THE EFFECTS OF PEER-MEDIATED INTERVENTION
IN PROMOTING SOCIAL SKILLS FOR CHILDREN WITH DISABILITIES

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Peer-mediated intervention (PMI), a strategy those working in preschool inclusive environments can use, creates opportunities for peers to assume instructional roles to promote positive social behaviors for children with disabilities. The purpose of the study was threefold: first, to examine peer mediators’ use of PMI during baseline and intervention; second, to examine the effects of PMI in increasing positive social behaviors and decreasing negative social behaviors of the target children; and third, to examine whether the social skills for target children improved from baseline to intervention following implementation of PMI. A multiple baseline design across participants was used to examine the effectiveness of PMI with three target children. Six children served as peer mediators and were responsible for implementing PMI strategies. Dependent variables were identified measuring child attributes essential to the social area of development (i.e., positive social behaviors) and those that were not desired or considered socially acceptable (i.e., negative social behaviors). Turn taking was selected as the essential positive social behavior for all child participants. Teacher participants trained peer mediators to administer the independent variable, peer-mediated intervention, specifically peer prompting, peer initiating, and/or giving feedback with the support of a social story during free play. Overall, results of the study indicate peer
mediators implemented PMI successfully and with fidelity and little training. Target children increased positive social behaviors and decreased negative social behaviors from baseline to intervention. In addition, target children stayed the same or increased their social skills from baseline (pre) to intervention (post). Findings contribute to the literature regarding the effectiveness of PMI as an evidence-based practice for increasing positive social behaviors and decreasing negative social behaviors in the social area of development for young children in preschool inclusive settings.
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throughout this journey! Without both of them by my side, this dream would never have been possible.

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When a mother brings her child to the preschool program in her community, when a child steps off the bus to go into his Head Start classroom, and when the Montessori teacher looks around the class before beginning the day’s activities, they are all likely to see children with different abilities and different family backgrounds. Including young children with disabilities in early childhood programs is one trend that exemplifies this diversity. (Odom & Diamond, 1998, p. 104)
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CHAPTER I

LITERATURE REVIEW

Before inclusion was a reality, children with disabilities were denied a free public education (Gersten, Baker, & Pugach, 2001). Reynolds and Birch (1982) described the history of educating children with disabilities as one of neglect, denial, and rejection. Because of legislation, educational reforms, positive family perspectives, and numerous advocacy factors, an increasing number of children with disabilities now participate in inclusive settings (IDEA-data.org, 2005). In fact, today, one third to one half of children with disabilities are enrolled in childcare or preschool programs that include typically developing peers (Booth & Kelly, 2002; Diamond & Huang, 2005). Consequently, many young children with disabilities are educated in community-based programs alongside children without disabilities (Causton-Theoharis & Malmgren, 2005; Cook, Cameron, & Tankersley, 2007; Forlin & Hopewell, 2006; Hastings & Oakford, 2003; Shonkoff & Phillips, 2000).

Serving children with disabilities in community programs is widely accepted as recommended practice (DEC/NAEYC, 2009; Sandall, Hemmeter, Smith, & McLean, 2005). Community programs, such as public and private preschools, Head Start programs, prekindergarten classrooms, and family childcare homes, increasingly serve diverse groups of young children, particularly young children with disabilities. The types of disabilities include but are not limited to developmental delays, autism, attention deficit, and visual and hearing impairments (Grisham-Brown, Hemmeter, &
Pretti-Frontczak, 2005). Services provided within inclusive settings were once driven by service-based approaches focused only on ameliorating the deficiencies of the child. Today’s services embrace a more supportive approach, which emphasizes the strengths of the child and promotes professional practices to ensure full participation by all children (Childress, 2004). Researchers and practitioners concur that inclusive programs should provide full participation and engagement for children with disabilities (Brown, Odom, & McConnell, 2008; Diamond, Hong, & Baroody, 2008; Guralnick, 2001b; Odom, 2002).

A compelling argument for inclusion is that children with disabilities have the right to participate in educational activities available to other children. Children with disabilities need to experience the same participation and engagement in learning as children without disabilities. Odom (2000) advocated: “If we expect that children with disabilities will learn from, interact with, and form relationships with typically developing children, then the children with disabilities need to be around typically developing peers for a substantial part of their day” (p. 22). Inclusion supports planned participation, belonging, and choices for all children (Allen & Cowdery, 2005; Odom, 2002).

Inclusion for children with disabilities is not a coincidental social experience. In other words, an inclusive classroom does not magically occur by physically placing children with and without disabilities together. A meaningful inclusive atmosphere exists when children with and without disabilities engage and interact with one another across classroom activities. Substantial research has indicated that the mere presence of children with disabilities in a classroom does not guarantee full participation and
engagement (Bergen, 2003; Buysse & Bailey, 1993; Gee, 2002; Guralnick, 2001c).

Although many inclusive settings supposedly feature full participation and engagement for children with disabilities, quality interactions with typically developing peers are often lacking. Classroom teachers must therefore find ways to support children by facilitating increased opportunities for positive social interactions between typically developing peers and children with disabilities.

In general, inclusive classrooms are dynamic, complex, and require higher expectations of teachers. For example, inclusive classrooms require a variety of resources and supports for children with disabilities. Thus, because of the unique opportunities offered to children in inclusive settings, teachers, who are important factors in the successful social integration of children with disabilities, require different kinds of knowledge (Bergen, 2003; Guralnick, 2001c; Mallory & Rous, 2009; Odom, 2002; Soriano-Nagurski, 1998; Villa & Colker, 2006). Teachers need to identify and implement evidence-based practices for meeting the needs of diverse children in their classrooms (Diamond, Hong, & Baroody, 2008; LaRocque & Darling, 2008). An effective intervention strategy for teachers to use in inclusive settings between children with disabilities and their peers is peer-mediated intervention (PMI).

Chapter 1 presents a general definition of PMI as well as the three types of PMI. A summary of general information about PMI appears along with the benefits for children with and without disabilities. A literature review follows with a critical analysis of the evidence base, including an examination of similarities and differences among studies and an assessment of the adequacy of study procedures; furthermore, what is
known and needs to be known regarding PMI for preschoolers with disabilities served in inclusive settings is also discussed.

Peer-Mediated Intervention

Peer-mediated intervention is a recommended strategy in which peers take on an instructional role with classmates or other children (Chandler, Lubeck, & Fowler, 1992; Conroy & Brown, 2004; Harper, Symon, & Frea, 2008; Harris, Petti-Frontczak, & Brown, 2009; Kohler & Strain, 1999). PMI is also referred to as peer tutoring, in which children are trained to prompt and interact with one another, often with peers with disabilities. PMI requires the teacher to design and train a peer or peers to deliver instruction that is often designed to address social or academic skills. The role of the target child is to respond to peers’ initiations to gain needed skills. In particular, studies have indicated the use of peers as role models has the potential to be more advantageous than teachers for teaching and modeling social behaviors (Guralnick, 2001a; Utley, Mortweet, & Greenwood, 1997). Scholars have discussed three types of PMI, including peer proximity, peer prompting and reinforcement, and peer initiation (Odom & Strain, 1984). Each is described below.

Peer Proximity

Based on the premise that placing peers with children with disabilities increases the opportunities for positive outcomes, peer proximity, the first type of PMI, allows a natural interaction between children (Odom & Strain, 1984). For example, Christopher, Hansen, and MacMillan (1991) examined the impact of a peer-helper assigned to a child with a disability. The peer helper was instructed to play near a child with a disability, for
example, taking a ball outside during recess and bouncing it next to the child with a
disability. The child with a disability could observe how the peer bounced the ball and
how others joined in to play with the ball.

Peers can also interact by remaining nearby and having the child with a disability
watch the way a peer performs classroom activities and routines (Whitaker, 2004).
Children with autism and peers met in weekly interaction sessions to promote shared play
together and positive social behaviors. Peers were instructed to remain close and model
appropriate play behaviors (e.g., following his or her lead, waiting for a turn, and turn
taking) to children with autism during shared play. Peers encouraged play behaviors for
children with autism using games and popular children’s activities. Carter, Cushing,
Clark, and Kennedy (2005) found peer proximity successful with social activities during
school hours. Peers assisted children with disabilities to learn a school locker coding
system by remaining close and observing peers open and shut the lockers and encouraged
children with disabilities to attend extracurricular activities with them. In a similar study,
peers were paired up with children with disabilities to serve as peer buddies during lunch
and recess (Kamps, Kravits, & Ross, 2002). Overall, peer proximity has been
investigated and has produced results in increasing positive social behaviors with
children with autism (McHale, 1983), withdrawn preschool children (Furman, Rahe, &
Hartup, 1979), and mainstreamed academically handicapped children (Madden & Slavin,
1983). In addition, peer proximity has proven successful with increasing positive social
behaviors of children and youth with behavioral disorders (Bierman, 1986; Lord &
Peer Prompting and Reinforcement

Peer prompting and reinforcement, a second type of PMI, involves teaching peers to prompt and reinforce the desired response from a child with a disability. Research into peer prompting and reinforcement has indicated success in promoting social interactions and turn taking (Goldstein & Ferrell, 1987; Kohler & Fowler, 1985). For example, peer prompting and reinforcement increased the use of play organizers for four socially withdrawn preschoolers by requesting and asking a friend to play, initiating turn taking, and assisting other peers (Lindeman, Fox, & Redelheim, 1993). Results from the study indicated an increase in the use of targeted skills as well as in the duration of peer interactions during the intervention phase. Plumer and Stoner (2005) examined the relative effects of peer tutoring and peer coaching, a form of peer-mediated intervention, on the positive social behaviors of children with attention deficit–hyperactivity disorder (ADHD). Three peer coaches were paired with three children with ADHD. A single-subject, multiple-baseline design was used with students in Grades 3 and 4 to investigate peer positive social behaviors during spelling. When peer coaches prompted positive social behaviors and followed up with reinforcement, the children with ADHD increased positive social behaviors from a mean of 69% to 90%. In a similar study Houghton and Litwin (1995) used peer prompting and reinforcement to promote the reading skills of sixth graders. They reported considerable gains in reading accuracy and comprehension in the study in addition to an increase in positive social behaviors for children receiving the intervention.
Peer Initiation

Peer initiation, a third type of PMI, is used to promote social interaction skills for children with disabilities. For example, a typically developing peer may take the initiative in planning and carrying out play activities. The peer may also be depended upon to plan more elaborate play sequences than their peers with disabilities (Widerstrom, 2005). A study by Morrison, Kamps, Garcia, and Parker (2001) used peer initiations during game play to teach positive social behaviors like requesting, commenting, and sharing. Results of the study indicated using PMI was effective in increasing initiations by children with autism to their peers during game play. Lee, Odom, and Loftin (2007) later examined peer initiation for its potential to decrease stereotypic behaviors in three children with autism. Two typically developing peers learned to direct social initiations to each child with autism demonstrating stereotypic behaviors, such as hand flapping, body rocking, head rolling, and repetitive object manipulation, during structured play activities. Peers were taught four positive social behaviors: sharing a toy, suggesting play ideas that were interesting to the child with autism, assisting the child with autism, and being affectionate. Peer initiation increased children’s social engagement with play and decreased the level of stereotypic behaviors for all three children with autism while playing with peers. The level of stereotypic behaviors decreased even further during generalization of the study for two out of three children with autism.
General Knowledge About PMI

**PMI is Effective for a Wide Population of Young Children**

PMI is effective in promoting positive outcomes for a wide population of children, including children with autism (Goldstein, Kaczmarek, Pennington, & Shafer, 1992; Jung, Sainato, & Davis, 2008; Kamps et al., 2002; Laushey & Heflin, 2000; Odom & Strain, 1986), children with developmental disabilities (Spohn, Timko, & Sainato, 1999), children with handicapping conditions (Odom, Hoyson, Jamieson, & Strain, 1985), children who are socially withdrawn (Storey, Smith, & Strain, 1993), children who are blind and handicapped (Sisson, Babeo, & VanHasselt, 1988), children who initiate few interactions (Lord & Hopkins, 1986), children with challenging behaviors (Strain, Shores, & Kerr, 1976), children who have mild forms of cognitive delay (Strain, Shore, & Timm, 1977), and children who rarely use spontaneous language, gestures, or eye contact before speaking (Mundy, Sigman, Ungerer, & Sherman, 1986; Strain, 1984). For example, Zanolli, Daggett, and Adams (1996) used a multiple baseline across activities in their study with two low-functioning 4-year-old preschool children with autism. The PMI consisted of a “priming intervention,” in which the two children engaged in their preferred play activities and were reinforced for directing positive social behaviors toward a trained peer. After the priming phase of the study, the children with autism participated in activity sessions in which the teacher prompting was withdrawn and a peer provided reinforcement for initiations that included the following: looking at the peer’s face, smiling at the peer, saying “Give me that,” touching the peer, saying the peer’s name, and saying “Look at me.” During the intervention phases the children with
autism increased their spontaneous initiations, surpassing the average rate of initiations among typical peers without teacher prompting. In a similar study Goldstein and Cisar (1992) investigated the effects of using scripts during dramatic play to increase social interactions and communicative skills with children with autism. The practicality and acceptability of PMI demonstrated significant improvements in social and communicative interactions among children with autism and their typically developing peers. The children with autism increased high-quality verbal and nonverbal social behaviors during sociodramatic play.

**PMI is Effective in a Variety of Settings**

PMI is effective in increasing positive social behaviors for children with disabilities in a variety of settings, including community preschools (Arntzen, Halstadтро, & Halstadтро, 2003; Goldstein, English, Shafer, & Kaczmarek, 1997; Sawyer, Luiselli, Ricciardi, & Gower, 2005), university preschools (Zanolli et al., 1996), urban and public preschools (Jung et al., 2008; Odom et al., 1985; Spohn et al., 1999), Head Start classrooms (Storey et al., 1993), family daycares (Robertson, Green, Schloss, & Kohler, 2003), kindergarten classrooms (Carden-Smith & Fowler, 1984; Laushey & Heflin, 2000), special education classrooms (Lee et al., 2007; Odom & Watts, 1991; Oke & Schreibman, 1990; Strain et al., 1977), elementary classrooms (Calhoon, Otaiba, Cihak, King & Avalos, 2007; DuPaul & McGoeу, 1997; Kamps et al., 2002; Pierce & Schreibman, 1997), middle school (McDuffie, Mastropieri, & Scruggs, 2009), and high school (Carter et al., 2005). For example, a study by Kamps, Leonard, Vernon, Dugan, and Delquadri (1992) investigated the use of PMI, specifically peer initiation, with
children with autism to improve positive social behaviors with peers. In their study conducted in an elementary school, PMI was implemented throughout the entire class. The children with autism were paired with peer classmates during an art session involving making party hats, creating a collage, or making a puppet. The specific positive social behaviors included greetings, giving and accepting compliments, and taking turns with peers. Findings from the study strongly indicated that PMI increased the frequency of time engaged in and duration of social interactions for the children with autism and their typically developing peers in a first-grade classroom. In a similar study, Laushey and Heflin (2000) examined the effects of PMI in a kindergarten setting, using peer initiation in a peer buddy system. For the study all students were taught to act as peer buddies and initiate specific positive social behaviors (e.g., turn taking, waiting for another’s response, and looking at or in the direction of another person who is speaking) with children with autism. Once trained, peers implemented PMI during free play-center time. Results indicated children who served as peer buddies significantly increased appropriate positive social behaviors for two children with autism in a kindergarten setting.

**PMI is Effective in a Variety of Activities**

PMI has been shown to be effective for a variety of classroom activities, including recess (Harper et al., 2008), physical education (Klavina & Block, 2008), science (McDuffie et al., 2009), and lunchtime (Spohn et al., 1999). PMI can also be used within a wide variety of classroom routines, including circle time, story time, and transitions. For example, a study by Robertson et al. (2003) demonstrated that PMI was successful
nearly 100% of the time in facilitating children’s participation in routine preschool activities, especially during circle time and story time. PMI is also practical during transition activities. A study by Fowler (1986) indicated PMI is effective in promoting independent performance during routine transition times. Peers who acted as transition time monitors modeled appropriate behaviors for children with disabilities during transition times throughout the school day. Similarly, Sainato, Strain, Lefebvre, and Rapp (1987) used a peer-monitoring system during routine transitions in which typically developing peers served as peer buddies for children with autism. Peers paired with and assisted children with autism to make appropriate choices around the classroom and were able to support children with autism to make quicker transitions with less challenging behaviors across three transition activities, including circle to table activities, snack to bathroom, and circle to language arts.

PMI is Effective for a Variety of Skills

PMI effectively addresses a full range of skills young children with disabilities are expected to perform throughout daily activities while also enhancing the skills of peers. PMI has been used to improve children’s word recognition (Chiang, Thorpe, & Darch, 1980), spelling, (Delquadri, Greenwood, Stretton, & Hall, 1983; Plumer & Stoner, 2005), math comprehension (Sharpley, Irvine, & Sharpley, 1983), and written capitalization skills (Campbell, Brady, & Linehan, 1991). A study by Arntzen et al., (2003) used PMI to train a young child with developmental disabilities to engage in playground games (e.g., Red Light, Green Light, and Simon Says) by introducing special game skills and rules with peers in a preschool setting. Following training, peers were
successful in prompting the child with a disability to take turns and play games as a participant and leader. Results indicated the child with the disability interacted more often and participated in additional games, using similar game skills and rules, with peers at the playground. Likewise, Fuchs, Fuchs, and Burish (2000) used PMI to develop stronger reading fluency, using Peer-Assisted Learning Strategies (PALS), a school-wide reading program for elementary school children with and without disabilities. The program incorporates structured activities requiring peers to engage in frequent interactions, provide corrective feedback, and take turns as a tutor and tutee. The study clearly linked PMI with numerous positive outcomes, including but not limited to increasing (a) a child’s active interest and engagement in reading, (b) positive social behaviors with peers, and (c) performance of a cognitive developmental skill.

