implemented tutoring in reading as a supplement to compensatory education	N = 76; Kindergarten having difficulty learning to read, 39% females; mean age 7 years, 4 months; low to low middle SES; ethnicity not specified	Reading competence/ acquisition of specific reading skills	U.S. educational agency (training), home (treatment); eight months, 15 minutes per session, varied number of sessions per week	Treatment group showed gains over control group on most measures loading on key variables.

- 7 Miller & Kratochwill (1996)
- Intervention/Treatment; Parent training and involvement: Parent-implemented tutoring using the Paired Reading method, focusing on modeling, practice, praise, and positive atmosphere.
- $N = 52$ ; second, third, and fourth graders; mostly Caucasian; having trouble in reading, receiving Chapter 1 services; school SES low; gender, age, sample SES not specified
- Reading accuracy, rate and comprehension
- U.S. public school (training), home (treatment); 10 weeks, 10-to-15-minute sessions, five times per week
- Treatment group did not improve on overall reading scores compared to control group.
- 8 Powell-Smith, Stoner, Shinn, Good III, & Roland (2000)
- Intervention/Treatment; Parent training and involvement; Comparing two parent-implemented tutoring programs: Using literature and using curriculum materials
- $N = 36$ ; second graders; mean age 7 years 11 months; 39% girls; 77% of parents Caucasian, 12% Hispanic, 12% Native American; 50% parents with post-high school education; most identified as low readers but not in Special Education; most receiving Chapter 1 reading services.
- Reading achievement
- U.S. public school (training), home (treatment); 15 weeks overall (5 weeks of treatment), 20 minutes, four times per week
- Reading proficiency did not improve; however, individual analyses showed improvements, particularly of the students with poorest initial reading achievement.

TABLE 1. Descriptive Characteristics of Parent Involvement Intervention Outcome Studies with Group Design (continued)

Study #	Reference	Type of Program/Description	N/Participant Characteristics	Target Behavior	Setting, Locale, & Length	Findings
9	Searls, Lewis, & Morrow (1982)-Study 1	Selective Prevention; Parent training and involvement: Daily parent tutoring to reinforce reading/language arts and math skills	N = 50; first graders; Age 5 years 7 months to 7 years 9 months; most 52% girls; most Caucasian; 24% of low SES; low to high reading readiness levels	Mathematics and reading achievement	U.S. [public] school (training), home (treatment); 20 weeks: 20-30 minutes, once daily	Reading achievement, word analysis skills, and overall math achievement improved for the treatment group. Clinical Significance: Children's attitude toward reading, parent attitude toward school improved, self-concept and motivation improved.
10	Searls, Lewis, & Morrow (1982)-Study 2	Selective Prevention; Parent training and involvement: Daily parent tutoring to reinforce reading/language arts and mathematics skills	N = 52; second graders; Age 6 years 9 months to 7 years 11 months; 80% girls; most Caucasian; none of low SES; low to high reading readiness levels	Mathematics and reading achievement	U.S. [public] school (training), home (treatment); 20 weeks: 20-30 minutes, once daily	No significant difference on the posttest measures of mathematics and reading.
11	Shuck, Ulish, & Platt (1983)	Intervention/Treatment; Parent training and involvement: Parents encouraged pupils to read (PEP project)	N = 150; third-fifth graders with reading delays; gender, SES, ethnicity, age not specified	Reading achievement	U.S. public school, home (treatment); One academic year, intensity unknown	Treatment group gains over control group in reading achievement.

12	Trovato & Bucher (1980)	Intervention/Treatment: Peer and parent involvement: Operant-based corrected peer-implemented tutoring with or without home-based parent-implemented tutoring reinforcement	$N = 69$ ; 11 second graders, 48 third graders, and 10 fourth graders with reading delays from seven schools; mean age 9 years; gender not specified; SES varied, mostly middle class; ethnicity not specified	Reading ability	Canadian public school (treatment-1-peer tutoring); home (treatment-2-parent tutoring); Peer tutoring: Average of 15 weeks; 46 sessions; 30 minutes	Positive results for oral reading, comprehension, and overall reading, with Home-Based group outperforming Peer Tutoring group, and the latter outperforming the controls.
13	Vinograd-Bauscill & Bausell (1987)	Intervention/Treatment: Parent training and involvement: Parent tutor word recognition skills	$N = 195$ ; first graders, most enrolled in regular education classes; gender, SES, ethnicity, and age not specified	Word recognition	U.S. public school (training), home (treatment); 2 weeks, with an average of 8.3 days, 17 minutes a day	Experimental group recognized significantly more words than the controls.
14	Walters & Gunderson (1985)	Intervention/Treatment: Parent involvement: Parent volunteers read books in Cantonese or English to ESL students	$N = 39$ ; fourth grade ESL students (Cantonese speakers); gender, SES, and age not specified	English language reading skills	Canadian public school (treatment); 40 minutes, two times per week, length not reported	All three groups made significant gains, with no significant differences between groups.