**PMI is Effective for Increasing Positive Social Outcomes**

PMI also effectively enhances positive social outcomes for children with disabilities by increasing turn taking (Harper et al., 2008; Odom & Watts, 1991; Spohn et al., 1999); initiating and greeting peers (Christopher et al., 1991; Sainato et al., 1987; Storey et al., 1993); sharing and making personal choices (Goldstein & Cisar, 1992; Sawyer et al., 2005; Tsao & Odom, 2006); requesting information, seeking permission, and gaining attention (Goldstein et al., 1997; Morrison et al., 2001); asking questions (Causton-Theoharis & Malngren, 2005; Laushey & Helflin, 2000); and initiating conversations with peers (Garrison-Harrell, Kamps, & Kravitz, 1997). Overall, 97% of the 34 studies on PMI conducted from 1977 to 2008 revealed that using PMI effectively increases a variety of positive social outcomes for children with disabilities (Carter et al.,
2005; Garrison-Harrell et al., 1997; Harper et al., 2008; Kamps et al., 2002; Laushey & Heflin, 2000; Odom, Chandler, Ostrosky, McConnell, & Reaney, 1992; Plumer & Stoner, 2005; Storey et al., 1993; Tsao & Odom, 2006; Whitaker, 2004). In addition, one study focused on the acquisition and generalization of capitalization skills and showed PMI effective in promoting positive outcomes (Campbell et al., 1991).

**PMI is Effective for Peer Mediators**

In addition to increasing positive outcomes for children with disabilities, some evidence has shown the positive effect of PMI on peer mediators. For example, peers benefit from being members of inclusive classrooms by gaining insight and understanding of the strengths and needs of children with disabilities (Schneider & Goldstein, 2008; Stainback & Stainback, 1990; Utley, 2001). The prompts, initiations, and praise given by peers to children with disabilities during the implementation of PMI promote self-awareness and empathy. With the support of peers, children with disabilities are given opportunities to move forward in all areas of development, especially in the area of social development. Table 1 summarizes the benefits of PMI for children with disabilities and peers with emphasis on outcomes from the social area of development. The foregoing discussion has shown that PMI is effective for a wide population of children, in a variety of settings, across classroom activities, and for a broad range of skills. Overall, 97% of the studies reviewed showed the effects of using PMI to be effective for increasing positive social behaviors for children with disabilities. Although results from past studies summarized general attributes and benefits of PMI, the
Table 1

*Benefits of PMI for Children With Disabilities and Peers on Positive Outcomes in the Social Area of Development*

<table>
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<tr>
<th>Children</th>
<th>Benefits of PMI</th>
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<tr>
<td>Children with disabilities</td>
<td>• Learn play skills by observing, interacting with, and playing with children who are typically developing (Goldstein et al., 1997; Oke &amp; Schreibman, 1990)</td>
</tr>
<tr>
<td></td>
<td>• Increase assisting, turn taking, and sharing with peers during play (Craig-Unkefer, 2002; Zannolli et al., 1996)</td>
</tr>
<tr>
<td></td>
<td>• Increase requesting, commenting, and asking for toys and materials during play (Goldstein &amp; Ferrell, 1987; Mathur &amp; Rutherford, 1991)</td>
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<td></td>
<td>• Gain independence during classroom routines and transitions (Carden-Smith &amp; Fowler, 1984; Strain, 1987)</td>
</tr>
<tr>
<td></td>
<td>• Increase initiating play, asking to play, and answering friends when spoken to (Egel &amp; Gradel, 1988; Kamps et al., 2002; McHale &amp; Gamble, 1986)</td>
</tr>
<tr>
<td>Children who are typically</td>
<td>• Increase social and language skills (Goldstein &amp; Wickstrom, 1986; Strain Danko, &amp; Kohler, 1995)</td>
</tr>
<tr>
<td>developing</td>
<td>• Increase self-confidence as role models of positive social behavior (Harper et al., 2008; Causton-Theoharis &amp; Malmgren, 2005)</td>
</tr>
<tr>
<td></td>
<td>• Build character by providing praise and encouragement to children with disabilities when they participate in daily play activities (Morrison et al., 2001; Plumer &amp; Stoner, 2005)</td>
</tr>
<tr>
<td></td>
<td>• Increase leadership skills by taking greater initiative in planning and carrying out play and offering assistance to teachers by supporting children with disabilities in learning or practicing self-help skills (Robertson, et al., 2003; Wolfberg &amp; Schuler, 1993)</td>
</tr>
<tr>
<td></td>
<td>• Learn to accept and appreciate individual differences among peers (DuPaul &amp; McGoey, 1997; Laushey &amp; Heflin, 2000).</td>
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</table>
effects of PMI for preschoolers in inclusive settings warranted further consideration. As a result, a critical analysis of PMI literature related to preschoolers was conducted.

A comprehensive ERIC and Academic Search Premier search for published articles pertaining to PMI in preschool inclusive settings was conducted with education and social sciences indexes. Key descriptor words for the search included *peer-mediated intervention*, *preschool children*, *peers*, *social interactions*, *single-subject design*, and *preschool*. From the search, 14 PMI studies were found that focused on preschool children in inclusive settings. All the studies met the following criteria for inclusion in the review: (a) participants were preschool children ranging in age from 3 to 6 years old; (b) a type of peer-mediated intervention was used as the independent variable; (c) a variety of positive social behaviors were targeted as the dependent variable(s); (d) single-subject design was used; and (e) procedures were reviewed according to the criteria for reliability and validity. Each of the studies was analyzed according to the following components: purpose of the study, participants (i.e., target children and peer mediators), experimental design, variables (i.e., independent variable and dependent variable), and procedures (i.e., fidelity, interobserver agreement, social validity). A summary and review of PMI studies conducted in preschool inclusive settings is summarized in Tables 2 (purpose, participants, and design) and 3 (variables and procedures).
### Table 2

**PMI Studies Conducted in Preschool Inclusive Settings: Purpose, Participants, and Design**

<table>
<thead>
<tr>
<th>Citation</th>
<th>Purpose</th>
<th>Child Participants</th>
<th>Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jung, S., Sainato, D. M., Davis, C. A. (2008).</td>
<td>Examine effects of high-priority sequences using embedded peer modeling on compliant responding to social requests in young children with autism</td>
<td>Twelve children without delays: four girls and two boys, ages 4 to 5 years old; three girls (trained generalized peers); two boys and one girl (untrained generalized peers)</td>
<td>Three children with autism (all 5- and 6-year-old boys)</td>
</tr>
<tr>
<td>Kohler, F. W., Greteman, C., Raschke, D., &amp; Highnam, C. (2007).</td>
<td>Examine impact of a buddy skills package on the social interactions between a child with autism and peers</td>
<td>Six children without disabilities (five girls and one boy; 4-year-olds)</td>
<td>One child with autism (4-year-old girl)</td>
</tr>
<tr>
<td>Sawyer, L., Luiselli, J. K., Ricciardi, J. N., &amp; Gower, J. L. (2005).</td>
<td>Measure verbal and physical sharing behaviors for a child with autism using PMI</td>
<td>Three to five children without disabilities</td>
<td>One child with autism (4-year-old boy)</td>
</tr>
</tbody>
</table>

*Note.* PM = Peer Mediator; TC = Target Child; IV = Independent Variable; DV = Dependent Variable; IOA = Interobserver Agreement; T = Teachers; P = Peers

*(table continues)*
Table 2 (continued)

*PMI Studies Conducted in Preschool Inclusive Settings: Purpose, Participants, and Design*

<table>
<thead>
<tr>
<th>Citation</th>
<th>Purpose</th>
<th>Child Participants</th>
<th>Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spohn, J. R., Timko, T. C., &amp; Sainato, D. M. (1999).</td>
<td>Evaluate the effects of PMI on an interactive placemat game on verbal social interactions during mealtime among preschool children</td>
<td>Two children without disabilities (one boy and one girl) and one boy with disabilities (57 to 69 months)</td>
<td>Three children (two boys and one girl socially withdrawn with mild developmental disabilities (48 to 67 months)</td>
</tr>
<tr>
<td>Goldstein, H., English, K., Shafer, K., &amp; Kaczmarek, L. (1997).</td>
<td>Evaluate the effects of PMI to teach typically developing children to be more aware of communicative attempts and social integration of classmates with disabilities across school activities</td>
<td>Two-year study First year: Four children without disabilities, all girls (42 months to 61 months). Second year: Four children without disabilities, two girls and two boys (40 to 61 months)</td>
<td>Two-year study First year: Four children with disabilities, all girls (42 months to 61 months) Second year: Four children with disabilities; two girls and two boys (40 to 61 months)</td>
</tr>
<tr>
<td>Zanolli, K., Daggett, J., &amp; Adams, T. (1996).</td>
<td>Evaluate the effect of priming for increasing social initiations involved in teaching children with autism to initiate to their peers in preschool activities</td>
<td>Ten children without disabilities (six girls and four boys, ranging from 4 to 6 years old)</td>
<td>Two children with autism (both 4-year-old boys)</td>
</tr>
<tr>
<td>Storey, K., Smith, D. J., &amp; Strain, P. S. (1993).</td>
<td>Examine the effectiveness of PMI on the social behavior of socially withdrawn preschoolers</td>
<td>Sixteen socially skilled children without delays</td>
<td>Eight socially withdrawn children (five girls and three boys, mild developmental delays, 37 to 54 months)</td>
</tr>
</tbody>
</table>

*Note.* PM = Peer Mediator; TC = Target Child; IV = Independent Variable; DV = Dependent Variable; IOA = Interobserver Agreement; T = Teachers; P = Peers
### Table 2 (continued)

**PMI Studies Conducted in Preschool Inclusive Settings: Purpose, Participants, and Design**

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<tr>
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<th>Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goldstein, H., Kaczmarek, L., Pennington, R., &amp; Shafer, K. (1992).</td>
<td>Examine effects of PMI on communicative interactions between typically developing children and children with disabilities</td>
<td>Ten children without disabilities (five boys and five girls, 39 to 64 months)</td>
<td>Five children with disabilities (all boys, 35 to 82 months)</td>
</tr>
<tr>
<td>Goldstein, H., &amp; Cisar, C. L. (1992).</td>
<td>Investigate the effects of teaching sociodramatic scripts while controlling for differences in teacher prompting among experimental conditions</td>
<td>Six children without disabilities (two peers for each target child; five boys and one girl, 3 to 5 years old)</td>
<td>Three children with autism (all boys, 3 to 5 years old)</td>
</tr>
<tr>
<td>Sainato, D. M., Goldstein, H., &amp; Strain, P. S. (1992).</td>
<td>Investigate effects of a self-evaluation procedure on children’s social behaviors using PMI</td>
<td>Three children without disabilities (two girls and one boy, 47 to 55 months) Two children without disabilities served as untrained peers (46 and 50 months)</td>
<td>Three children with autism (all boys, 43 to 56 months)</td>
</tr>
</tbody>
</table>

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*(table continues)*
### Table 2 (continued)

**PMI Studies Conducted in Preschool Inclusive Settings: Purpose, Participants, and Design**

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<th>Child Participants</th>
<th>Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sainato, D. M., Strain, P. S., Lefebvre, D., &amp; Rapp, N. (1987).</td>
<td>Examine the effects of PMI versus antecedent prompt condition for handicapped children during transitions</td>
<td>Six children without disabilities (three males and three girls, 4 to 5 years old).</td>
<td>Three children with developmental disabilities and autism (all boys, ranging in age from 3 to 4 years old)</td>
</tr>
<tr>
<td>Goldstein, H., &amp; Wickstrom, S. (1986).</td>
<td>Examine whether children without disabilities could implement PMI to target children with disabilities</td>
<td>Two children without disabilities (one girl and one boy, each 4 years old)</td>
<td>Three children with language delays and behavior disorders (two boys, one girl; 3 to 4 years old)</td>
</tr>
<tr>
<td>Odom, S. L., Hoyson, M., Jackson, B., &amp; Strain, P. S. (1985).</td>
<td>Examine social behaviors using peer initiation; determine effects of PMI generalized across classroom settings</td>
<td>Three children without disabilities (two girls and one boy, ranging in age from 53 months to 61 months)</td>
<td>Three handicapped children (three boys, ranging in age from 34 to 52 months)</td>
</tr>
</tbody>
</table>

*Note. PM= Peer Mediator; TC= Target Child; IV= Independent Variable; DV= Dependent Variable; IOA= Interobserver Agreement; T= Teachers; P= Peers*
Table 3

*PMI Studies Conducted in Preschool Inclusive Settings: Variables and Procedures*

<table>
<thead>
<tr>
<th>Citation</th>
<th>Variables</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IV</td>
<td>DV</td>
</tr>
<tr>
<td>Jung et al. (2008).</td>
<td>Peer initiation</td>
<td>Verbal or gestural initiation behaviors; Verbal responses to low- and high-p responses; negative disruptive behaviors (e.g., inappropriate verbal or gestural behaviors).</td>
</tr>
<tr>
<td>Kohler et al. (2007).</td>
<td>Peer prompting, peer initiation, and reinforcement</td>
<td>Turn taking and requesting</td>
</tr>
<tr>
<td>Sawyer et al. (2005).</td>
<td>Peer prompting and reinforcement</td>
<td>Physical sharing (turn taking) and verbal sharing</td>
</tr>
<tr>
<td>Arntzen et al. (2003).</td>
<td>Peer prompting and reinforcement</td>
<td>Turn taking and requests</td>
</tr>
</tbody>
</table>

Note. PM= Peer Mediator; TC= Target Child; IV= Independent Variable; DV= Dependent Variable; IOA= Interobserver Agreement; T= Teachers; P= Peers

*(table continues)*
### Table 3 (table continues)

**PMI Studies Conducted in Preschool Inclusive Settings: Variables and Procedures**

<table>
<thead>
<tr>
<th>Citation</th>
<th>Variables</th>
<th>Procedure</th>
<th>Fidelity</th>
<th>IOA</th>
<th>Social Validity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spohn et al. (1999).</td>
<td>Peer prompting and peer initiation</td>
<td>Turn taking, responses (verbal or nonverbal)</td>
<td>Yes (T)</td>
<td>Yes</td>
<td>Questionnaire</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Requests for attention (verbal or nonverbal); comments (verbal) and responses (verbal or nonverbal).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goldstein et al. (1997).</td>
<td>Peer proximity, peer initiation, peer prompting, and reinforcement</td>
<td>Requests (i.e., turn taking), comments, and gestures (verbal and nonverbal)</td>
<td>Yes (P)</td>
<td>Yes</td>
<td>Questionnaire and videotape</td>
</tr>
<tr>
<td>Zanolli et al. (1996).</td>
<td>Peer initiation</td>
<td>Verbal and nonverbal initiations and responses</td>
<td>Yes (T)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(P)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storey et al. (1993).</td>
<td>Peer prompting and reinforcement</td>
<td>Verbal and nonverbal initiations and responses</td>
<td>Yes (T)</td>
<td>Yes</td>
<td>Questionnaire and videotape</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(P)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goldstein et al. (1992).</td>
<td>Peer prompting and reinforcement</td>
<td>Verbal and nonverbal requests for action; requests for attention; responses to request for information</td>
<td>Yes (T)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(P)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goldstein, H., &amp; Cisar, C. L. (1992).</td>
<td>Peer prompting and reinforcement</td>
<td>Verbal and nonverbal (theme related to dramatic play activities, total of 30)</td>
<td>Yes (T)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(P)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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(table continues)
Table 3 (table continues)

*PMI Studies Conducted in Preschool Inclusive Settings: Variables and Procedures*

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<tr>
<th>Citation</th>
<th>Variables</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IV: Peer initiation</td>
<td>DV: Verbal requests and comments; nonverbal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>responses</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fidelity: Yes (T)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IOA: Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Social Validity: No</td>
</tr>
<tr>
<td>Sainato et al.</td>
<td>Peer initiation</td>
<td>Verbal requests and comments; nonverbal responses</td>
</tr>
<tr>
<td>(1992).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sainato et al.</td>
<td>Peer prompting</td>
<td>Requests, following directions (verbal prompts)</td>
</tr>
<tr>
<td>(1987).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goldstein, H., &amp;</td>
<td>Peer prompting</td>
<td>Verbal requests and comments; nonverbal responses</td>
</tr>
<tr>
<td>Wickstrom, S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1986).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odom et al.</td>
<td>Peer initiation</td>
<td>Turn taking, requests (verbal and nonverbal)</td>
</tr>
<tr>
<td>(1985).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Participants in PMI Studies**

Participants represent the population of young children who participated in the studies. The first section below summarizes peer mediators who implemented PMI. The second section summarizes target children who received PMI. Demographic factors such as age, gender, and special education services are discussed along with criteria for selecting and training peer mediators.

**Peer Mediators**

Studies analyzed included children (both boys and girls) serving as peer mediators who were the same age or older than the children with disabilities. Standard
demographic information about peer mediators, including ethnicity, was not available for most studies. One study used a child with a disability as a peer mediator (Spohn et al., 1999). Ten studies employed multiple peers (Arntzen et al., 2003; Goldstein, & Cisar, 1992; Goldstein et al., 1992; Goldstein & Wickstrom, 1986; Jung et al., 2008; Kohler et al., 2007; Sainato et al., 1987; Sawyer et al., 2005; Storey et al., 1993; Zannolli et al., 1996). Interestingly enough, when multiple peers were paired for implementing PMI, girls were selected more frequently than boys. In addition to increasing positive social behaviors, support from the literature suggests multiple peers may enhance generalization (Stokes & Osnes, 1988). A possible reason for this could be that training multiple peers reduces fatigue and boredom (Odom & Strain, 1984). Finally, three studies included untrained peers mediators (Jung et al., 2008; Goldstein et al., 1997; Sainato et al., 1992). Results indicated that peer mediators who were untrained demonstrated little change in behaviors from baseline to intervention.