Note: Brackets were used when a type of school (e.g., [public]) was inferred.

TABLE 2. Descriptive Characteristics of Parent Involvement Intervention Outcome Studies with Single-Parent and Mixed Designs

Study #	Reference	Type of Program/Description	N/Participant Characteristics	Target Behavior	Setting, Locale, & Length	Findings
1	Callahan, Rademacher, & Hildreth (1998)	Targeted Prevention; Parent training and involvement: In-home, parent-facilitated self-management and reinforcement program	N = 26; sixth and seventh graders from the at risk for alcohol and drug use youth programs; gender, SES, ethnicity, age not specified	Homework performance in mathematics and academic achievement (math, reading, spelling); Mixed	U.S. public school (training), home (treatment); Insufficient information provided	Mathematics achievement, homework completion, and homework quality improved; reading and spelling achievement did not improve; those students whose parents were more involved improved more.
2	Coates & McLaughlin (1992)	Intervention/Treatment; Parent training and involvement: In-home parent-implemented tutoring of reading using flash cards	N = 1; 7 year old first grade boy with visual-motor and auditory deficits repeating first grade; SES & ethnicity not specified	Reading achievement; Single-Participant	Canadian [public] school, home (treatment); 60 school days, treatment for 24 school days, for 15-30 minutes per session; number of sessions not reported	Reading speed and accuracy did not increase; however, there was clinical improvement (relations with parents, attitude toward reading, peer relations).
3	Duvall, Delquadri, Elliott, & Hall (1992)	Intervention/Treatment for three participants; Targeted Prevention for one participant; Parent training and involvement: In-home parent-implemented tutoring of reading	N = 4; Two second graders (mean age 7 years 6 months), one third grader (8 years 1 month), and one fifth grader (9 years 10 months); two girls; two with above avg. IQ; two with avg. IQ; three identified as	Oral reading skills (correct rates and error rates) and reading achievement; Single-Participant	U.S. rural [public] school, home (some data collection and treatment); During the summer break (end of spring semester – start of fall semester), number of sessions varied 26-43, 10 minutes daily	All four students demonstrated expected increases in correct reading rates and three-quarters showed consistently low error rates. Pre-post reading gains are reported on a test of reading achievement. Results generalized for three of four children across time and settings (home to school).

LD, reading difficulties; all middle SES; ethnicity not specified

4	Gang & Poche (1982)	Intervention/Treatment: Parent training and involving and involvement: In-home parent-implemented tutoring of reading	$N = 3$ ; End of third grade, 2 years behind in reading; all boys; SES, ethnicity, and age not specified	Children's acquisition of reading skills and parents' tutoring behaviors	U.S. home (training and treatment); 7 weeks, 25 minutes, four times per week	All 3 children reached 100% accuracy in all seven categories of reading skills and averaged reading gains 3X the expected gains. Gains maintained at 11-week follow-up.
5	Hook & DuPaul (1999)	Intervention/Treatment: Parent training and involvement: In-home parent-implemented tutoring of reading	$N = 4$ ; Three 7 year olds in second grade and one 8 year old in third grade with ADHD; three boys, one girl; SES, ethnicity not specified	Reading performance at home and school; Single-Participant	U.S. public school ( $n = 3$ ), U.S. private school ( $n = 1$ ) & home. Varied for each participant; 10 minutes, two–three times per week for 45, 37, 37, and 26 weeks	At-home oral reading rate means and levels improved for all. Gains maintained for only one. At-school reading performance improved for all; two of four gains at follow-up. No change in teacher-rated overall reading performance.
6	Law & Kratochwill (1993)	Intervention/Treatment: Parent training and involvement: In-home paired reading (children-parents) program	$N = 13$ ; Five completed first grade; five completed second grade, & three completed third grade; gender, SES, ethnicity, age not specified	Reading achievement; Mixed	U.S. public school (training), home (treatment); 6 weeks, 10 minutes per session, five times per week	Reading accuracy and reading fluency did not increase.

TABLE 2. Descriptive Characteristics of Parent Involvement Intervention Outcome Studies with Single-Parent and Mixed Designs (continued)

Study #	Reference	Type of Program/ Description	N/Participant Characteristics	Target Behavior	Setting, Locale, & Length	Findings
7	Lopez & Cole (1999)	Targeted Prevention; Parent training and involvement: In-home parent-implemented tutoring of pre-reading skills using flash cards	N = 5; Three 5-year-olds and two 6-year-olds in Kindergarten; four girls, one boy; SES, ethnicity not specified	Academic readiness (pre-reading skills); Single Participant	Puerto Rican public school & home; four sessions per week, unknown length of time per session, for a total of 15 or 25 sessions	Mean number of known letters improved for all five children, but slope changed for only two of five; Mean letter-naming rate and slope improved for all five children.
8	Thurston & Dasta (1990)-second study	Intervention/Treatment; Parent training and involvement: In-home parent-implemented tutoring of basic math using flash cards	N = 3; Two 9 year olds and one 10 year old; all fourth graders failing in math; all girls; SES, ethnicity, age not specified	Mathematics performance at home and school; Single-Participant	U.S. private school (some data collection), home (some data collection and treatment); 5 or 8 weeks, 10-minute sessions daily	Mathematics achievement scores, at-school knowledge of math facts, avg. at-home math problem solving accuracy, and overall grades in math improved for all students.



9	Thurston & Dasta (1990)-third study	Intervention/Treatment: Parent training and involvement: In-home, parent-implemented tutoring of spelling using flash cards	$N = 1$ ; fourth grade girl; SES, ethnicity, age not specified	Spelling performance and accuracy at school; Single-Participant	U.S. university-affiliated center (training), school (data collection), home (treatment); 10-minute sessions daily for 10 weeks	In-school mean spelling performance improved; At-home spelling accuracy improved.
10	Witt, Hannafin, & Martens (1983)	Intervention/Treatment: Parent training and involvement: In-home parent-implemented academic performance reinforcement program	$N = 3$ ; fourth graders with poor academic performance and inappropriate behavior; all boys; SES, ethnicity, age not specified	Academic performance in language arts and inappropriate behaviors at school; Single-Participant	U.S. school (data collection), home (treatment); 9, 14, or 20 days, intensity not specified	All subjects' means and levels of academic performance (% correct on assignments) improved; trend changed for one subject only; All subjects' means and levels of inappropriate behaviors improved; trends did not change.

Note: Brackets were used when a type of school (e.g., [public]) was inferred.

students of lower-middle to middle socioeconomic status (SES) and inclusion of several minority groups, including African Americans, Latinos, and English as a Second Language (ESL) students. In single-participant design studies, few authors indicated participants' ethnicity or SES.

### Methodological Quality

Methodological features of the studies included in this review are presented in Tables 3 and 4, and a Summary of Evidence for Key Methodological Features appears in Tables 5 and 6.

*Group design studies.* As shown in Table 3, methodological characteristics of group design parent involvement studies varied greatly and overall yielded strengths as well as weaknesses. Group design studies demonstrated consistent use of such methodological features as appropriate unit of analysis (all studies), documentation of program components (93%), equivalent mortality with low attrition (93%, although in many low attrition was not reported but inferred), group equivalence (86%), manualization (79%), and randomization (64%). Less consistent features, found in many but not the majority of studies, were assessment of educational/clinical significance (50%), use of multiple methods to collect data (50%), sufficiently large number of participants (50%), reporting null findings (46%), controlling for Type I error (46%), linking identifiable components to primary outcomes (36%), and using multiple sources for data collection (25%). Several group design studies utilized standardized tests without reference to their validity and reliability with the population under study, or studies did not report the validity and reliability of outcome measures, resulting in lowered evaluative ratings. Group design studies showed pronounced methodological weaknesses in the counterbalancing of change agents (only one study by Heller & Fantuzzo, 1993 addressed the issue) and the reporting of effect sizes ( $n = 2$ ). A serious shortcoming across group design studies was failure to report essential data. Specifically, the number of participants in each group, means, standard deviations,  $F$ -ratios, and  $p$ -values were frequently missing from published articles, making it impossible to calculate effect sizes. A summary of the methodological features necessary for strong evidence in group design studies appears on Table 5. Methodological strengths include the quality of comparison group, school-based implementation of the intervention, and implementation fidelity. Methodological weaknesses include lack of replication studies, lack of significant key outcomes, and failure to assess educationally significant outcomes, or differentiate components in multicomponent designs.