Criteria for selecting peer mediators included the ability to follow teacher directions consistently, demonstrate age-appropriate interactions with peers, attend preschool on a regular basis, possess good social skills (as shown by assessments, teacher observation, family preferences, and professional opinions), play frequently at target child’s preferred activities, and have an expressed interest in approaching the target child during prebaseline sessions. Four studies reviewed used formal assessment measures (e.g., McCarthy Scales of Children’s Abilities and the Learning Accomplishment Profile) to assist with selecting peers (Goldstein & Cisar, 1992; Goldstein et al., 1992; Goldstein
& Wickstrom, 1986; Sainato et al., 1987). In addition, one study used sociometric status as a factor for selecting peers (Goldstein et al., 1997).

For most studies, peer mediators were trained in naturalistic settings across a variety of centers, toys, and materials. In earlier studies, however, peer training was conducted outside classroom settings (Goldstein & Cisar, 1992; Goldstein et al., 1997; Goldstein & Wickstrom, 1986; Odom et al., 1985). Peer training, consisting of a variety of formal procedures conducted by teachers, researchers, and research assistants, included verbal instructions (Goldstein & Wickstrom, 1986; Odom et al., 1985), verbal instructions and modeling (Jung et al., 2008; Sainato et al., 1987; Sainato et al., 1992; Sawyer et al., 2005), verbal instructions and feedback (Arntzen et al., 2003; Zanolli et al., 1996), verbal instructions, role-playing, and feedback (Goldstein & Cisar, 1992; Goldstein et al., 1992; Kohler et al., 2007; Spohn et al., 1999; Storey et al., 1993), and videotape, verbal instructions, role-playing, and feedback (Goldstein et al., 1997).

Interesting to note, formal training was never specifically defined in the literature; for this reason, each researcher developed criteria for training peers according to the purpose and variables in the study.

An analysis of studies indicate peer mediators were trained together in small groups (Goldstein & Cisar, 1992; Goldstein et al., 1997; Goldstein et al., 1992; Goldstein & Wickstrom, 1986; Odom et al., 1985; Jung et al., 2007; Sainato et al., 1992; Sainato et al., 1987; Spohn et al., 1999; Zanolli et al., 1995), individually (Storey et al., 1993), or with the target child (Arntzen et al., 2003; Kohler et al., 2007; Sawyer et al., 2005). Training lasted 3 to 10 days following baseline or at the beginning of the intervention.
phase for 15 to 20 minutes each session. One study involved peer training prebaseline (Zanolli et al., 1996). In the majority of studies, training was deemed successful when an 80% accuracy criterion was established for peer mediators (Goldstein & Cisar, 1992; Goldstein et al., 1997; Goldstein et al., 1992; Goldstein & Wickstrom, 1986; Sainato et al., 1992). In addition, six studies employed posters or scripts to accompany teacher modeling as supportive tools for peer training (Goldstein & Cisar, 1992; Goldstein et al., 1992; Goldstein & Wickstrom, 1986; Sainato et al., 1992; Sainato et al., 1987; Storey et al., 1993). As a result, positive social behaviors increased for target children, and PMI had a positive effect on the dependent variable.

**Target Children**

Participants in the studies were young children with disabilities associated with language delays (Goldstein et al., 1997; Jung et al., 2008; Sainato et al., 1987); physical/motor delays (Goldstein & Wickstrom, 1986); cognitive delays (Goldstein & Wickstrom, 1986); and a combination of delays, including language, social, and cognitive deficits (Goldstein et al., 1992) as well as children who were socially withdrawn with mild developmental delays (Arntzen et al., 2003; Goldstein & Wickstrom, 1986; Spohn et al., 1999; Storey et al., 1993), children with pervasive developmental delays (Goldstein et al., 1992; Jung et al., 2008), children with Down syndrome (Goldstein et al., 1997), children with a behavioral disorder (Goldstein & Wickstrom, 1986; Sainato et al., 1987) and children on the autism spectrum (Goldstein, & Cisar, 1992; Goldstein et al., 1992; Kohler et al., 2007; Odom et al., 1985; Sainato et al., 1992; Sainato et al., 1987; Sawyer et al., 2005; Zanolli et al., 1996).
Most often, children with autism, mostly boys, were identified as target children. Interestingly, only five studies included girls as target children (Goldstein et al., 1997; Goldstein & Wickstrom, 1986; Kohler et al., 2007; Spohn et al., 1999; Storey et al., 1993). Studies analyzed included one girl diagnosed with autism and four diagnosed with developmental delays. Standard demographic information about target children, including ethnicity, was unavailable for most studies.

**Design in PMI Studies**

Single-subject designs were commonly used for assessing the effects of PMI implementation. The majority of studies analyzed implemented a multiple-baseline design across participants (Goldstein et al., 1997; Goldstein, & Wickstrom, 1986; Jung et al., 2008; Kohler et al., 2007; Sainato et al., 1992), settings (Odom et al., 1985), or activities (Zannolli et al., 1996). In addition, three studies used a multiple probe design across settings (Arntzen et al., 2003; Goldstein, & Cisar, 1992; Storey et al., 1993), two used a reversal design (Spohn et al., 1999; Goldstein et al., 1992), one used an alternating treatment design (Sainato et al., 1987), and one used an ABCB single-case design (Sawyer et al., 2005).

**Variables in PMI Studies**

Direct manipulation of variables is a traditional aspect of single-subject designs used to observe any changes in behavior taking place before and after an intervention. Variables include independent variables and dependent variables. The first section below includes a summary of independent variables (IV); the second, a summary of dependent variables (DV) selected for the studies.
Independent Variable

Independent variable(s) implemented for the studies included widely varying combinations of types of PMI, including peer prompting and reinforcement (Arntzen et al., 2003; Goldstein & Cisar, 1992; Goldstein et al., 1992; Sainato et al., 1987; Sawyer et al., 2005; Storey et al., 1993), peer initiation (Jung et al., 2008; Odom et al., 1985; Sainato et al., 1992; Zannolli et al., 1996); peer prompting and initiation (Spohn et al., 1999); and peer prompting without initiation or feedback (Goldstein & Wickstrom, 1986). Peer prompting and reinforcement was the most commonly used independent variable. Two studies involving a peer buddy system used a combination of all three types of PMI (Goldstein et al., 1997; Kohler et al., 2007).

Dependent Variable

Dependent variable(s) investigated for the studies included a variety of positive social behaviors, including turn taking (Arntzen et al., 2003; Goldstein & Cisar, 1992; Odom et al., 1985; Sawyer et al., 2005; Spohn et al., 1999; Zannolli et al., 1996); requests for attention (Arntzen et al., 2003; Goldstein et al., 1997; Goldstein et al., 1992); commenting on descriptions of past, present, or play activities of peers (Goldstein et al., 1997; Goldstein & Wickerstrom, 1986; Zannolli et al., 1996); responding to comments and questions (Goldstein et al., 1997; Goldstein & Wickerstrom, 1986; Jung et al., 2008; Sainato et al., 1987); answering questions (Goldstein & Cisar, 1992); asking for assistance and requesting information (Goldstein et al., 1992); and showing affection to peers (Odom & Strain, 1986). The most commonly used positive social behavior selected for children with disabilities, turn taking is defined in the general procedures
section of Chapter 2 under the subheading Identification of Positive Social Behaviors and Negative Social Behaviors.

**Procedures in PMI Studies**

The procedures consist of a series of steps researchers completed in the studies to establish accuracy and acceptability of PMI. These steps include fidelity of teacher training and implementation of PMI, interobserver agreement, and social validity. A summary follows.

**Fidelity of Teacher Training and Implementation of PMI, Interobserver Agreement, and Social Validity**

To ensure that PMI was carried out accurately and properly, fidelity measures were used for nine studies to code teacher training and for 12 studies to code peer mediator training. Fidelity measures included implementation checklists, probes, event-recording systems, observations, and video and audio taping. Table 2 displays a listing of studies that included teacher training (T) and peer mediator training (P). Interobserver agreement was also measured across all studies and was reportedly between 80% and 100%. To measure the social worth of PMI, several studies employed social validity measures. Questionnaires were distributed and completed by early childhood teachers, professionals (e.g., speech pathologists, school psychologists), and parents (Goldstein et al., 1997; Jung et al., 2008; Kohler et al., 2007; Odom & Strain, 1986; Sawyer et al., 2005; Spohn et al., 1999; Storey et al., 1993). Likert-rating scales were used to collect information about consumer and level of satisfaction on the potential acceptability of PMI.
Findings in PMI Studies

Results from all studies indicated PMI demonstrated increased positive social behaviors for all target children. Table 4 summarizes results of PMI studies in preschool inclusive settings. Topics displayed include the desired effect achieved on the dependent variable after implementing PMI, change in level of demonstration of the dependent variable, immediacy of change from baseline to intervention, overlapping data between baseline and intervention, functional relationship between implementation of PMI and changes in target behaviors, and evidence of high or low efficacy of PMI.

Table 4

Results of PMI Studies in Preschool Inclusive Settings

<table>
<thead>
<tr>
<th>Citation</th>
<th>Desired Effect Achieved</th>
<th>Change in Level of Demonstration of DV</th>
<th>Magnitude of Effect</th>
<th>Overlapping Data</th>
<th>Functional Relationship</th>
<th>Evidence of the Efficacy of PMI</th>
<th>Reason for the High/Low Efficacy of PMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jung et al. (2008).</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>High</td>
<td>Connected with interests of target children and peers</td>
</tr>
<tr>
<td>Kohler et al. (2007).</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>High</td>
<td>Peer training and visual cues</td>
</tr>
<tr>
<td>Sawyer et al. (2005).</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Not measured</td>
<td>High</td>
<td>Prompting and reinforcement from peers</td>
</tr>
<tr>
<td>Amtzen et al. (2003).</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>High</td>
<td>Peer training</td>
</tr>
</tbody>
</table>
Table 4 (continued)

Results of PMI Studies in Preschool Inclusive Settings

<table>
<thead>
<tr>
<th>Citation</th>
<th>Desired Effect Achieved</th>
<th>Change in Level of Demonstration of DV</th>
<th>Magnitude of Effect</th>
<th>Overlapping Data</th>
<th>Functional Relationship</th>
<th>Evidence of the Efficacy of PMI</th>
<th>Reason for the High/Low Efficacy of PMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spohn et al. (1999).</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>High</td>
<td>Prompting from peers</td>
</tr>
<tr>
<td>Goldstein et al. (1997).</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>High</td>
<td>PMI easy to train peers and implement and across a variety of activities</td>
</tr>
<tr>
<td>Zanolli et al. (1996).</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>High</td>
<td>Priming</td>
</tr>
<tr>
<td>Storey et al. (1993).</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>High</td>
<td>Multiple dependent variables</td>
</tr>
<tr>
<td>Goldstein, H., &amp; Cisar, C. L. (1992).</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>High</td>
<td>Scripts</td>
</tr>
<tr>
<td>Goldstein et al. (1992).</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>High</td>
<td>Multiple peers</td>
</tr>
<tr>
<td>Sainato et al. (1992).</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Low</td>
<td>Self-evaluation training</td>
</tr>
</tbody>
</table>

*(table continues)*
Table 4 (continued)

Results of PMI Studies in Preschool Inclusive Settings

<table>
<thead>
<tr>
<th>Citation</th>
<th>Desired Effect Achieved</th>
<th>Change in Level of Demonstration of DV</th>
<th>Magnitude of Effect</th>
<th>Overlapping Data</th>
<th>Functional Relationship</th>
<th>Evidence of the Efficacy of PMI</th>
<th>Reason for the High/Low Efficacy of PMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sainato et al. (1987).</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>High</td>
<td>Yes</td>
<td>Peers did not require intensive training</td>
</tr>
<tr>
<td>Goldstein, H., &amp; Wickstrom, S. (1986).</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>High</td>
<td>Multiple peers; peer training; posters as visual cues</td>
</tr>
<tr>
<td>Odom et al. (1985).</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>High</td>
<td>Yes</td>
<td>Feedback to peers from teachers for initiating target children</td>
</tr>
</tbody>
</table>

Evidence of the Efficacy of PMI

Evidence of the efficacy of PMI was high across all studies. A possible explanation for such high efficacy derive from several considerations, including formal peer training for instructing peers prior to implementing PMI, visual cues as support for peers during trainings (e.g., posters and scripts) to increase positive social behaviors for children with disabilities, awareness of the interests of target children and peers when selecting toys and materials for implementing PMI, and investigating the use of multiple dependent variables instead of only one. In addition to demonstrating the effectiveness of PMI for increasing positive social behaviors, several studies indicated the robust effects of PMI were a result of children serving as peer mediators for implementing PMI.
successfully and with little training (Goldstein & Cisar, 1992; Goldstein et al., 1997; Goldstein & Wickstrom, 1986; Jung et al., 2008; Kohler et al., 2007; Sainato et al., 1987; Spohn et al., 1999; Storey et al., 1993). Studies with multiple peers also experienced a strong immediacy of change from baseline to intervention and demonstrated a functional relationship (Goldstein et al., 1992; Goldstein & Wickstrom, 1986; Storey et al., 1993). Finally, support from the literature indicated teacher prompts and feedback to peers (e.g., praise, tokens, and stickers) contributed to ensuring that peers implement PMI effectively and successfully to children with disabilities (Arntzen et al., 2003; Goldstein & Cisar, 1992; Kohler et al., 2007; Odom et al., 1985; Spohn et al., 1999). As discussed above, teachers play an important role in supporting children with full participation and facilitating opportunities for positive social behaviors with typically developing peers and children with disabilities. In addition, the increased frequency of feedback between peer mediators and children with disabilities creates a unique, reciprocal interaction among children for establishing positive social behaviors they can apply to a variety of activities at preschool and daily life.

**Magnitude of Effect**

Desired intervention effects were achieved for all studies resulting in increasing positive social behaviors for target children, including behaviors such as responses (Arntzen et al., 2003; Goldstein, & Cisar, 1992; Goldstein et al., 1997; Goldstein & Wickerstrom, 1986), requests (Jung et al., 2008; Goldstein et al., 1997; Goldstein et al., 1992; Goldstein & Wickstrom, 1986; Sainato et al., 1992), comments (Goldstein et al., 1992), greetings (Sainato et al., 1992; Storey et al., 1993), turn taking (Kohler et al.,
and nonverbal behaviors directed toward peers (e.g., looking, smiling, hugging, and holding hands) (Zanolli et al., 1996). All studies demonstrated a change in the level of the dependent variable(s) and immediate change following the onset of the intervention. In addition, most studies experienced a little or quite a bit of data overlap between baseline and intervention phases. However, only a few studies reported a functional relationship between implementation of PMI and positive outcomes for target children (Goldstein et al., 1992; Goldstein & Wickstrom, 1986; Kohler et al., 2007; Spohn et al., 1999; Storey et al., 1993). In one study researchers compared the effectiveness of PMI with another intervention (i.e., antecedent prompting procedures) and found PMI promoted a higher increase in desired social behaviors for target children. In addition, researchers from another study demonstrated the use of PMI gave teachers extra support for managing transitions in a preschool inclusive setting by turning the responsibilities over to peers (Sainato et al., 1987).

**Maintenance and Generalization**

Over the past 25 years, the maintenance and generalization of PMI has been insufficiently researched. Across 14 studies, only five included follow-up data and visual analysis to demonstrate maintenance (Goldstein & Wickerstrom, 1986; Jung et al., 2008; Kohler et al., 2007; Sainato et al., 1992; Sawyer et al., 2005). Maintenance was most often conducted for 40 to 60 days following intervention. During maintenance visual supports, teachers prompting, and reinforcements were withdrawn. Results have
indicated that intervention conditions remained in effect or increased to higher levels of positive social behaviors for target children.

Five studies examined whether target children’s positive social behaviors generalized to other activities in the classroom following intervention (Goldstein, & Cisar, 1992; Goldstein et al., 1997; Jung et al., 2008; Sainato et al., 1992; Spohn et al., 1999). For example, Jung et al. (2008) found target children’s social interactions increased and generalized to untrained peers and to nontrained settings during generalization. In a similar study, Spohn et al. (1990) generalized positive social behaviors taught during breakfast to lunchtime. All target children increased verbal responses to peers and decreased inappropriate mealtime behaviors. Additionally, three studies paired peer mediators with different target children during generalization, resulting in increased social positive behaviors. Children participating in the studies were familiar with one another; that is, all target children were diagnosed with autism or developmental disabilities (Goldstein & Cisar, 1992; Goldstein et al., 1997; Sainato et al., 1992). A possible reason for increased positive social behaviors for the peers and target children during generalization could be the novelty effect. The opportunity to participate in PMI with a variety of target children may motivate peers to interact more comfortably with a variety of children with disabilities.

**Limitations**

First, the lack of examination of maintenance and generalization of PMI are well documented (Chandler et al., 1992; Kohler & Strain, 1999; Morrison et al., 2001; Odom & Watts, 1991; Strain, 1987). Although maintenance and generalization of positive
social behaviors are difficult to achieve with PMI (Krantz, 2000), a need persists to examine further the effects of the intervention for generalization and maintenance (Kamps et al., 1992). Future research should also focus on a wider range of participants to examine the effects of PMI on a variety of young children. The majority of PMI studies published to date involved two to eight target children with autism. As a result, generalizing the results of PMI to other types of children is difficult. In addition, studies were limited in terms of the variability of children’s gender and ethnicity. Most target children were boys, and no studies identified children’s ethnicity. Finally, a review of the literature revealed 14 studies were conducted in preschool inclusive settings. Future researchers should investigate implementing PMI in a variety of preschool settings (e.g., Head Start, daycare centers, public inclusive preschool classrooms, Montessori classrooms, and private charter preschool classrooms).

Second, several studies indicate PMI would be strengthened by the addition of multiple peers for each child with a disability instead of just one (McEvoy, Odom, & McConnell, 1992). Multiple peers may increase the efficiency of the intervention. Peers often experience fatigue during the latter stages of the intervention phase, a common problem with PMI well documented in the literature (Kohler & Strain, 1999). Implementing multiple-peer support arrangements would alleviate some of the challenges peers encounter during the course of the study (Carter et al., 2005). Similar studies indicated the use of multiple peers has the potential to increase generalization and maintenance outcomes (Pianta, 2007; Spohn et al., 1990; Stokes, Baer, & Jackson, 1974).
Third, necessary training and implementation supports (scripts, toys, learning materials) should be considered for the peer mediator during PMI. For example, considerable variability occurred in the amount and type of training peers received and the extent to which they were supported in their implementation of PMI. No researchers used social stories as a visual support for training peers during the implementation of PMI, nor did most of the researchers consider children’s interests or give much attention to the selection of high-interest toys and materials when implementing PMI.

To address several of the limitations of past research and to add to the evidence base regarding PMI, the primary purpose of the current study was to examine the effect of PMI on the social skills of preschoolers when implemented in inclusive classrooms. The study addressed three questions:

1. Do peer mediators increase their use of PMI during intervention as compared to baseline?

2. Do target children’s positive social behaviors increase and their negative social behaviors decrease from baseline to intervention?

3. Do target children’s social skills improve from baseline to intervention?
CHAPTER II

METHODS

Chapter 2 provides a description of the setting in which the study was conducted, participants, measures used, general procedures, and study design. The study was guided by three research questions:

1. Do peer mediators increase their use of PMI during intervention as compared to baseline?

2. Do target children’s positive social behaviors increase and their negative social behaviors decrease from baseline to intervention?

3. Do target children’s social skills improve from baseline to intervention?

Descriptions of the setting, participants, measures, and design as well as the general and social validity procedures follow.

Setting

The study was conducted across two integrated preschool programs serving young children with disabilities in the Midwest. The first integrated program was a licensed preschool program located in a suburban county. The morning session was held from 8:45 a.m. to 11:45 a.m. The afternoon session was held from 12:30 p.m. to 3:00 p.m. Children attending ranged in ages from 3 to 6 years and included those considered at socioeconomic or educational risk, children who were typically developing, and children with identified disabilities. Children with disabilities were identified according to Ohio’s Operating Standards and Related Guidance for Ohio Educational Agencies Serving Children with Disabilities. Through federal, state, and local funds, children with
disabilities also received psychological therapy, speech and language therapy, occupational and physical therapy, social services, and transportation services. Each classroom included a licensed early childhood special education preschool teacher and a full-time classroom assistant. Additional support staff included a speech therapist, occupational therapist, physical therapist, and individual attendants.

The second integrated program was a licensed preschool program located in a suburban elementary school near a major city. The morning session was held from 9:00 a.m. to 11:30 a.m. The afternoon session was held from 12:30 p.m. to 3:00 p.m. Children attending ranged in age from 3 to 6 years and included those considered at socioeconomic or educational risk, children who were typically developing, and children with identified disabilities. Children with disabilities were identified according to Ohio’s Operating Standards and Related Guidance for Ohio Educational Agencies Serving Children with Disabilities. Through federal, state, and local funds, children with disabilities also received psychological therapy, speech and language therapy, occupational and physical therapy, social services, and transportation services. Each classroom included a licensed early childhood special preschool teacher and a full-time assistant. Additional staff included a speech pathologist, occupational therapist, physical therapist, school psychologist, and six intervention special assistants.

The study was described to interested teachers by the researcher during an initial visit to each classroom. The purpose of the visit was threefold: to meet with teachers and discuss study objectives, how PMI is defined, and the types and characteristics of PMI; to share readings regarding PMI; and to present a proposed time line for the study. Each
teacher received a written description of the study and was asked to consider children who would benefit from PMI.

Participants

Child Participants

The study included two groups of child participants—the children who delivered the peer-mediated intervention as well as the children who received the intervention (see the intervention procedures section for the assessment process used to identify child roles). Child participants who received the intervention included three children with disabilities (hereafter referred to as target children) across three separate classrooms. The target children were all boys between 45 and 68 months of age. Child participants who delivered the intervention included two peers (hereafter referred to as peer mediators) per classroom, for a total of six peer mediators. Two of the peer mediators had identified disabilities or delays. The group of peer mediators consisted of five boys and one girl between 52 and 69 months of age.

As recommended by Wolery and Dunlap (2001), to better understand child and family characteristics as well as their potential response to the intervention, descriptions of participants should include standard demographic information. Therefore, a demographic form was completed by each child’s caregiver or parent and contained questions regarding the child’s date of birth, gender, and ethnicity as well as basic information regarding the family’s socioeconomic status and configuration (see Appendix A for target child consent; Appendix B for peer mediator consent; Appendices C & D for photo and video consent; and Appendix E for the child demographic form).
Refer to Table 5 for a summary of child participant demographics. Target children’s present level of performance is described in the Measures section (see also Table 8).

**Table 5**

*Child Participant Information*

<table>
<thead>
<tr>
<th>Participants</th>
<th>Age (mo.)</th>
<th>Gender</th>
<th>Ethnicity</th>
<th>Developmental Status</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Classroom 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TC 1</td>
<td>68</td>
<td>Male</td>
<td>Caucasian</td>
<td>Down Syndrome</td>
<td>SPED, OT, &amp; ST</td>
</tr>
<tr>
<td>PM 1</td>
<td>61</td>
<td>Male</td>
<td>Caucasian</td>
<td>No History</td>
<td>None</td>
</tr>
<tr>
<td>PM 2</td>
<td>58</td>
<td>Female</td>
<td>Caucasian</td>
<td>No History</td>
<td>None</td>
</tr>
<tr>
<td><strong>Classroom 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TC 2</td>
<td>55</td>
<td>Male</td>
<td>Caucasian</td>
<td>Autism</td>
<td>SPED, PT, OT, &amp; ST</td>
</tr>
<tr>
<td>PM 3</td>
<td>62</td>
<td>Male</td>
<td>Caucasian</td>
<td>No History</td>
<td>None</td>
</tr>
<tr>
<td>PM 4</td>
<td>69</td>
<td>Male</td>
<td>Caucasian</td>
<td>Autism</td>
<td>SPED, OT, &amp; ST</td>
</tr>
<tr>
<td><strong>Classroom 3</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TC 3</td>
<td>45</td>
<td>Male</td>
<td>Caucasian</td>
<td>Developmental Delay</td>
<td>SPED, PT, &amp; ST</td>
</tr>
<tr>
<td>PM 5</td>
<td>52</td>
<td>Male</td>
<td>Caucasian</td>
<td>No History</td>
<td>None</td>
</tr>
<tr>
<td>PM 6</td>
<td>61</td>
<td>Male</td>
<td>African American</td>
<td>Speech Delay</td>
<td>ST</td>
</tr>
</tbody>
</table>

*Note.* TC = target child; PM = peer mediator; SPED = special education; OT = occupational therapy; PT = physical therapy; ST = speech therapy
Teacher Participants

Three early childhood special education teachers participated in the facilitation of the intervention (hereafter, referred to as Teacher Participant 1, Teacher Participant 2, and Teacher Participant 3). All teacher participants held at least a 4-year degree with various teaching licensures, and had experience teaching students between 4 to 21 years of age. The teachers taught full-time and were licensed in the state of Ohio to work with preschool age children with disabilities. Teacher demographic information was collected via the Teacher Demographic Form that included information regarding age, gender, ethnicity, years of experience, degree, and educational background/licenses (see Appendix F for the teacher consent and Appendix G for the teacher demographic forms). Refer to Table 6 for a summary of teacher participant demographics.

Measures

The researcher, research assistants, and teachers conducted a series of assessments, interviews, and classroom observations. Interpretation and analysis of these measures verified children’s present level of functioning in the social area of development and were used to identify dependent variables as well as match peer mediators with target children. The measures used are described below.

Assessment, Evaluation, and Programming System

The second edition of the Assessment, Evaluation, and Programming System for Infants and Children (AEPS) (Bricker, 2002) is a curriculum-based assessment that evaluates six areas of development (i.e., fine motor, gross motor, adaptive, cognitive, social-communication, and social) for children from birth to 6 years of age. The AEPS is
Table 6

Teacher Participants

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Age</th>
<th>Gender</th>
<th>Ethnicity</th>
<th>Degree</th>
<th>Educational Background</th>
<th>Licenses</th>
<th>Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20–30</td>
<td>Female</td>
<td>Caucasian</td>
<td>B.S.</td>
<td></td>
<td>GENED, PreK–3; SPED, K–12; PreK Special Needs Endorsement</td>
<td>4 yrs</td>
</tr>
<tr>
<td>2</td>
<td>51–60+</td>
<td>Female</td>
<td>Caucasian</td>
<td>B.A.</td>
<td></td>
<td>Vocational; certificates in Consumer Education and ECE</td>
<td>21 yrs</td>
</tr>
<tr>
<td>3</td>
<td>20–30</td>
<td>Female</td>
<td>Caucasian</td>
<td>M.Ed.</td>
<td></td>
<td>PreK Special Needs Endorsement</td>
<td>5 yrs</td>
</tr>
</tbody>
</table>

designed for linking assessment information to goal development, intervention, and evaluation for the purpose of enhancing outcomes for children with disabilities or developmental delays. A number of studies regarding the psychometric properties of the AEPS have shown the instrument to be both reliable and valid (e.g., Bricker, Yavanoff, Capt, & Allen, 2003; Grisham-Brown, Hallam, & Perti-Frontczak, 2008; Hallam, Grisham-Brown, & Perti-Frontczak, in press; Notari & Drinkwater, 1991). In the present study the AEPS was one measure used to establish that peer mediators were high functioning and that target children were low functioning in the social area of development. The AEPS was selected given its wide acceptance as a measure for documenting children’s current level of functioning.
AEPS Family Report

The AEPS Family Report (Bricker, 2002), an assessment that measures a family’s resources, priorities, and concerns regarding their child’s development, is a component of the overall AEPS. The AEPS Family Report was selected to provide a snapshot of the child’s home environment with regard to the child’s participation in daily activities, routines, and community events; furthermore, the Family Report describes children’s strengths, particularly in the social area of development, from the family’s perspective. The information obtained from the AEPS Family Report assisted the teacher participants and researcher in pairing target children and peer mediators based upon their strengths and interests.

The Battelle Developmental Inventory-Second Edition

The second edition of the Battelle Developmental Inventory (BDI-2) (Newborg, Stock, & Wnek, 2004) is a norm-referenced, standardized, individually administered assessment that focuses on five areas of development (i.e., personal-social, adaptive, motor, communication, and cognitive) for children from birth to 8 years of age. According to the author, the BDI-2 is reliable and valid (Newborg et al., 2004). The BDI-2 was selected because each subdomain is normed separately and provides a comparison of children’s performance, particularly in the areas of peer interaction, self-concept, and social role. Results from the BDI-2 provided information about target children’s relative standing when compared to other children of the same chronological age regarding social skills from the three subdomains listed above. Data gathered pre and
post intervention were used to evaluate changes in the target children’s social skills behavior from baseline to intervention conditions.

**Social Skills Rating System**

The Social Skills Rating System (SSRS; Gresham & Elliot, 1990) is a standardized, norm-referenced rating scale designed to measure children’s social skills. The SSRS is used to “assist professionals in screening and classifying children suspected of having significant social behavior problems and aid in the development of appropriate interventions for identified children” (Gresham & Elliott, 1990, p. 1). A number of studies assessing the psychometric properties of the SSRS found the instrument to be reliable and valid (Demaray & Ruffalo, 1995; Fantuzzo, Manz, & McDermott, 1998; Manz, Fantuzzo, & McDermott, 1999). Data from three Social Skills subscales, including cooperation, assertion, and self-control, were used to gather pre and post intervention performance information in order to evaluate changes in the target children’s social skills behavior from baseline to intervention conditions.

**Take A Look At Me™**

The Take A Look At Me™ strengths-based portfolio (Rugg & Horn, 2007) measures children’s interests and preferences. The portfolio provides information reflecting children’s unique blend of culture, community, and resources. The measure was developed at the Institute on Human Development and Disability (IHDD) in Athens, Georgia. The information gathered from Take A Look At Me™ assisted the teacher participants and researcher in pairing target children and peer mediators based upon shared interests.
Citizenship Rubric

The Citizenship Rubric is a formative way of assessing a child’s performance toward social studies standards. At the time of the study, a formal way to assess young children’s performance toward citizenship related standards did not exist. Thus, the Citizenship Rubric was created following a review of 37 state social studies standards, particularly within the subarea referred to as citizenship. The Citizenship Rubric allows for data collection on children’s performance toward such standards as helping peers, cooperating with peers, participating with peers at play, and turn taking with peers.

The Citizenship Rubric utilizes a system of graduated scoring divided into three distinct performance levels: beginning steps toward standard being met; making progress toward standard being met; and accomplishing the standard being met. It also includes 14 common indices found across social studies standards. Specifically, the Citizenship Rubric was used to verify that target children were low functioning in the social area of development and had not mastered the dependent variable. The Citizenship Rubric was also used to verify that peer mediators were high functioning in the social area of development and had mastered the dependent variable (see Appendix H for a copy of the Citizenship Rubric).

General Procedures

The general procedures consisted of a series of steps the researcher completed in order to prepare adequately for the study. These steps included recruitment and consent, selection of peer mediators and target children, identification of children’s interests and preferences, selection of positive and negative social behaviors, measurement of target
children’s social skills, and the training of research assistants. Table 7 provides a 
summary of the sequence of steps and actions taken prior to the beginning of the study; 
they are described below.

**Recruitment and Consent**

Upon approval from Kent State University’s Institutional Review Board, children 
and teachers were recruited for the study. The researcher obtained signed consent and 
demographic information from the family member(s) of all children. Signed consent and 
demographic information were also obtained from teachers (see Appendices A through G 
for consent and demographic forms).

**Identification of Child Roles: Peer Mediators and Target Children**

After consent was obtained, teachers, the researcher, and research assistants 
administered the measures described above. In particular, the AEPS and Citizenship 
Rubric were administered to verify children’s present level of functioning in the social 
area of development. High versus low functioning performance was determined by the 
criterion associated with each assessment and is described in the next section.

**Peer mediators’ present level of performance.** The peer mediators’ present 
level of performance was measured by the AEPS and the Citizenship Rubric. The 
criterion for the AEPS was twofold. First, strands specifically related to the social area of 
development were identified (i.e., Interactions with Others, Participation, Play, and 
Social-Communicative Interactions), and children’s degree of mastery was assessed. 
Performance at or near 100% mastery would be expected of a 6-year-old; thus, to serve as 
a peer mediator, it was expected that at least 50% of the items from selected strands
Table 7

**Summary of Steps and Actions for General Procedures**

<table>
<thead>
<tr>
<th>General Procedure Steps</th>
<th>Actions Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recruitment and consent</td>
<td>Children and teachers recruited</td>
</tr>
<tr>
<td></td>
<td>Signed consents and demographic information obtained from children and teachers</td>
</tr>
<tr>
<td></td>
<td>Citizenship Rubric administered</td>
</tr>
<tr>
<td>Identification of peer mediators’ and target children’s interests</td>
<td>Target children and peer mediators matched/paired with information from the AEPS Family Report and The Take A Look At Me™ strengths-based child portfolio</td>
</tr>
<tr>
<td>Identification of positive social behaviors and negative social behaviors</td>
<td>Target children’s specific positive social behaviors, the dependent variable, ascertained through administration of the Citizenship Rubric</td>
</tr>
<tr>
<td></td>
<td>Target children’s specific negative social behaviors, the dependent variable, ascertained through classroom observations and documentation</td>
</tr>
<tr>
<td>Measuring target children’s social skills</td>
<td>Battelle Developmental Inventory-2 (BDI-2) administered</td>
</tr>
<tr>
<td></td>
<td>Social Skills Rating System (SSRS) administered</td>
</tr>
<tr>
<td>Training of the research assistants</td>
<td>Training package about social stories, peer prompting, and PMI resources developed for research assistants</td>
</tr>
<tr>
<td></td>
<td>Research assistants trained for interobserver agreement</td>
</tr>
</tbody>
</table>

would be mastered. For children identified as peer mediators, the percent mastered across items from selected stands ranged from 90% to 100%. Children chosen to serve as peer mediators performed better than expected as measured by the AEPS.
Second, established Area Goal Scores and associated age cutoff scores were used. If a child’s Area Goal Score is at or below a designated cutoff, their development is considered delayed for their age (Bricker et al., 2008). All peer mediators received Area Goal Scores above the cutoff for their age within the Social Area of the AEPS. Specifically, peer mediators’ Area Goal Scores for the Social Area ranged from 21 to 22 and the cutoff for their ages was either 16 or 16.5. Therefore, the peer mediators’ performance in the social area of development as measured by the AEPS was similar to or above that of their chronological-age peers. An Area Goal cutoff score could not be determined for Peer Mediator 4 because the AEPS does not include cutoff scores for children between 67 and 72 months; however, his Area Goal Score was 21, and even if one extrapolated what a cutoff would be for his age interval, he would have been within the range expected.

The Citizenship Rubric was also used to identify peer mediators who were high functioning in the social area of development. As stated above, the Citizenship Rubric is organized into three distinct performance levels: beginning steps toward standard being met; making progress toward standard being met; and accomplishing the standard being met. The criterion used for the purpose of selecting peer mediators was mastery of the indicators contained within the Citizenship Rubric. Through teacher documentation (i.e., running records and photographs), it was noted that this criterion was met.

**Target children’s present level of performance.** As stated above, the criterion for the AEPS was twofold. First, strands specifically related to the social area of development were identified, and children’s degree of mastery assessed. A performance
at or near 100% would be expected of a 6-year-old; thus, to serve as a target child, it was expected that at least 50% of the selected strands would not be mastered. For children identified as target children, the percent mastered across selected strands ranged from 0% to 45%. All target children performed below the average expected for their age.