*Single-participant/mixed design studies.* When looking at methodological features found in the single-participant and mixed designs (see Table 4), the authors must note that several of the features evaluated in group design studies (i.e., control of Type I error, sufficiently large  $N$ , randomization, counterbalancing, and appropriate unit of analysis) were applicable only to the mixed design studies. With this exclusion in mind, when evaluating total methodological fea-

TABLE 3. Methodological Features of Parent Involvement Studies with Group Design

Feature	Study Number													
	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14
Randomization	0	1	1	0	1	1	1	1	0	0	1	0	1	1
Appropriate unit of analysis	1	1	1	1	1	1	1	1	1	1	1	(1)	1	1
Family-wise error rate controlled	0	1	1	1	0	1	0	1	0	0	1	1	1	0
Sufficiently large N/group	0	0	1	0	1	1	1	0	0	1	1	1	1	0
Reliable outcome measures	1	1	0	0	0	0	0	1	0	0	0	0	1	0
Multiple assessment methods	0	1	1	1	1	1	0	1	0	0	0	1	0	0
Measures obtained from multiple sources	—	0	0	1	1	1	0	0	0	0	0	0	—	0
Validity of measures reported	1	0	1	0	0	0	0	1	0	0	0	0	1	0
Control or comparison group*	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Counterbalancing of change agents	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Group equivalence established	0	1	1	1	0	1	1	1	1	1	1	1	1	1
Equivalent mortality with low attrition	(1)	1	1	1	(1)	1	1	1	(1)	(1)	(1)	(1)	0	(1)
Effect size reported	1**	0	0	0	0	1	0	0	0	0	0	0	0	0
Null findings reported	1	0	1	0	0	1	1	1	0	0	-	0	1	0
Educational/clinical significance of change assessed	0	0	1	1	1	0	0	1	1	1	0	1	0	0
Program components documented	1	1	1	1	(1)	1	1	1	1	1	1	1	1	0
Identifiable components linked to primary outcomes	0	0	1	1	0	1	0	0	0	0	1	1	1	0
Interventions were manualized	1	1	1	0	(1)	1	1	1	1	1	1	1	1	0
Total (Number of features out of total applicable features)	9/17	11/18	15/18	10/18	9/18	14/18	9/18	13/18	8/18	9/18	10/17	11/18	11/17	5/18

Note: S = study; 1 = methodological feature was present; 0 = methodological feature was absent, unknown, or uncodable; — = methodological feature was not applicable; ( ) = methodological feature was not reported, but inferred by reviewers.

\* Studies were selected for review if they had a control group.

\*\* effect size(s) calculated but are not interpretable.

TABLE 4. Methodological Features of Parent Involvement Studies with Single-Participant and Mixed Design

Feature	Study Number									
	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
Reliable outcome measures	0	1	1	1	1	1	1	1	1	0
Multiple assessment methods	—	—	1	1	—	—	—	1	1	0
Measures obtained from multiple sources	0	0	1	0	1	0	0	1	1	0
Validity of measures reported	0	1	1	1	1	1	1	1	1	0
Visual analysis findings presented	0	0	1	1	1	1	1	1	1	1
Effect size reported	0	0	0	0	1	0	0	0	0	1
Educational/clinical significance of change assessed	1	1	1	0	1	1	1	1	0	0
Program components documented	1	0	1	1	1	1	1	1	1	1
Identifiable components linked to primary outcomes	0	0	1	0	1	0	1	0	1	1
Interventions manualized	1	0	1	1	1	1	1	1	1	1
Total (Number of features out of total applicable features)	3/10	3/10	9/10	6/10	9/9	6/9	7/9	8/10	8/10	5/10

Note: S = study; 1 = methodological feature was present; 0 = methodological feature was absent, unknown, or uncodable; — = methodological feature was not applicable; () = methodological feature was not reported, but inferred by reviewers.