Second, target children’s Area Goal Scores for the Social Area of the AEPS were established. Again, if a child’s Area Goal Score is at or below a designated cutoff, development is considered delayed for her or his age (Bricker et al., 2008). Two of the target children’s performance in the social area of development as measured by the AEPS was below that of their chronological-age peers. Specifically, Area Goal Scores for the Social Area were for two of the target children were 9 and 13.5 with a cutoff score of 16 for their age. An Area Goal cutoff score could not be determined for Target Child 1 because the AEPS does not include cut off scores for children between 67 and 72 months; however, his Area Goal Score was 11; and even if one extrapolated what a cutoff would be for his age interval, he would not have been in the range expected.

The Citizenship Rubric was used as a tool to verify that target children were low functioning in the social area of development. The criterion used for the purpose of selecting target children was a score that indicated performance at the beginning steps toward the standard being met across all indicators. Teacher documentation (i.e., running records and photographs) verified that all target children met this criterion and would likely benefit from the intervention.
Identification of Peer Mediators’ and Target Children’s Interests

After verifying children’s present level of performance in the social area of development, the next step was to pair each target child with one or more peer mediators. Pairs were matched based upon the interests identified by the AEPS Family Report and The Take A Look At Me™ strengths-based child portfolio. The researcher completed the child portfolio and AEPS Family Report with families through a phone interview, and/or during a home visit. The portfolio and family report reflected each child’s culture and community. Establishing children’s interests is important because PMI is more likely to be successful when children are paired based upon mutual interests (Harris et al., 2009; Prendeville, Prelock, & Unwin, 2006).

Identification of Positive Social Behaviors and Negative Social Behaviors

To identify the positive social behaviors that would be selected for increase in target children, the teacher participants and researcher measured child attributes essential to the social area of development. Based on classroom observations and documentation, the teachers uniformly determined turn taking was an essential positive social behavior missing from the target children’s repertoire. Turn taking for Target Child 1 was subsequently defined as child looking at an object but not reaching for the object, pointing to the object, touching the object, and/or taking an object from a peer mediator. Turn taking for Target Child 2 was defined as looking at an object but not reaching for the object, reaching for the object without looking at peer mediator, taking an object without looking at peer mediator, and/or establishing eye-contact with a peer mediator while taking an object from the peer. Turn taking for Target Child 3 was defined as child
looking at peer mediator but not taking an object, looking at peer mediator and taking an object from the peer mediator, taking an object from peer mediator and playing independently, and/or taking an object from a peer mediator and maintaining a job that supplements the peer mediator’s play.

In an effort to identify the negative social behaviors for target children, the teacher participants and researcher measured child attributes that were neither desired nor considered socially acceptable. The teacher participants and the researcher conducted a series of classroom observations during free play. They reviewed and discussed their documentation and identified what they felt were the negative social behaviors that needed to decrease for each target child. The specific negative social behaviors included child leaving the area, child directing protest at a peer, and/or child ignoring a peer.

**Measuring Target Children’s Social Skills**

Target children’s baseline social skill performance was then measured by the BDI-2 and SSRS. Results indicated target children were in the 14th percentile or lower as measured by both instruments, meaning target children were performing well below the range of what would be expected for their age (see Table 8 for baseline performance of target children as measured by the BDI-2 and the SSRS). These data were later used in comparisons to post performance to determine if there were changes in target children’s social skills following PMI.
Table 8

*Target Children’s Performance Demonstrating Low Functioning Social Skills*

<table>
<thead>
<tr>
<th>Target Child</th>
<th>BDI-2 Percentile Rank</th>
<th>SSRS Percentile Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>2</td>
<td>5.0</td>
<td>14.0</td>
</tr>
<tr>
<td>3</td>
<td>0.3</td>
<td>&lt; 2.0</td>
</tr>
</tbody>
</table>

**Design**

A multiple baseline design across participants was used for the purposes of the study (Baer, Wolf, & Risley, 1968). The design allowed the researcher to evaluate the effectiveness of a peer-mediated intervention to increase positive social behaviors and decrease negative social behaviors in children who have identified disabilities or developmental delays. A multiple baseline design with baseline and intervention conditions (AB) was appropriate for this study because (a) the same intervention (i.e., PMI) could be administered for all three target children across different settings, enabling each target child serving his or her own control; (b) the reversal design could not be implemented (i.e., once the target child achieved the target skill of turn taking, it could not be reversed); and (c) the design permitted the teacher participants to validate PMI effectiveness across children with diverse learning abilities, thereby potentially enhancing the generalizability of the findings. Descriptions of training for research assistants, teacher participants, and peer mediators; procedures for the baseline and intervention phases; and post intervention data collection efforts appear in the next section.
Training of the Research Assistants

Three research assistants received training at the beginning of the study. This group consisted of two undergraduates and one graduate student. One undergraduate was studying speech pathology and the other psychology; the graduate student was studying early childhood special education. Each showed an interest in young children. The training included an initial hour-long session on PMI combined with instruction regarding data collection procedures. The purpose of the initial training session was to discuss the philosophy, characteristics, and types of PMI. The training took place at a local library near one of the classroom settings. During the hour training the researcher discussed and distributed empirical literature about peer-mediated intervention, peer prompting, and social stories to each research assistant. Research assistants reviewed the general procedures with the researcher including steps in the data collection schedule for baseline and intervention. Adherence to procedures for observations during the baseline and intervention phases was practiced with the researcher in each classroom prior to the start of baseline. The procedures included when to enter the classroom, where to sit, and how to interact with teacher participants, peer mediators, and target children.

Training of the Teacher Participants

Following the identification of the positive and negative social behaviors, the researcher developed a teacher training protocol and set of printed materials for implementing PMI. A training session was held at the beginning of the baseline phase. During the training, teacher participants met with the researcher in their preschool classrooms for 3 hours at a time convenient for them (e.g., lunch hour, before school,
after school, or during professional development days). Training for Teacher Participant 1 was conducted first. Trainings for Teacher Participants 2 and 3 occurred approximately one month later. The purpose of the training was to review the basic philosophy and practicalities of PMI as well as how to implement the intervention. The training materials included handouts with a general description of PMI, including its purpose, teacher strategies to facilitate PMI in the classroom (e.g., how to use social stories and how to arrange the environment), and additional resources regarding PMI and social stories (see Appendix I for the social validity questionnaire for teachers and Appendix J for the social validity questionnaire for families). The training was organized into three major topics. First, the researcher reviewed the definition, types, and characteristics of PMI. Second, the researcher and teacher participants role-played PMI. Third, the researcher provided an overview of how social stories could support peer mediators’ use of PMI (e.g., the components of social stories, examples of social stories, and how to use social stories).

Although social stories (Gray, 1994) are optional when implementing PMI, they were used as a unique element in this study to support the peer mediator in prompting the target child to demonstrate turn taking. Specifically, social stories provide visual support for children who may benefit from additional cues. Social stories also facilitate individualization and the creation of a story in a child-specific format. The stories for the study were written in simple language, reflecting the target child’s and peer mediator’s developmental level. Finally, social stories allow teachers to identify a concern for a child and develop a related story based upon the child’s interest. Social stories are often
designed with a specific sentence structure with defining characteristics using four basic sentence types including (a) descriptive, (b) perspective, (c) directive, and (d) affirmative (Gray, 1994). See Figure 1 for steps used to develop social stories (adapted from Gray, 1994; Gray & Garand, 1993; Swaggart & Gagnon, 1995).

1. Write in the child’s language according to current functioning and abilities.

2. Use a combination of descriptive, perspective, directive, and affirmative sentences for creating the social story:
   
   • Descriptive statements guide the telling of the story. Descriptive sentences describe what people do in a given social situation, why they do it, when and where the event will take place, and who will be involved.

   • Perspective sentences refer to other people’s feelings or opinions in the story. Perspective sentences may be related to consequences; they describe how another child may react when the target child engages in the social behavior.

   • Directive sentences state the goals of the social story and provide behavioral choices for the target child and peer mediator.

   • Affirmative sentences affirm the goal of the social story for the target child and peer mediator.

3. Place one or two sentences on each page. The presentation of the social story is dependent on the child’s functioning level and abilities. One sentence per page is sufficient and allows the child to focus on a specific concept.

4. Use photographs, drawings, and/or pictorial icons to enhance a child’s understanding of the social story.

5. Read the social story to the peer mediator and role model the desired behavior (i.e., turn taking with a peer mediator).

Figure 1. Steps for developing a social story.
The completed social story for turn taking consisted of a title and a story varying in length from one to four pages (see Figure 2).

<table>
<thead>
<tr>
<th>“Building With Blocks” (title)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Many children play with blocks. When they play with blocks, they have fun. (descriptive)</td>
</tr>
<tr>
<td>It may be fun to play blocks with Tommy. I can ask Tommy to come build blocks with me. We can go to the blue carpet to go play blocks. (perspective)</td>
</tr>
<tr>
<td>On the carpet, I will start building with blocks. I can ask Tommy to put a block on the boat or building. (directive)</td>
</tr>
<tr>
<td>When Tommy puts a block on the boat or building, I can say, “Great job, Tommy!” It’s fun to play blocks with Tommy. (affirmative)</td>
</tr>
</tbody>
</table>

*Figure 2. Sample social story*

Once teachers had developed social stories for each target child, strategies for environmental arrangement were discussed; and the learning environment was designed according to the target child’s preferences and to enhance opportunities for turn taking with peer mediators. In other words, centers children would access during free play were used to incorporate a variety of the children’s interests in terms of activities and materials. At the conclusion of the training, teachers were instructed not to teach or encourage PMI in their classrooms until near the completion of baseline.

**Baseline Phase**

Once target children’s positive social behaviors were identified, data collection for baseline began. In particular, data were collected for peer mediators two or three times a week for 20 minutes during free play, making sure peer mediators didn’t initiate,
prompt, and/or give feedback to the target child (i.e., didn’t implement PMI strategies). At the completion of each session, the researcher and/or research assistant totaled peer mediators’ use (or nonuse in the case of baseline) of PMI strategies.

Data on target children’s positive social behaviors (any instance when they engaged in turn taking as defined) and negative social behaviors (also defined previously) were collected two or three times a week for 20 minutes during free play. At the completion of 20 minutes, the researcher and/or research assistant totaled all positive and negative behaviors (see Appendix K for the combined child participant data collection sheet and teacher fidelity checklist and Appendix L for the data collection directions form). To ensure “typical” levels of performance during baseline for both peer mediators and target children, the researcher and research assistant sat in the classrooms and reminded the teacher participants to avoid providing prompts or praise for interactions. Children were left alone to play together as they “normally” would. The teacher participants intervened only when necessary for challenging behaviors or to direct children to another activity.

Interobserver agreement was calculated between the researcher and research assistants for eight baseline sessions. The observations took place during free play for 20 minutes in each classroom. The researcher and research assistant physically separated themselves so that they could not see each other’s data collection sheets. Interobserver agreement was calculated by dividing the number of agreements by the total number of agreements plus disagreements and multiplying by 100. During interobserver reliability checks, the researcher and one research assistant observed the target child and peer
mediator independently but simultaneously during a 30-minute period. IOA was 100% for all observations. Teachers’ nonfacilitation of PMI with peer mediators was 100% for all teacher participants.

**Training Peer Mediators**

Once the teachers received training on how to facilitate PMI in their classrooms and a steady baseline began to emerge for Target Child 1, their assigned peers were then trained. Individualized meetings took place between the teacher and the peer mediator. Sessions were held near the completion of baseline twice per week for 10 minutes during free play. During the training sessions, the teacher participants introduced and read the social story and modeled examples of desired PMI. Peer mediators read the social story out loud and discussed why the positive social behavior (e.g., turn taking) would be important for the target child. Peer mediators practiced prompting and initiating turn taking as well as giving feedback with the teacher participant. The teacher participant provided consistent positive feedback and descriptive verbal praise to the peer mediators during the training sessions. Once the peer demonstrated accurate skills (e.g., prompting turn taking with the teacher participant by taking a turn during block play) and understood PMI (e.g., role playing and reading the social story with the teacher participant), the teacher participant approved that the peer mediator was ready to use PMI with the target child.

**Intervention Phase**

A phase change from baseline to intervention took place sequentially as each target child received PMI. The rationale and criteria for changing phases included the
following: a steady baseline, an immediacy of change in positive social behaviors and negative social behaviors between baseline and intervention, and a mean performance well above baseline condition. During the intervention phase, data were collected on the peer mediators’ use of PMI strategies (i.e., initiating, prompting, and/or giving feedback), and the effect of PMI on positive and negative behaviors for target children.

Data were collected on peer mediators two or three times a week for 20 minutes during free play. The data collected on peer mediators included the frequency of initiations, prompts, and/or feedback directed toward the target child. After 20 minutes the researcher and/or research assistant totaled all peer mediators’ use of PMI strategies during the session.

Data on target children’s positive social behaviors and negative social behaviors were collected two or three times a week for 20 minutes during free play. At the completion of 20 minutes, the researcher and/or research assistant totaled all the positive and negative behaviors demonstrated during the session. Interobserver agreement between the researcher and research assistants was calculated for 10 intervention sessions. The observations took place during free play for 30 minutes in each classroom. During interobserver reliability checks, the researcher and one research assistant observed the target child and peer mediators independently but simultaneously during a 30-minute time period during the intervention phase. IOA was 100% for all observations.

Throughout the study, teacher participants communicated with the researcher through emails and brief, informal face-to-face updates in their classrooms. An additional meeting was provided at the convenience of the teacher participants (before
school, after school, and on professional development days) during the intervention phase. The purpose of the meeting was to discuss the implementation of PMI, to revisit how to develop strategies for reprompting peer mediators, and to devise how to create additional social stories for the peer mediator to use when prompting the target child.

To verify that teachers trained peers to use PMI with fidelity during intervention, a fidelity checklist was used (see Appendix K). Teacher fidelity was conducted across 21 sessions by the researcher and research assistants by rating whether or not the teachers followed each of six intervention steps. Interobserver agreement was conducted for 10 intervention sessions regarding teacher facilitation of PMI. IOA was 100% for all observations.

**Post Intervention Data Collection**

Once the intervention phase of the study was complete, the researcher distributed separate questionnaires for teachers and families of peer mediators and target children to evaluate the social validity of PMI. Evaluating the social validity of an intervention (i.e., whether or not an intervention is effective, doable, and useful) is important (Schwartz & Baer, 1991). Social validity verifies accurate and useful information about the level of satisfaction of the participants and reflects the potential for both acceptability and importance of the intervention (i.e., effects of PMI for peer mediators and target children in the present study). The effectiveness of an intervention is measured not only by its efficacy for the population or participants under study but also by its perceived importance and acceptability. This two-pronged approach to viewing effectiveness is used by those interested in applying the findings in future studies or in the classroom. In
other words, the more researchers learn about the effects of PMI on different children of various needs and abilities in different settings, the easier it will be to determine whether PMI is an effective intervention for all teachers to use in their inclusive classrooms.

The questionnaires were created by the researcher and were designed to evaluate the appropriateness and effectiveness of PMI in promoting social skills (see Appendices I and J). The survey provided to families of peer mediators and target children gave each an opportunity to rate their level of satisfaction with their child’s social skills after participating in the PMI study. The questionnaire consisted of 3 questions. On a 5-point Likert scale (1 = not at all to 5 = very much), families rated the effectiveness of PMI. Families were also given a checklist of social skills (i.e., helping peers, turn taking with peers, cooperating with peers, participating with peers during play, negotiating with peers, making appropriate choices, and developing independence) and asked to identify those social skills that increased at home as a result of their child’s participating in the study.

The questionnaire provided for the teacher participants and assistant teachers asked them to rate and summarize how they used peer-mediated intervention in their classrooms. It consisted of 8 questions ranked on a 5-point Likert scale (1 = not at all to 5 = very much). For example, teachers were asked whether they felt that the materials (social stories and The Take A Look At Me™ portfolio) and procedures used in the study were effective. Teacher participants and assistant teachers were also given a checklist of social skills (i.e., helping peers, turn taking with peers, cooperating with peers, participating with peers during play, negotiating with peers, making appropriate choices,
and developing independence) and were asked to identify those skills that had increased in frequency for the target child and peer mediator as a result of participating in the study.

**Summary**

Chapter 2 provided an overview of study questions, general study procedures, and the steps taken to conduct a multiple baseline design across participants. The design allowed for the examination of peer mediators’ use of PMI to increase positive social behaviors and decrease negative social behaviors in children with identified disabilities or developmental delays. Chapter 3 presents the results specific to the research questions of this study.
CHAPTER III

RESULTS

The purpose of the study was threefold: first, to examine peer mediators’ use of PMI during baseline and intervention; second, to examine the effects of PMI in increasing positive social behaviors and decreasing negative social behaviors of the target children; and third, to examine whether the social skills for target children improved from baseline to intervention following implementation of PMI. Table 9 provides a summary of study research questions, measures, and corresponding data analysis procedures. In general, visual analysis was used to examine peer mediators use of PMI as well as changes in target children behaviors from baseline to intervention. Descriptive statistics were used to compare target children’s social skills from pre to post intervention.

Peer Mediators’ Use of Peer-Mediated Intervention

Six children served as peer mediators and were responsible for implementing peer mediated intervention (PMI) strategies. Data regarding peers’ use of PMI was documented through observation and analyzed visually. Figure 3 provides the frequency of peer mediators’ use of peer-mediated strategies (i.e., peer prompting, peer initiating, and/or feedback). The following is a summary of findings for each peer.