TABLE 5. Summary of Evidence for Key Methodological Features of Parent Involvement Studies with Group Design

Feature	Study Number													
	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14
Measurement	0	2	0	0	0	0	0	0	0	0	0	0	3	0
Control/Comparison Group	1	3	3	2	(2)	2	2	2	(2)	(2)	2	(2)	1	(3)
Measures Support Primary Outcomes	0	1	3	1	1	2	0	0	0	0	3	2	0	0
Educational/Clinical Significance	1	1	2	1	2	1	0	2	1	1	2	1	1	0
Identifiable components	0	1	3	1	1	2	0	0	0	0	3	2	0	0
Implementation fidelity	2	2	3	1	2	2	3	2	2	2	2	(2)	0	0
Replication	0	0	0	0	2	0	3	0	0	0	0	0	0	0
Site of implementation	2	2	2	2	1	1	(2)	2	(2)	(2)	3	2	2	(2)
Total methodology	6	12	16	8	11	10	10	8	8	8	15	11	7	5

Note. S = study; 0 = no evidence/not reported; 1 = weak evidence; 2 = promising evidence; 3 = strong evidence. Ratings range from 0 to 3. Numbers in parentheses indicate rating was inferred.

TABLE 6. Summary of Evidence for Key Methodological Features of Parent Involvement Studies with Single Participant and Mixed Designs

Feature	Study Number									
	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
Measurement	0	1	3	0	2	1	0	2	2	0
Quality of Baseline/Comparison Group	0	0	3	2	3	1	3	0	1	3
Measures Support Primary Outcomes across Participants	0	0	3	1	1	1	2	1	2	2
Educational/Clinical Significance	1	1	2	1	2	1	2	2	1	1
Identifiable Components	0	0	3	0	1	1	2	1	2	2
Implementation fidelity	2	1	3	3	3	3	2	2	1	2
Replication	0	0	0	1	1	0	0	0	0	0
Site of implementation	2	1	(1)	1	3	3	2	2	1	3
Total methodology	5	4	18	9	16	11	14	10	10	13

Note. S = study; 0 = no evidence/not reported; 1 = weak evidence; 2 = promising evidence; 3 = strong evidence. Ratings range from 0 to 3. Numbers in parentheses indicate rating was inferred.

tures, present, single-participant, and mixed design studies demonstrated better methodology compared with group design studies. Most demonstrated adequate documentation of program components (90%), manualized interventions (90%), reported validity and used reliable measures (80%), used multiple assessment methods (80% of applicable studies) and visual analysis (80%), and assessed educational/clinical significance (70%). Additionally, half of single-participant/mixed design studies linked the intervention components to the outcomes, and four of ten studies obtained measures from multiple sources. Few studies reported effect sizes ( $n = 2$ ). Table 6 presents ratings of key methodological features for single-participant and mixed design studies. As a group, these studies evidenced strengths in the categories of treatment fidelity and site of implementation, that is, school-based. All remaining categories of methodology related to the determination of evidence were strong in fewer than half of the studies.

In sum, across all reviewed studies, methodological strengths were present in documentation of the program components and manualization or adequate description of program procedures. Consistent methodological weaknesses were failure to report effect sizes and failure to clearly link the parent involvement interventions to the key outcomes.

### Effect Sizes

Effect sizes are reported in Tables 7 and 8. A majority of the effect sizes for group design studies were large but showed variability indicating a wide range of treatment effectiveness. In contrast to group designs, single-participant/mixed studies had less variation in their effect sizes, with all effect sizes that could be calculated being large (from 1.45–19.04). Several single-participant studies provided visual analysis but not the actual data tables; therefore, many of single-participant effect sizes were calculated using estimates from visually presented data and should be interpreted with caution (for a more detailed discussion on the topic of effect sizes in single-participant designs, see article by L. Guli in this issue).

### Effectiveness of Parent Involvement Interventions: What Works for Whom

Across designs, it appears that there is insufficient evidence to conclude that parent involvement, as a method of intervention, is effective. In general, studies with effective methodology failed to demonstrate significant change in child outcomes, and studies with large effect sizes had flawed methodology. There are a few studies that were judged to be promising based on the combination of high methodological ratings, significant student outcomes, and large effect sizes. Programs identified as promising used parent tutoring or parent encouragement at home to prevent or change a single academic problem (mathematics or reading) of elementary school-aged children in public schools.