Peer 1 used PMI an average of 0.3 times across six sessions during baseline. Peer 1 did not use PMI four of the six baseline sessions. In two sessions, however, Peer 1 used PMI once. The data path during baseline condition was stable. During the first session of intervention, Peer 1 used PMI 34 times, demonstrating an immediate and strong intervention effect. Peer 1’s use of PMI ranged from 8 to 34 occurrences across
Table 9

Summary of Research Questions, Measures, and Corresponding Data Analysis Procedures

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Measure</th>
<th>Analysis Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do peer mediators increase their use of peer-mediated intervention during</td>
<td>Data Collection Sheet</td>
<td>Visual analysis of peer mediators’ use of PMI (peer prompting, peer initiations, and/or giving feedback) during baseline and intervention</td>
</tr>
<tr>
<td>intervention as compared to baseline?</td>
<td>Data Collection Sheet</td>
<td>Visual analysis of peer mediators’ use of PMI (peer prompting, peer initiations, and/or giving feedback) during baseline and intervention</td>
</tr>
<tr>
<td>Do target children’s positive social behaviors increase and their negative social</td>
<td>Data Collection Sheet</td>
<td>Visual analysis of target child’s positive social behaviors and negative social behaviors during baseline and intervention</td>
</tr>
<tr>
<td>behaviors decrease from baseline to intervention?</td>
<td>BDI-2</td>
<td>Descriptive statistics from BDI-2 and SSRS</td>
</tr>
<tr>
<td>Do target children’s social skills improve from baseline to intervention?</td>
<td>SSRS</td>
<td>Descriptive statistics from BDI-2 and SSRS</td>
</tr>
</tbody>
</table>

eight sessions—with a mean of 21.6 occurrences across the intervention phase. The data path was stable, and no data overlap exists between baseline and intervention phases.

Peer 2 did not use PMI across six sessions of baseline. The data path during baseline was stable. During the first session of intervention, Peer 2 used PMI 24 times, demonstrating an immediate and strong intervention effect. Peer 2’s use of PMI ranged from 13 to 24 occurrences across seven sessions—with a mean of 19.4 occurrences across the intervention phase. The data path was stable, and no data overlap exists between baseline and intervention phases.

Peer 3 used PMI an average of 1.1 times across nine sessions of baseline. Peer 3 did not use PMI across seven of the nine sessions. During one session, however, Peer 3
used PMI nine times and in another session, used PMI once. The data path during baseline was stable. During the first session of the intervention phase, Peer 3 used PMI 17 times, demonstrating an immediate and strong intervention effect. Peer 3’s use of PMI ranged from 10 to 31 occurrences across eight sessions—with a mean of 19.5 occurrences across the intervention phase. The data path was variable, and no data overlap exists between baseline and intervention phases.

*Figure 3. Frequency of peer mediators’ use of PMI.*
Peer 4 did not use PMI across nine sessions of baseline. The baseline condition was stable. During the first session of intervention, Peer 4 used PMI 23 times, demonstrating an immediate and strong intervention effect. Peer 4’s use of PMI ranged from 11 to 23 occurrences across three sessions—with a mean of 16 occurrences across the intervention phase. The data path was stable, and no data overlap exists between the baseline and intervention phases.

Peer 5 used PMI an average of 1.0 across 12 sessions of baseline. Peer 5 did not use PMI across eight of the 12 sessions. However on four of the 12 sessions, Peer 5 used PMI between one and nine times. The data path during baseline was stable. During the first session of intervention, Peer 5 used PMI 35 times and 20 times on the second session, demonstrating an immediate and strong intervention effect. The mean use of PMI was 27.5 occurrences across the intervention phase. The data path was stable, and no data overlap exists between the baseline and intervention phases.

Peer 6 did not use PMI across 11 sessions of baseline. The baseline condition was stable. During the first session of the intervention phase, Peer 6 used PMI 42 times, demonstrating an immediate and strong intervention effect. Peer 6’s use of PMI ranged from 24 to 47 occurrences across four sessions – with a mean of 37 occurrences across the intervention phase. The data path is variable, but no data overlap exists between the baseline and intervention phases.

**Target Children’s Demonstration of Positive Social Behaviors**

Data regarding three target children’s positive social behaviors during baseline and intervention were collected through observation and then visually analyzed. Figure 4
provides the frequency of target children’s demonstration of positive social behaviors during baseline and intervention. The following is a summary of findings for target children.

Target Child 1 demonstrated positive social behaviors an average of 1.0 time across six sessions of baseline. Target Child 1 did not demonstrate positive social behaviors across 3 of the 6 sessions; however, he demonstrated positive social behaviors during three sessions at a frequency of between one and three times. The data path during baseline was stable. During the first session of intervention, Target Child 1 demonstrated positive social behaviors 33 times; thus, an immediate and strong intervention effect was observed. Target Child 1’s demonstration of positive social behaviors ranged from 13 to 34 occurrences across 15 sessions—with a mean of 23.9 occurrences across the intervention phase. The data path was variable, and no data overlap exists between the baseline and intervention phases.

Target Child 2 demonstrated positive social behaviors an average of 2.1 times across nine sessions of baseline. Target Child 2 did not demonstrate positive social behaviors across seven of the nine sessions. In one session, however, Target Child 2 demonstrated positive social behaviors 17 times and in another session he demonstrated positive social behaviors two times. The data path during baseline condition was stable. During the first session of the intervention phase, Target Child 2 demonstrated positive social behaviors 26 times, thus, an immediate and strong intervention effect was observed. Target Child 2’s demonstration of positive social behaviors ranged from nine to 26 occurrences across 11 sessions—with a mean of 18.5 occurrences across the
Target Child 3 demonstrated positive social behaviors an average of 6.8 times across 12 sessions of baseline. Target Child 3 did not demonstrate positive social behaviors on two of the 12 sessions. Target Child 3’s demonstration of positive social behaviors ranged from 0 to 34 occurrences across 12 sessions of baseline. The data path during baseline condition was variable–stable. During the first session of intervention, Target Child 3 demonstrated positive social behaviors 35 times, demonstrating an
immediate and strong intervention effect. Target Child 3’s demonstration of positive social behaviors ranged from 16 to 35 occurrences across six sessions—with a mean of 28 occurrences during the intervention phase. The data path was variable, and data overlap exists between the baseline and intervention phases.

**Target Children’s Demonstration of Negative Social Behaviors**

Data regarding three target children’s negative social behaviors during baseline and intervention was documented through observation and visually analyzed. Figure 5 provides the frequency of target children’s demonstration of negative social behaviors during baseline and intervention. The following is a summary of findings for target children.

Target Child 1 demonstrated negative social behaviors an average of 23.3 times across six sessions of baseline. Target Child 1’s demonstration of negative social behaviors ranged from 19 to 27 occurrences during baseline. The data path during baseline was stable. During the first session of intervention, Target Child 1 did not demonstrate any negative behaviors. Thus, an immediate and strong intervention effect was observed. Target Child 1’s demonstration of negative social behaviors ranged from 0 to 11 occurrences across 15 sessions—with a mean of 4.7 occurrences across the intervention phase. The data path was variable, and no data overlap exists between the baseline and intervention phases.
Target Child 2 demonstrated negative social behaviors an average of 26.1 times across nine sessions of baseline. Target Child 2’s demonstration of negative social behaviors ranged from 11 to 34 occurrences during baseline. The data path during baseline was stable. During the first session of intervention, Target Child 2 demonstrated negative social behaviors four times, demonstrating an immediate and strong intervention effect. Target Child 2’s demonstration of negative social behaviors ranged from two to 13 occurrences across 11 sessions—with a mean of 6.0 occurrences across the
intervention phase. The data path was stable, and minimal data overlap exists between the baseline and intervention phases.

Target Child 3 demonstrated negative social behaviors an average of 23.9 times across 12 sessions of baseline. Target Child 3’s demonstration of negative social behaviors ranged from 10 to 46 occurrences during baseline. The data path during baseline was variable–stable. During the first session of intervention, Target Child 3 demonstrated negative social behaviors five times, demonstrating an immediate and moderate intervention effect. Target Child 3’s demonstration of negative social behaviors ranged from 0 to 8 occurrences across six sessions—with a mean of 3.8 occurrences across the intervention phase. The data path was variable, and no data overlap exists between the baseline and intervention phases.

**Target Children’s Change in Social Skills**

Changes in target children’s social skills were measured by the BDI-2 and SSRS. A common interpretation of the BDI-2 is to generate scaled scores for subdomains of interest. Scaled scores from two subdomains of the BDI-2 personal and social domain were derived from the target children’s raw scores. Specifically, scaled scores for peer interaction and self-concept and social role were selected, given their close relationship to the social area of development. Scaled scores from the BDI-2 are interpreted using a mean of 10 and a standard deviation of 3.

Target children’s pre-PMI scaled scores for the peer interaction subdomain ranged between 1 and 2, indicating all target children were performing at or near three standard
deviations below the mean (i.e., demonstrating well below average peer interaction skills). Scaled scores for target children’s self-concept and social role subdomain pre-PMI also ranged between 1 to 2, indicating target children were performing at or near three standard deviations below the mean.

Target children’s post-PMI scaled scores for peer interaction subdomain ranged from 3 to 8, indicating some target children improved performance near mean levels to still performing over two deviations below the mean; however, all target children increased peer interaction social skills from baseline to intervention. Scaled scores for target children’s self concept and social role subdomain post-PMI ranged from 1 to 4, indicating target children were performing between two and nearly three standard deviations below the mean even after intervention. Specifically, two target children increased self-concept and social role social skills from baseline to intervention. One target child remained the same from baseline to intervention.

Another way to represent target children’s social skills level the beginning of the study and again at the end is to examine the percentile ranks, which illustrate the percentage of the standardization sample scoring at or lower than the score obtained by the target child. Table 10 provides percentile ranks for target children’s pre and post measures by the BDI-2.

Pre and post standard scores for the SSRS were also generated from three Social Skills subscales, including cooperation, assertion, and self-control. Standard scores from the SSRS have a mean of 100 and a standard deviation of 15. Target children’s pre PMI standard scores for the SSRS ranged from 62 to 84, indicating target children
Table 10

Target Children’s Social Skills as Measured by the BDI-2

<table>
<thead>
<tr>
<th>Target Children</th>
<th>Peer interaction</th>
<th>Self-concept &amp; social role</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-PMI</td>
<td>Post-PMI</td>
</tr>
<tr>
<td>Target 1</td>
<td>&lt;1</td>
<td>2</td>
</tr>
<tr>
<td>Target 2</td>
<td>&lt;1</td>
<td>25</td>
</tr>
<tr>
<td>Target 3</td>
<td>&lt;1</td>
<td>1</td>
</tr>
</tbody>
</table>

were performing one to 2.5 standard deviations below the mean. Target children’s post PMI standard scores for the SSRS ranged from 86 to 96, indicating improvement and performance closer to the mean. All target children increased social skills from baseline to intervention.

Another way to represent target children’s social skills level at the beginning of the study and again at the end is to examine the percentile ranks, which illustrate the percentage of the standardization sample scoring at or lower than the score obtained by the target children. Table 11 provides percentile ranks for target children’s pre and post measures by the SSRS.
Table 11

Target Children’s Social Skills as Measured by the SSRS

<table>
<thead>
<tr>
<th>Target Children</th>
<th>Percentile Ranks Pre-PMI SSRS</th>
<th>Percentile Ranks Post-PMI SSRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4.0</td>
<td>39.0</td>
</tr>
<tr>
<td>2</td>
<td>14.0</td>
<td>18.0</td>
</tr>
<tr>
<td>3</td>
<td>&lt;2.0</td>
<td>30.0</td>
</tr>
</tbody>
</table>

Teacher Fidelity and Social Validity

Teacher fidelity of training peers to implement PMI was verified throughout the study. Fidelity was documented by the researcher and research assistants on all three teacher participants for 21 sessions. Teachers were rated yes or no using a fidelity checklist documenting how often a sequence of six intervention steps were completed (see Appendix K). Teacher fidelity across 21 sessions for all six steps was 100%.

Following the intervention phase of the study, the researcher distributed questionnaires for families of peer mediators and target children to evaluate the social validity of PMI. Five questionnaires were returned from families of peer mediators and target children. The questionnaire for families consisted of three questions, two of which were rated on a 5-point Likert scale (1 = not at all to 5 = very much). Question 1 referred to the effectiveness of PMI for promoting social skills for their child and received an average rating across families of 4.6. Question 2 referred to the effectiveness of materials (i.e., social stories and Take a Look at Me™ portfolio) and procedures used in the study and received an average rating across families of 4.2. Question 3 referred to the increase
of social skills as a result of participating in the PMI study. On the average, six of nine social skills were reported to have increased by peer mediators and target children. The top two social skills consistently reported by families of peer mediators as improving from pre to post were helping peers and concern for other peers in the classroom. The top three social skills consistently reported by families of target children as improving from pre to post were turn taking, cooperating with peers, and participating with peers during play.

Following the intervention phase of the study, the researcher also distributed questionnaires to teachers and teacher assistants in an effort to further evaluate the social validity of PMI. Five questionnaires were returned by teachers and teacher assistants. The questionnaire for teachers and teacher assistants consisted of eight questions, six of which were rated on a 5-point Likert scale (1 = not at all to 5 = very much). Question 1 referred to the effectiveness of PMI for promoting social skills for target children and received an average rating across teachers and teacher assistants of 5. Question 2 referred to the effectiveness of PMI for promoting social skills for peer mediators and received an average rating across teachers and teacher assistants of 3.75. Question 3 referred to the effectiveness of the materials and procedures used in the study and received an average rating across teachers and teacher assistants of 4.6. Question 4 inquired whether other peers in their classroom benefited from observing peer mediators prompting the target child during PMI and received an average rating across teachers and teacher assistants of 3.8. The fifth item rated on a Likert scale, which referred to receiving feedback from other classroom teachers and professionals about PMI and
recommending PMI to other teachers in their programs, received an average rating across teachers and teacher assistants of 4.4 and 5. Questions 5 and 6 referred to the increase of social skills as a result of participating in the PMI study. As with families, the top two social skills reported by teachers and teacher assistants and improving from pre to post for peer mediators were helping peers and concern for other peers in the classroom. Further, as with families, the top three social skills teachers and teacher assistants noted as improved for target children were turn taking, cooperating with peers, and participating with peers during play.

**Summary**

As hypothesized, the peer mediators’ learned to implement PMI, target children increased their positive social behaviors and decreased their negative social behaviors, and all target children improved overall social skills to some degree. The following chapter explains key findings in greater detail, including how the findings from the present study relate to previous research. Implications of the findings for early childhood practitioners and young children are examined. Contributions are described in terms of suggesting (a) using multiple peers, (b) using children with disabilities as peer mediators, and (c) focusing on children’s interests. Threats to internal and external validity are summarized in addition to limitations of the study. Finally, future directions of peer-mediated intervention research are summarized, particularly for implementation in inclusive preschool classrooms.
CHAPTER IV
DISCUSSION

Chapter 4 presents an explanation of main study findings related to peer mediators’ use of PMI, the effects of PMI for the target children, and changes in social skills for target children following implementation of PMI. The chapter also includes a discussion of how findings relate to previous research, the implications of the findings for early childhood practitioners and young children and contributions to the current knowledge base about PMI. Threats to internal and external validity are examined in addition to limitations of the study. Finally, future directions of PMI research are summarized, particularly for the use of social stories as a suggested supportive tool for training peer mediators, maintenance and generalization of PMI, and the effects of PMI strategies combined and separately as the independent variable.

Discussion of Findings for Peer Mediators’ Use of PMI

During baseline, peer mediators had not been trained to implement PMI (i.e., to prompt, initiate, and/or give feedback). Thus, baseline results for peer mediators included six stable data paths of little to no demonstration of PMI with two exceptions. The first exception occurred during session 3 with Peer 3, and the second exception occurred during session 4 with Peer 5. In each instance, peer mediators had brought a favorite toy from home to share. Peer mediators repeatedly showed the toy to each child in the class, including the target children. The resulting spontaneous interactions were coded as PMI but are considered isolated instances, still resulting in stable baselines for all peer mediators.
During intervention, peer mediators had been trained to implement PMI (i.e., to prompt, initiate, and/or give feedback) with the target children. Thus, intervention results for peer mediators included four stable data paths with increased frequency of PMI by peers, and two variable data paths. Overall, the four stable data paths suggest peer mediators can implement PMI successfully and serve as agents of change. In other words, peer mediators were able to implement PMI with the target children with fidelity and little training. Two of the peer mediators, however, had variable data paths during intervention.

The variable path for Peer Mediator 3 may have been a result of several different circumstances. First, Peer Mediator 3 may have forgotten how to do PMI, given the lag between times when he was asked by the teacher to implement PMI. In other words, his not having been selected as a peer mediator for two consecutive sessions (sessions 14 and 15) may have resulted in (a) a lower frequency of PMI during session 16 than when he had last served as peer mediator during sessions 10 through 13 and (b) the higher frequencies observed on sessions 17, 18, and 19. Another explanation leading to Peer 3’s variable use of PMI may be attributed to his mood and temperament. For example, Peer 3’s feelings could have been hurt when he was not chosen to serve as a peer mediator during sessions 14 and 15 or again in session 16, when the target child did not want to play with toys selected by the peer mediator. Environmental circumstances may also help explain the variable data path. For example, a fire drill occurred during the middle of session 18, perhaps resulting in a decrease in positive social behaviors.
The variable path for Peer Mediator 6 may have been a result of the changes in routine that occurred at the end of the school year (e.g., family events, year-end field trips that coincided with the end of the study). In general, as the end of the school year approached, Peer 6 demonstrated a lack of attention to his role as a peer mediator. As a result, Peer 6’s implementation of PMI with the target child decreased.