The most promising intervention improved mathematics achievement and

Table 7. Effect Sizes for Primary Outcomes for Group Design Studies

Study #	Outcome	Statistical procedure used	Effect Size Value
S1	Reading level	<i>t</i> -test	2.76 <sup>c</sup>
S2	Math computation	One-way ANCOVA	Range: .69 <sup>c</sup> -.73 <sup>c</sup>
S2	Self-concept of school competency, behavioral conduct, and social acceptance	One-way ANCOVA	Range: 1.00 <sup>c</sup> - 1.05 <sup>c</sup>
S3	Math computation (curriculum-based and standardized)	One-way ANOVA	Range: .86 <sup>c</sup> -1.63 <sup>c</sup>
S4	Academic achievement and performance (math)	One-way ANOVA	Range: .74 <sup>c</sup> -.85 <sup>c</sup>
S5	Academic achievement and academic performance (math, reading, spelling)	N/A	Insufficient data
S6	Reading competence; student acquisition of specific reading skills	Two independent sample <i>t</i> -test	Range: .10 <sup>a</sup> -.74 <sup>b</sup>
S7	Reading	Two independent sample <i>t</i> -test	.23 <sup>a</sup>
S8	Reading achievement	One-way ANOVA	Range: .19 <sup>a</sup> -5.17 <sup>c</sup>
S9	Reading and math achievement; word analysis	N/A	Insufficient data
S10	Reading and math achievement; word analysis	N/A	Insufficient data
S11	Reading	One-way ANOVA	.92 <sup>c</sup>
S12	Reading performance (oral and comprehension); reading achievement; reading ability; error rate in oral reading and comprehension	N/A	Insufficient data
S13	Word recognition	Two-way ANOVA	.92 <sup>c</sup>
S14	English language reading	N/A	Insufficient data

Note. <sup>a</sup>indicates a small effect size, <sup>b</sup>indicates a medium effect size, and <sup>c</sup>indicates a large effect size (Division 16 and Society for the Study of School Psychology Task Force, 2003). Effect sizes for nonsignificant outcomes were not calculated.



Table 8. Effect Sizes for Primary Outcomes for Single Participant and Mixed Design Studies

Study #	Participants	Outcome	Effect Size
S1	<i>N</i> = 26	Homework performance in math; academic achievement (math, reading, spelling)	Insufficient data
S2	<i>N</i> = 1	Reading achievement	Insufficient data
S3	<i>N</i> = 4	Words read correctly	Range: 1.47–4.82
S3	<i>N</i> = 4	Error rates	Insufficient data
S4	<i>N</i> = 3	Sounds pronounced correctly	Range: 3.00–3.53
S4	<i>N</i> = 3	Reading responses	Range: 1.62–2.28
S5	<i>N</i> = 4	Words correct (through parent checks)	Range: 2.29–7.29
S5	<i>N</i> = 4	Words correct (CBM probes)	Range: 1.45–12.98
S6	<i>N</i> = 13	Reading achievement	N/A - Mixed design
S7	<i>N</i> = 5	Number of known letters	Range: 3.53–11.27
S7	<i>N</i> = 5	Letter-naming rate	Range: 3.28–19.04
S8	<i>N</i> = 3	Math performance (home and school)	Insufficient data
S9	<i>N</i> = 1	Spelling performance and accuracy at school	Insufficient data
S10	<i>N</i> = 3	Inappropriate behaviors in class	Range: -1.92–3.92
S10	<i>N</i> = 3	Correct responses in language arts class	Range: 1.79–3.49

*Note.* All effect sizes calculated represent large effects. All effect sizes calculated by the authors were calculated using Effect Size

Method 1 (Division 16 and Society for the Study of School Psychology Task Force, 2003).

self-concept in African American fourth and fifth- graders, at risk for mathematics problems, by comparing peer tutoring alone to the combination of peer and parent tutoring (Heller & Fantuzzo, 1993). The combined intervention that included parent tutoring was more effective. Effect sizes were large, ranging from .86 to 1.63, for changing mathematics achievement. Intervention duration was 8 months, with two sessions per week. This study was rated as having most methodological features present and strong, or promising evidence in most categories relevant to the determination of evidence except measurement and replication. The study did not use reliable measures or collected data from multiple sources.

In the single-participant category, two promising interventions were identified: Duvall, Delquadri, Elliott, and Hall (1992) and Hook and DuPaul (1999). Both studies examined the effectiveness of parent tutoring in improving reading problems. Duvall et al. (1992) used in-home parent tutoring of reading with elementary school children ranging from second to fifth grade, most with reading difficulties, and Hook and DuPaul (1999) evaluated the effects of in-home parent tutoring of reading with second- and third-grade children with attention-deficit hyperactivity disorder (ADHD). For both studies, intervention was successful for all participants and effect sizes were large (1.45–12.98). Gains were maintained over time and across settings for three of four participants in the study by Duvall and colleagues. In Hook and DuPaul's study, maintenance of

treatment was shown across time for one participant and across settings for two participants.

## DISCUSSION

This review critically evaluated the research design, methodological quality, and effectiveness of 24 studies of parent involvement aimed at improving children's school-related learning and behavior. The results of the current review indicate that there is no conclusive evidence that parent involvement, as a broadly defined intervention strategy, is effective in improving academic achievement and behavior. There are, however, several methodologically sound studies, using both single and group designs, that yield promising evidence that one component of parent involvement, parent home tutoring, improves academic performance among elementary school-aged children. Specifically, parent tutoring improved existing problems in reading and, in combination with peer tutoring, prevented further difficulties in students at risk for mathematics achievement. Unfortunately, the lack of methodologically rigorous programs of research on parent involvement, broadly defined, seriously compromises the determination of a stronger evidence base.

The overall lack of strong evidence to support the effectiveness of parent involvement interventions, which results primarily from methodological problems inherent in the body of literature, is consistent with the conclusions reached by Mattingly et al. (2002) in their critical analysis of parent involvement programs. Although the reviewers used somewhat different inclusion criteria for studies, both reviews noted multiple methodological weaknesses in parent involvement studies, which stand out as the most critical challenge to the determination of an evidence base for the effectiveness of parent involvement interventions. Although existing studies are to be commended for their use of manuals or adequate description of program procedures, on average, studies failed to demonstrate that significant outcomes were produced by parent involvement activities, to account for family-wise error and unequal groups, to use active control groups, and to report follow-up data. Weaknesses in measurement were also common among studies, with many not obtaining information from multiple sources or using valid and reliable instruments. Finally, except for Fantuzzo et al. (1995), replications were absent from the literature.

Another serious challenge to the determination of evidence for the effectiveness of parent involvement stems from insufficient information and data reported in studies (also noted by Mattingly et al.), especially in the areas of participant description, procedures, and results. For example, although most reviewed studies reported age/grade, disability status, and functional descriptors, many fewer reported other descriptions of samples and control/treatment groups (i.e., participants' gender, ethnicity, parent education, or socioeconomic status). Important details were frequently omitted as well in the areas of measurement and statistical analyses. References to the reliability and validity of measures were

seldom provided, resulting in lowered ratings of methodological quality for studies with missing values. When reporting results, it is crucial for parent involvement studies to include all relevant values and descriptions, such as effect sizes, statistical tests performed, ways to control Type I error, and the rationale for the statistical procedure employed. Effect sizes are particularly relevant for single-participant studies, where one generally relies on visual analysis to examine the data. Inclusion of these data would allow for meaningful interpretations and calculations as well as cross-study comparisons. Finally, reporting detailed procedural descriptions would ensure the ease of future replications.

Determination of the evidence base for parent involvement is also compromised by the complexity of the construct and the lack of theory-based research designs that appropriately measure this complexity. Parent involvement has been variously and broadly defined, yet studies included in this review tend to measure a single parent involvement activity in a single-component intervention. A multicomponent design that compares the effectiveness of different parent activities on specific child outcomes and/or compares interventions across different treatment delivery agents (e.g., parents and peers) or settings (e.g., community, school, and home) would strengthen the internal validity of conclusions. For single-participant studies, internal validity would be enhanced by the use of multiple baselines to control for within-subject variance in alternating-treatment and simultaneous-treatment designs. Furthermore, we concur with Mattingly et al. that parent involvement research should be theory driven.

Another important challenge to educators who wish to examine and/or utilize evidence-based parent involvement programs is the limited scope of existing research. Studies in this review used almost exclusively parent-implemented, home-based tutoring treatment interventions to address children's academic problems. The limited focus of parent involvement research is surprising considering the variety of possible parent involvement activities implemented in contemporary American schools (including those outlined by Epstein and colleagues), many of which have been found in descriptive studies to have a positive association with improved academic outcomes. To date we have no methodologically sound studies that inform educators on which types of parent involvement activities have the greatest impact on which school-related behaviors and achievement, although several researchers have underscored the importance of the issue (Keith et al., 1993; Powell-Smith et al., 2000). Another shortcoming of the parent involvement literature is the failure to include high school populations and treatment implementers other than mothers. It is important to research how parent involvement affects secondary school populations (Keith et al., 1993; Falbo et al., 2001). Broadening the participants in parent tutoring studies to include fathers, grandparents, or older siblings would be consistent with the diversity that characterizes families today.