**Discussion of the Effects of PMI**

During baseline, target children did not receive PMI (as noted by peer mediators’ baseline performance). Furthermore, documentation indicated that target children did not have strong social skills at the beginning of the study (including a lack of demonstrating positive social behaviors toward their peers), as suggested by their level of performance discussed in Chapter 2. Thus, baseline results for target children included two stable data paths where positive social behaviors were demonstrated infrequently and negative social behaviors were consistently demonstrated at a higher frequency with two exceptions. Both exceptions coincided with the days when peer mediators brought a favored toy from home. For Target Children 2 and 3, the peers’ spontaneous interactions (i.e., use of PMI strategies before being prompted to do so) may have led to more positive responses by target children.

The data path for Target Child 3 during baseline, however, was variable-stable and may be explained due to the child playing in close proximity to peer mediators, which may lead to opportunities to demonstrate positive social behaviors. In other words, during several baseline sessions, the target child (who was in close proximity to peer mediators) looked at peer mediators; the action was subsequently coded as
demonstrating a positive social behavior. As noted in Chapter 2, six different behaviors were coded as positive social behaviors, including looking at a peer. Thus, given that Target Child 3 tended to play in proximity to peer mediators, the target child sometimes looked at the peer mediators without prompting.

During intervention, target children received PMI (as noted by peer mediators’ performance during the intervention phase). Throughout intervention, target children were given opportunities to respond to prompts, initiations, and/or feedback by their peer mediators. As a result, target children increased positive social behaviors and decreased negative social behaviors. All target children demonstrated immediate and positive response to PMI. Intervention results for target children included one stable data path and two variable data paths.

The variable data path for Target Child 1 may have been a result of three circumstances. First at the beginning of intervention, Target Child 1 was not interested in the variety of toys chosen by Peer Mediator 2 (e.g., Peer Mediator 2 tended to pick puzzles with Disney Princesses, and Target Child 1 tended to play with cars). After an unsuccessful attempt of implementing PMI with the Target Child during session 3, Peer Mediator 2 became frustrated and stopped before session 3 ended, possibly leading to a lower frequency of demonstrating positive social behaviors by Target Child 1. Several days later, after seeing Peer Mediator 1 implement PMI with the target child and selecting toys of interest to the target child, Peer 2 changed the selection of toys for implementing PMI to ones that were interesting to the target child, possibly leading to a higher frequency of Target Child 1 demonstrating positive social behaviors. In general,
the context of the PMI intervention, specifically the peers’ choice of toys, tended to impact Target Child 1’s response to the intervention. If the toys selected by the peers were interesting to Target Child 1 during the PMI intervention phase, Target Child 1 was more likely to increase his positive social behaviors and decrease his negative social behaviors.

A second possible explanation of the variable intervention data path for Target Child 1 could be the fact that he often showed a lack of interest in playing with the peer mediators regardless of toys selected. Target Child 1’s lack of interest in playing with others could stem from a variety of reasons. In one instance, however, the child’s lack of interest may have been attributed to sadness because his dad was out of town. In fact, during several sessions near the end of the study, the target child’s dad was out of town; and the child had expressed sadness to his teacher. Thus, the child may have lost interest in playing with any child in the class, including the peer mediators, resulting in an increase in negative social behaviors and decrease in positive social behaviors.

The second variable data path was observed for Target Child 3. As with Peer Mediator 6, the variability could have been a result of the events at the end of the school year (e.g., changes in classroom routine, increases in year-end family events and field that coincided with the end of the study) where not only did the peer mediator lose interest, but the target child was also given fewer instances of PMI and/or opportunities to demonstrate positive social behaviors. As a result, Target Child 3 sometimes demonstrated higher rates of negative social behaviors and lower rates of positive social behaviors.
Overall, a functional relationship between the peer mediators’ use of PMI and target children’s demonstration of increased positive social behaviors and decreased negative social behaviors was repeatedly observed. In other words, whenever a peer mediator implemented PMI, target children tended to demonstrate more positive social behaviors and fewer negative social behaviors. For example, when Peer 1 used PMI strategies with Target Child 1 during session 7 of intervention, the peer mediator’s frequency of PMI strategies was 34 occurrences. The target child’s increase of positive social behaviors went from 0 to 33 occurrences. In addition, the decrease in the target child’s negative social behaviors went from 22 to 0 instances. Conversely, when peer mediators’ use of PMI decreased, the target children’s frequency of positive social behaviors also decreased (i.e., pointing and touching an object; taking an object from the peer); and their negative social behavior increased (i.e., target child leaving the area and/or target child ignoring peer). For example, when Peer 3 used PMI strategies with Target Child 2 during session 11 of intervention, the peer decreased PMI frequency to 11 occurrences while the target child decreased his frequency of positive behaviors to 13 and increased his frequency of negative behaviors to 11.

**Discussion of Changes in Social Skills for Target Children**

Changes in target children’s social skills were measured by the BDI-2 and SSRS following implementation of PMI. Findings suggest, as presented in Chapter 3, that all target children stayed the same or increased from baseline (pre) to intervention (post) as measured by their scaled scores from the BDI-2 and standard scores from the SSRS. Across measures, however, variability was shown in the degree to which target children’s
social skills changed. One reason for the variability in children’s performance is the BDI-2 may not be an applicable measure for children with disabilities. Standardized testing takes a one-size-fits-all approach to assessing children’s abilities; therefore, children with disabilities may not meet the recommended practice standards set by such tests. For example, items and procedures are often not matched to the objectives of a program; furthermore, test items may not be functional. As a result, test items may lead to biased, unfair, and inaccurate conclusions regarding a child’s capabilities, given the requirement to follow certain standardized procedures (i.e., a child’s ability or inability is confused with her or his ability or inability to perform). Another reason for the variability in children’s performance may be attributed to teacher bias. For example, administration of the SSRS relies on teacher report. Given the improvement in positive social behaviors made by target children from baseline to intervention, teachers may have been influenced and their perceptions of the children’s abilities inflated.

**Convergence of Findings**

Convergence of findings includes a discussion related to findings from previous research on five topics. The first topic relates to PMI as an effective intervention strategy implemented by peers. The second topic regards the teachers training peers to use PMI. The third topic entails the immediate and positive responses target children demonstrated following implementation of PMI. The fourth topic relates to peer mediators implementing PMI. The fifth topic relates to the functional relationship between the peer mediators’ implementation of PMI and the target children’s demonstration of increased positive social behaviors and decreased negative social behaviors.
PMI Is Effective for Young Children

Findings from the present study indicate PMI was an effective intervention strategy in increasing positive social behaviors of young children with disabilities served in inclusive settings. Likewise, PMI has been shown to be an effective strategy for increasing positive social behaviors of young children with disabilities served in a variety of settings including preschool (Goldstein & Wickstrom, 1986; Odom & Strain, 1984) and elementary school programs (Morrison et al., 2001; Strain & Odom, 1986). Furthermore, previous studies have indicated PMI is effective for increasing positive social behaviors for young children with a wide range of disabilities (Goldstein, & Wickstorm, 1986; Storey et al., 1993), including children with autism (Laushey & Heflin, 2000; Odom & Watts, 1991), children with ASD (Giangreco, 1997; Koegel, 2000), and children with emotional behavioral disorders (Ryan, Reid, & Epstein, 2004). Target children who participated in the present study also had a wide range of abilities and diagnoses, including a child with Down syndrome, a child with autism, and a child with developmental disabilities. Finally, PMI has been found effective for increasing positive social behaviors in facilitating young children’s participation in a variety of routine classroom activities, including circle time (Robertson et al., 2003), dramatic play (Goldstein & Cisar, 1992), snack time and small group activities (Goldstein et al., 1997), and recess and outdoor activities (Harper et al., 2008). Findings from the present study found PMI to be effective in increasing positive social behaviors during free play with small group activities that were highly interesting and engaging for the target child, including blocks, puzzles, and dramatic play.
Teachers Training Peer Mediators to Use PMI

Based upon the fidelity measure used to track teachers’ training of peers and the teachers’ social validity questionnaire regarding the effectiveness of materials and procedures used in the study, evidence suggests teachers trained peer mediators PMI strategies easily in the context of the regular classroom activities. Further, teachers maintained the training and support of peer mediators’ use of PMI throughout the study. Teachers also reported enjoying the convenience of training peers to use social stories in a timely fashion that fit well with the natural structure of their class routine. Likewise, Harper et al. (2008) found teachers could train peers to implement PMI efficiently within a brief period of time and that teachers selected appropriate peers and closely monitored the intervention implementation. Goldstein et al. (1997) and Utley et al. (1997) found peers required minimal training with little teacher prompting across a variety of activities during the school day. Finally, Laushey and Heflin (2000) and Robertson et al. (2003) found that teachers could easily incorporate PMI into existing classroom routines without disrupting them. In addition, PMI was (a) effective in permitting teachers to teach more efficiently (Carter et al., 2005) and (b) feasible for teachers who cannot allocate large amounts of time to more than one target child (Storey et al., 1993).

Target Children’s Response to PMI

Findings from the present study indicate PMI was effective in that target children demonstrated an immediate and positive response from baseline to intervention. Goldstein and Wickstrom (1986) and Odom et al. (1992) found similar effects, specifically that implementation of PMI had an immediate and desired effect on the
number of positive social behaviors (i.e., commenting, establishing eye contact, and prompting requests) for children with disabilities in preschool settings. Harper et al. (2008) found PMI produced an immediate response and positive by children with autism in an elementary school setting during recess. In a similar study, Klavina and Block (2008) found PMI immediately improved positive social behaviors (i.e., one-to-one interactions and verbal and nonverbal prompting with peers) for children with disabilities during general physical education classes.

Peer Mediators Implementing PMI

Encouraging children with disabilities to become independent is one of the important roles of a peer mediator during PMI. Peers provide children with disabilities opportunities for full participation and engagement in positive social behaviors in ways that teachers cannot (Erwin & Schreiber, 1999). As with previous PMI studies (e.g., Carden-Smith & Fowler, 1984), the present study suggests peer mediators can implement PMI successfully. The power of peers has been enumerated across several studies, demonstrating how engagement and participation between target children and peers increases after the implementation of PMI (Erwin & Schreiber, 1999; Mathur & Rutherford, 1991; Stokes & Baer, 1977). When peers are given opportunities to take an instructional role in promoting learning, the responsibilities for teaching slowly fades from the teacher and transfers to the peer group. Furthermore, using peer mediators during select activities may generalize to the use of PMI throughout the day (i.e., to other activities).
Demonstration of a Functional Relationship

Within the present study a functional relationship was established when a peer mediator implemented PMI and the target child demonstrated an increase in positive social behaviors and a decrease in negative social behaviors. Findings of the present study are consistent with previous PMI research demonstrating a functional relationship between increased rates of positive social behaviors for target children when peers implemented PMI and increased rates of negative social behaviors when PMI was not implemented by peers. In particular, Laushey and Heflin (2000) found a functional relationship between disruptive negative social behaviors (i.e., fewer turn-taking, fewer instances of looking at a person speaking to them, and lower tolerance for waiting) and appropriate positive social behaviors (i.e., asking for an object, appropriately gaining the attention of a peer, turn taking, and looking at or in the direction of another person who is speaking) through the use of PMI. Lee et al. (2007) also demonstrated a functional relationship between positive social behaviors and negative stereotypic behaviors. Lastly, Storey et al. (1993) found a functional relationship existed for eight children with mild developmental delays when peers implemented PMI.

Implications

Implications are issues, benefits, and outcomes for a particular group as a result of the study findings. Implications of findings from the present study are discussed with regard to early childhood practitioners and young children.
Implications for Early Childhood Practitioners

State learning standards and the accountability movement in education has introduced the need for evidence-based practices in early childhood education. Early childhood practitioners are required to identify, evaluate, and interpret the evidence and apply it to solve problems about practice (Buysee & Wesley, 2007). In today’s inclusive classrooms, early childhood practitioners should be knowledgeable about making appropriate decisions concerning everything they do on behalf of young children. For example, teachers need to decide which interventions to use, what levels of services to provide, and how children’s performance will be monitored.

The present study adds to the evidence base regarding PMI as an effective instruction strategy for early childhood practitioners, particularly in the age of accountability. Based on research findings and recommended practices (DEC/NAEYC, 2009), PMI is appropriate and effective for educating and functionally including all young children into preschool inclusive settings. PMI is an evidence-based practice early childhood practitioners may easily embed into preschool inclusive settings for promoting a sense of belonging, positive social relationships with peers, and development and learning to reach full potential for all young children. In general, PMI offers several advantages for early childhood practitioners. For example, past research has shown that using PMI addresses a comprehensive set of target skills across classroom activities and routines (Robertson et al., 2003), provides a sufficient number of learning opportunities (Cohen, 2002), serves as a practical tool for teachers (Carden-Smith & Fowler, 1994), and increases a child’s active involvement during daily activities (Goldstein & Cisar,
1992; Fuchs, Fuch, & Burish, 2000). The present study also suggests teachers can train peers to implement PMI with little training, thus potentially closing the gap between research in promoting new social skills in children and classroom practices.

**Implications for Young Children**

An increase in the number of young children with disabilities being served in inclusive settings has brought the importance of the social area of development to the forefront of many teachers’ minds. Evidence has shown young children with minimal competence in the social area of development may have a high probability of being at risk into adulthood in several ways (Halberstadt, Denham, & Dunsmore, 2001; Ladd, 2000; Parker & Asher, 1987). In particular, many young children with disabilities often lack social competence (Meier, DiPerna, & Oster, 2006; Odom, McConnell, & McEvoy, 1992; Vaughn et al., 2003). As a result, intervention strategies for supporting meaningful inclusion and full participation, including the social needs of all young children, are essential in early childhood inclusive classrooms (Conroy & Brown, 2004; LaRocque & Darling, 2008). In the present study, PMI was an effective intervention strategy for increasing positive social behaviors and decreasing negative social behaviors in the social area of development for young children. Thus, children with disabilities served in inclusive classrooms can benefit from the use of PMI.

**Contributions**

Descriptions of how the present study contributes to the current knowledge base regarding PMI follow. Contributions are described in terms of (a) using multiple peers,
(b) using children with disabilities as peer mediators, and (c) focusing on children’s interests.

Using Multiple Peers

In the present study, each target child was assigned two peers, who used PMI strategies (i.e., peer prompting, initiating, and/or giving feedback) with the target child in alternating sessions during intervention for increasing positive social behaviors and decreasing negative social behaviors. The peers’ level of implementation of PMI may suggest using multiple peers increased opportunities for positive social behaviors. Several previous studies have indicated higher levels of positive social behaviors would have resulted with the addition of two peer mediators for each child with disabilities (e.g., Goldstein et al., 1992; Harper et al., 2008; Klavina & Block, 2008; McEvoy et al., 1992). The present study extends to the current literature in providing evidence that increased levels of positive social behaviors for children with disabilities can be achieved when using multiple peers.

Children With Disabilities Serving as Peer Mediators

The present study utilized children with disabilities as peer mediators, suggesting children with disabilities may have the potential to implement PMI effectively and successfully. Having all children considered for the role of peer mediator role has been suggested to result in higher levels of positive social behaviors (Strain, 1984). In addition, including children with disabilities as peer mediators for implementing PMI prevents singling out a child with a disability in the classroom and may foster greater independence (Harper et al., 2008; Laushey & Heflin, 2000).
Focusing on Children’s Interests

In the present study, high interest toys and materials were used during the implementation of PMI. Given the increase in positive social behaviors and decrease in negative social behaviors, selecting high interest toys and materials may be critical to increasing positive social behaviors for the target child during PMI. Teachers may want to consider activities and events on children’s current interests rather than relying on curriculum plans that are developed and reused year after year (DiCarlo & Vagianos, 2009; Grisham-Brown et al., 2005). Children with disabilities may feel successful when they are given learning opportunities that are highly engaging and matched to their interests. When children are paired based upon mutual interests, successful PMI is more likely to occur (Harris et al., 2009; Prendeville et al., 2006).

Threats to Internal Validity

Threats to internal validity are factors or influences other than the independent variable (i.e., PMI) that could explain the results or changes in behavior (Neuman & McCormick, 1995). At least two threats were not controlled by the design of the study. The two possible threats to internal validity are addressed below.

Statistical Regression

An increase in positive social behaviors from baseline to intervention may have resulted from selecting target children who were functioning well below the mean (i.e., demonstrating low frequencies of positive social behaviors at the beginning of the study). Although findings from the study indicate target children increased positive social behaviors and decreased negative social behaviors once they received PMI from peers,
one cannot know for certain that PMI was the cause of changes in behavior. In other words, given that the children were low performers at baseline, any type of intervention might have caused an increase in positive social behaviors; however, the first session of the intervention phase for all three target children indicated an increase in positive social behaviors, demonstrating an immediate and strong intervention effect.

**Instrumentation**

Changes in the target children’s social skills may have been influenced as a result of teacher and researcher bias when administering the BDI-2 and SSRS. While both instruments were found to be reliable and valid and protocol for each instrument was followed, bias can occur at any time. Knowledge and familiarity regarding the target children may have affected the final scores provided by the teachers and researcher for the BDI-2 and/or Social Skills Rating System.

**Threats to External Validity**

Generalizing the results of single-subject studies is often difficult, given the small sample sizes. As a result, single-subject studies must rely on replications across individuals instead of groups. External validity is increased through replication of the effects across different participants, settings, and/or variables. The child participants, setting, and variables chosen for the present study and generalization of findings are discussed next.

Although the results of the study are strong and consistently support PMI for children with disabilities, issues related to external validity need to be considered. First, the results of the study cannot be generalized to all young children with disabilities.
Child participants included one child with Down syndrome, one child with autism, and one child with developmental disabilities. Response to PMI may vary from child to child, so the effects observed have little bearing on how all other children may respond. In addition, the study was limited in terms of children’s gender and ethnicity. Although the study included children that were different in capabilities, needs, and interests, the peer mediators included only one female and one African American, and all target children were boys.

Second, results cannot be generalized beyond the three integrated inclusive preschool classrooms in which the study took place. Questions might arise in terms of whether the results of the study would be different had the intervention or the data been taken place within a self-contained special education classroom, daycare center, general education classroom, Head Start classroom, or a family childcare home.