In light of the aforementioned findings, the authors provide recommendations for researchers in the area of parent involvement. It is suggested that researchers approach their investigation of parent involvement in schools with increased sci-

entific rigor. Researchers are further encouraged to increase the scope and complexity of studies, while providing theoretical and design links to the specified outcomes of child behaviors and testing for generalizability of results across different populations, developmental stages, and school settings. Implementation fidelity should be monitored more closely because occasional integrity checks often used in the present sample of studies do not always guarantee the satisfactory adherence to the procedure. Researchers must carefully select their instruments, bearing in mind their validity and reliability with specific populations under study. Standardized tests commonly used to measure academic outcomes in group designs may not be well-suited for the specific population under study or specific variable of interest. Finally, we encourage parent involvement researchers to consider parents and practitioners when conducting research. Practitioners will benefit, for example, from better procedural descriptions and cost-benefit analyses; parents should be included in program design and development. Most importantly, despite such apparent technical obstacles as coordination/scheduling difficulties and possible high dropout rates, studies initiated by school districts rather than researchers are more desirable because such projects are likely to become institutionalized.

Several limitations of this review deserve comment. First, specific inclusion/exclusion criteria limited the parent involvement studies that were reviewed. Results may differ with broader inclusion criteria. Second, although the number of adequately designed studies for inclusion in this review was limited, the parent involvement literature base is large and located across multiple databases; despite the best efforts of the authors, it is possible that some relevant studies were overlooked. Additionally, studies published after March 2003 and those found in non-peer-reviewed sources were not included in the review. Updates to this review are encouraged, as it is hoped that more recent studies will demonstrate stronger research designs.

Limitations associated with the coding procedure also deserve comment. Despite numerous revisions, there continues to be a degree of subjectivity in certain coding decisions required by the Manual that impacts inter-coder reliability. There are also technical ambiguities in the coding procedure, such as in the areas of effect size evaluation (particularly noteworthy when analyzing single-participant and mixed designs), identifiable components, differentiation between coding rubrics, and coding of descriptive features. Of greater concern are notable discrepancies in the ratings of the effectiveness of interventions for different designs in certain rubrics (e.g., measurement and effect size), likely resulting in inflated ratings of single-participants designs when compared to group designs. Although the Task Force is to be commended for the inclusion of single-subject case designs in the determination of evidence for school-based research, and the development of a parallel coding system, the comparability of ratings across single-subject, group, and mixed designs is a concern that suggests that our results be considered with caution.

Given the current government policy and its financial ramifications, establish-

ing a solid evidence base for parent involvement, as it affects school-related outcomes, is of paramount importance for those in education. As there is a serious lack of evidence for the effectiveness of parent involvement, the need for methodologically rigorous, theory-based investigation of the causal mechanisms that link the various parent involvement activities with specific child, parent, and school outcomes remains. The field needs greater numbers of empirical parent involvement studies initiated by school districts, representing a variety of designs, with solid methodology and diverse target behaviors published in peer-reviewed journals. It is the authors' hope that this article will spark further research and discussion. Researchers are encouraged to build on the present study with an update and meta-analysis.

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Action Editor: Cindy Carlson

**Maria Fishel, M.A.**, is a School Psychologist at Round Rock Independent School District and a doctoral candidate at the School Psychology Program, Department of Educational Psychology of the University of Texas at Austin. Her research interests include anxiety and depression in children and young adults. Ms. Fishel received her M.A. from the University of Texas at Austin. The School Psychology Program at the University of Texas at Austin is accredited by the APA.

**Lucila Ramirez, M.A.**, is a graduate student in the doctoral School Psychology program at the University of Texas at Austin. Her research interests include treatment of anxiety

and depressive disorders in preadolescent girls, as well as Latino parents' attitudes toward their children's mental health problems. Ms. Ramirez received her M.A. in Academic Educational Psychology from the University of Texas at Austin. The School Psychology Program at the University of Texas at Austin is accredited by the APA.