The present study also only looked at positive social behaviors that were needed and missing from each target child’s repertoire, namely, turn taking as a dependent variable. Results from the study cannot predict that PMI would increase all positive social behaviors. Finally, the independent variable for the study (i.e., PMI) was a combination of peer prompting, peer initiating, and/or giving feedback. Thus, the combined effects of the three parts of the peer-mediated intervention were examined, not the impact of parts independently. Results from the study cannot predict whether using the parts separately would be as effective in demonstrating an immediate and strong intervention effect.
Limitations of the Study

Several limitations of the study were raised in the previous section regarding threats to internal and external validity; for example, the dependent variable was narrow in that only the impact of PMI on a single positive social behavior was examined, and the sample size was small. In addition to limitations regarding sample size, participant characteristics, settings, and variables selected, limitations were associated with instrumentation. The study was also limited in that it lacked a maintenance or generalization phase, which would add robustness to the findings. Finally, given lack of experimental control related to research question three (i.e., no repeated measures, no control group), a comparison between target children’s social skills before and after the study was limited to descriptive statistics, which can provide only a summary of the target children’s social skills.

Future Directions

Based upon the present study and past research, PMI has high potential to increase positive outcomes for preschoolers with disabilities within inclusive settings. In general, evidence suggests that PMI can lead to a more caring, supportive, and nurturing learning environment (Harris et al., 2009). Given the strong evidence base for PMI and given the limitations of the present and past studies, additional research is still warranted, particularly in terms of the use of social stories as a supportive tool for training peer mediators, the need for maintenance and generalization phases, examinations of the combined effect of PMI strategies versus each strategy singularly, and the effects of PMI on peer mediators.
Social Stories as a Supportive Tool

The study used social stories as a supportive training tool for peer mediators. Given the repeated, immediate, and strong level of implementation of PMI by peer mediators, the present study suggests the use of social stories may be effective as a supportive tool. Their impact or true utility, however, remains an area in need of future research. A synthesis of the literature (see Chapter 1) found teachers and researchers used flags (Goldstein et al., 1997), visual cue cards (Kohler et al., 2007; Odom et al., 1985; Spohn et al., 1999), posters (e.g., Goldstein et al., 1992; Goldstein & Wickstrom, 1986; Sainato et al., 1987; Sainato et al., 1992; Storey et al., 1993), scripts (Goldstein & Cisar, 1992), or nothing at all (Arntzen et al., 2003; Jung et al., 2008; Sawyer et al., 2005; Zanolli et al., 1996) as supportive tools for training peer mediators to use PMI. Future research should investigate the types of tools teachers may need when supporting peers for implementing PMI in an effort to increase fidelity, maintenance, and generalization. For example, researchers could compare the use of social stories to scripts and/or posters for increasing use of PMI.

In addition to comparing tools, because social stories are individualized, the pictorial and written text cues could be extended to include more directive sentences related to peers’ use of praise and then examined for the effects. The present study used praise as one of three PMI strategies. Target children responded favorably to receiving praise from peers. Additionally, the increased levels of praise from the peers may have reduced the need for teachers to reprompt peers during the implementation of PMI to the
target children. Thus, using social stories may help peer mediators praise target children, and effects should be examined.

Finally, future studies should investigate the effects of writing additional social stories for the target child once the dependent variable has been accomplished. Additional social stories may increase the generalization of target skills. Likewise, social stories may facilitate the use of PMI in other classroom activities with peers.

**Maintenance and Generalization**

Future research should ensure designs with maintenance and generalization phases to determine the long-term and sustained effects of PMI. Conducting maintenance measures are a fairly routine tradition of single-subject researchers (Neuman & McCormick, 1995). The present study investigated only the effects of PMI on positive social behaviors during free play and only during a three-month period and did not permit the researcher with an opportunity to reevaluate the target children’s effects on PMI to determine whether improvements seen during intervention (i.e., an increase in positive social behaviors and decrease in negative social behaviors) would be maintained. Obviously, little good comes from children exhibiting improved levels of positive social behaviors only until the conclusion of a research study; therefore, it would have been interesting to observe whether PMI carried over to other activities by peers or to the next school year by the teachers. Future research should investigate the effects of PMI to determine whether the target children would demonstrate the positive social behaviors spontaneously—without any prompts, initiations and/or feedback from the peers—during new situations (i.e., snack time, recess, circle time, art) and with new peers.
Future research should also investigate the generalization of PMI with regard to child participants, settings, and targeted outcomes. The present study included three target children: a child with Down syndrome, a child with autism, and a child with developmental disabilities. The six peer mediators included three children without disabilities, two children with autism, and one child with a speech delay. Future research should investigate generalizing the study by selecting target children and peer mediators with a wide variety of abilities, capabilities, needs, and interests, including children with and without disabilities. In addition, examining the effects of PMI in a variety of early childhood settings would be interesting. The present study took place in integrated inclusive preschool classrooms. Examining the effects of PMI in community childcare centers, Head Start centers would add information in terms of the viability of PMI for a variety of early childhood settings. Finally, future research should examine the generalization of PMI with different positive social behaviors as the dependent variable. The present study examined only one positive social behavior (i.e., turn taking). By examining the effects of PMI to support a variety of positive social behaviors would build evidence as to whether more complex social skills for children with disabilities can be positively impacted.

**Combined Effects of PMI Strategies**

Future studies should investigate the effects of PMI strategies as separate independent variables. The present study examined the combined effects of PMI strategies (peer prompting, peer initiation, and/or giving feedback) as the independent variable, making it difficult to know whether all three are needed or whether one or more
is effective on its own. Future research should investigate the effects of using each strategy separately. In particular, given the potential importance of praise (i.e., giving feedback), future research should investigate the importance of feedback during the implementation of PMI for increasing positive social behaviors or what combined effect prompting and feedback might have.

**Effects on Peer Mediators**

Future research should examine the effects of PMI on peer mediators. Several advantages of PMI for children with disabilities are known, but what is lesser known is the benefit or impact on peer mediators. Research is needed to examine systematically what happens to peer mediators as a result of implementing PMI. For example, future research could examine whether peer mediators change (i.e., from pre to post) as a result of implementing PMI. A measure would need to be developed to examine changes from pre to post on such characteristics as peers’ leadership skills (i.e., Do peers change regarding taking initiative in planning and carrying out play organizers and offering assistance to teachers by supporting children with disabilities?), attitude toward and the acceptance of children with disabilities (i.e., Do peers change in terms of appreciating individual differences among children with disabilities?), self-confidence (i.e., Do peers change in terms of serving as positive role models by providing praise and encouragement to children with disabilities?), and social and language skills (i.e., Do peers increase in participating in daily play activities?).

In addition, an interesting study would involve the reciprocal relationship from pre to post on how multiple peers support and encourage each other while serving as peer
mediators. Peers, like teachers, need support to implement strategies effectively and efficiently for children with disabilities. By doing this, peers may learn from each other and practice a variety of different means of prompting, initiating, and giving praise to the target child to serve as stronger, confident peer mediators for the implementation of PMI.

**Conclusion**

In summary, the study examined peer mediators’ use of PMI, and results indicate peer mediators can implement PMI successfully and with fidelity and little training. Second, the study examined the effects of PMI in increasing positive social behaviors and decreasing negative social behaviors of the target children. Results of the study indicate PMI is an effective evidence-based practice for increasing positive social behaviors, suggesting PMI a viable and valuable teaching strategy for early childhood practitioners. Target children’s response to PMI from peers was immediate and strong from baseline to intervention. Third, the study examined whether the social skills for target children improved from baseline to intervention following implementation of PMI. Results indicate all target children stayed the same or increased from baseline (pre) to intervention (post).

As early childhood settings increasingly serve diverse groups of young children with disabilities, teachers will likely have children with a wide range of social behaviors with different abilities, interests, and needs. Because many young children need additional support in this area of development, PMI may prove to be a strategy teachers can use to help young children improve their positive social behaviors. PMI emphasizes children’s strengths, abilities, and social needs by creating opportunities for peers to take
an instructional role in promoting learning. Using PMI in inclusive classrooms appears to encourage all children to be active and engaged learners. Inclusion involves a commitment to every child, and every child should have the opportunity for full participation and positive learning experiences with peers, regardless of her or his capabilities. PMI has the potential to support the social engagement of all young children—regardless of their ability levels—as visible members of a classroom community.
APPENDICES
APPENDIX A

CHILD CONSENT FOR TARGET PARTICIPANT
Caregiver/Parent Consent Form

February 26, 2008
Dear Caregiver/Parent,

My name is Kathleen Harris. I am a doctoral candidate in the department of Special Education at Kent State University. I am working on a research study regarding peer-mediated interventions under the supervision of my dissertation co-directors, Dr. Kristie Pretti-Frontczak, Associate Professor; and Dr. Sanna Hurjusola-Webb, Assistant Professor at Kent State University. The intent of this study is to examine the effects of peer-mediated interventions in promoting social skills for children with disabilities. I would like to have your child take part in this study. If you decide to, your child will be asked to participate in the peer-mediated intervention.

This research study is important because children’s social skills are critical for school success. Peer-mediated interventions is one strategy used successfully to increase social skills among children with and without disabilities in integrated (i.e., both children with and without disabilities) settings. Peer-mediated interventions create opportunities for peers to take an instructional role with children with disabilities to promote social skills along with supporting several developmental skills.

For the study, your child will receive peer prompting from another child as a means of supporting the development of targeted social skills during free play. Peer prompting is where one peer assists another peer to support and accomplish a specific target skill (e.g., turn taking).

If you choose to participate in the study, I will need to obtain information regarding your child’s development at the beginning and at the end of the study. The following forms and assessments will be administered and completed in the context and routine of the classroom and/or through conversations with me and/or your child’s teacher. They are the following:

Assessments
- Assessment, Evaluation, and Programming System (AEPS)
- Battelle Developmental Inventory–Second Edition (BDI-2)
- Social Skills Rating Scale
- Citizenship Rubric
Caregiver/Parent Consent Form (continued)

Forms
- Signed consent form
- Child demographic form

In addition to the above assessments, the AEPS Family Report will be completed either in person, a phone interview, or a home visit. A child’s portfolio, Take a Look at Me will also be completed at the beginning of the study to inquire your child’s interests and strengths.

I will take appropriate actions to assure confidentially to you and your child. Names of children, families, and professional staff will not appear on any of the research documents. Each child will be assigned a pseudonym or a number which will then be used for all assessments and coding forms. All research documents will be stored at Kent State University, where they will be kept in locked files until the data is entered into a computer file. Once the information is entered into the computer, names of children, families, and professional staff will not be attached to the data. At the end of the study, I will be sharing the results through publications and conferences. At no time will information reveal the identity of you or your children.

Taking in this study is entirely up to you, and no one will hold it against you if you decide not to. If you take part, you may stop at any time. If you want to know more about this research study, please call Kathleen Harris at 330-995-4027 or Dr. Kristie Pretti-Frontczak at 330-672-0597. The study has been approved by Kent State University. If you have questions about Kent State University’s rules for research, please call Dr. John L. West, Vice President and Dean, Division of Research and Graduate Studies (330-672-2704) I will provide you with a copy of this consent form.

Thank you for your consideration of this request.

Sincerely,
Kathleen Harris, M.Ed.
Caregiver/Parent Consent Form (continued)

Consent Statement

I agree to allow _____________________________________(insert your child’s name) to participate in the research study.

__________________________________________________                  ______________
Signature of parent/guardian agreeing for their child to take part                Date

Return this form to YOUR CHILD’S TEACHER/EARLY INTERVENTIONIST
and they will mail to
Kathleen Harris, M.Ed.
415 Walnut Ridge Trail
Aurora, Ohio 44202
APPENDIX B

CHILD CONSENT FOR PEER MEDIATORS
The Effects of Peer-Mediated Intervention in Promoting Social Skills for Children With Disabilities

Caregiver/Parent Consent Form

February 26, 2008
Dear Caregiver/Parent,

My name is Kathleen Harris. I am a doctoral candidate in the department of Special Education at Kent State University. I am working on a research study regarding peer-mediated interventions under the supervision of my dissertation co-directors, Dr. Kristie Pretti-Frontczak, Associate Professor, and Dr. Sanna Hurjusola-Webb, Assistant Professor at Kent State University. The intent of this study is to examine the effects of peer-mediated interventions in promoting social skills for children with disabilities. I would like to have your child take part in this study. If you decide to, your child will be asked to participate as a peer mediator for a child with disability in their class.

This research study is important because children’s social skills are critical for school success. Peer-mediated interventions is one strategy used successfully to increase social skills among children with and without disabilities in integrated (i.e., both children with and without disabilities) settings. Peer-mediated interventions create opportunities for peers to take an instructional role with children with disabilities to promote social skills along with supporting several developmental skills.

For the study, your child will be asked to prompt social skills to another peer during free play with the support of a social story. Peer prompting is assisting another peer to support and accomplish a specific target skill (e.g., turn taking). A social story is a teacher-made book written for children on topics relevant to a child’s developmental needs such as turn taking or sharing skills. Social stories are unique because they identify a particular concern and develop a story from the child’s perspective that supports a desired outcome. Your child’s teacher will be shown how to prompt your child to engage with other children through the use of a social story. Your child will serve as a peer mediator and will be encouraged to prompt the target social skills of a friend during free play.

If you choose to participate in the study, I will need to obtain information regarding your child’s development at the beginning and at the end of the study. The following forms and assessments will be administered and completed in the context and routine of the classroom and/or through conversations with me and/or your child’s teacher. They are the following:
Caregiver/Parent Consent Form (continued)

Assessments
- Battelle Developmental Inventory-Second Edition (BDI-2)
- Social Skills Rating Scale

Forms
- Signed consent form
- Child demographic form

In addition to the above forms and assessments, the AEPS Family Report will be completed either in person, a phone interview, or a home visit. A child’s portfolio, Take a Look at Me will also be completed at the beginning of the study to inquire your child’s interests and strengths.

I will take appropriate actions to assure confidentially to you and your child. Names of children, families, and professional staff will not appear on any of the research documents. Each child will be assigned a pseudonym or a number which will then be used for all assessments and coding forms. All research documents will be stored at Kent State University, where they will be kept in locked files until the data is entered into a computer file. Once the information is entered into the computer, names of children, families, and professional staff will not be attached to the data. At the end of the study, I will be sharing the results through publications and conferences. At no time will information reveal the identity of you or your children.

Taking in this study is entirely up to you, and no one will hold it against you if you decide not to. If you take part, you may stop at any time. If you want to know more about this research study, please call Kathleen Harris at 330-995-4027 or Dr. Kristie Pretti-Frontczak at 330-672-0597. The study has been approved by Kent State University. If you have questions about Kent State University’s rules for research, please call Dr. John L. West, Vice President and Dean, Division of Research and Graduate Studies (330-672-2704). I will provide you with a copy of this consent form.

Thank you for your consideration of this request.

Sincerely,
Kathleen Harris, M.Ed.
Caregiver/Parent Consent Form (continued)

Consent Statement

I agree to allow ____________________________ (insert your child’s name)
to participate as a peer mediator in the research study.

___________________________________________________             ____________
Signature of parent/guardian agreeing for their child to take part              Date

Return this form to YOUR CHILD’S TEACHER/EARLY INTERVENTIONIST and
they will mail to
Kathleen Harris, M.Ed.
415 Walnut Ridge Trail
Aurora, Ohio 44202
APPENDIX C

PHOTO CONSENT FOR CHILD PARTICIPANTS


The Effects of Peer-Mediated Intervention in Promoting Social Skills for Children with Disabilities

PHOTOGRAPH CONSENT FORM

I agree to photographing my child at ______________________________________ during free play when the referenced intervention, peer-mediated intervention, is being administered to my child February through May 2008.

______________________________________________         __________________
Signature                 Date

I have been told that I have the right to see the photographs before they are used. I have decided that I:

_______ want to see the photographs _______ do not want to see the photographs

Kathleen Harris, approved by Kent State University, may/may not use the photographs made of my child. The original photographs may/may not be used for this research project.

_______________________________________                                  ________________
Signature                                                       Date

Address: _____________________________________________________
APPENDIX D

VIDEO CONSENT FOR CHILD PARTICIPANTS
The Effects of Peer-Mediated Intervention in Promoting Social Skills for Children with Disabilities

VIDEOTAPE CONSENT FORM

I agree to video taping my child at ________________________________.

in ________________________________ during free play
when the referenced intervention, peer-mediated intervention, is being administered to
my child February through May 2008.

______________________________________                                 _________________
Signature                 Date

I have been told that I have the right to see the video tapes before they are used.
I have decided that I:

________ want to see the tapes          ________ do not want to see the

tapes                          tapes

Kathleen Harris, approved by Kent State University, may/may not use the tapes made of
my child. The original tapes may/may not be used for this research project.

______________________________________                                    ________________
Signature                               Date

Address:
______________________________________________________________________
APPENDIX E

CHILD DEMOGRAPHIC FORM
The Effects of Peer-Mediated Intervention in Promoting Social Skills for Children With Disabilities

Child Demographic Form

Directions: Please complete the Child Demographic Form and return to your teacher. Information is strictly confidential. Thank you.

Child’s Name ____________________________________________________________

Address ________________________________________________________________

City ___________________________ State ________________________________

Zip__________________ Code_________________

Child’s Birthday Month______ Day_______ Year_______

Child’s Sex (check one)  □ Male  □ Female

Child’s Developmental Status (check one)

□ No history or indication of developmental delay or problem

□ Suspected developmental delay or disability (at-risk)

□ Identified delay or disability (has an IFSP/IEP in place)

Child’s Ethnicity (check one)

□ Hispanic/Latino □ Black □ Native American □ Other

□ Asian □ White □ Hawaiian

□ Pacific Islander □ Biracial □ Don’t know

Does child receive special education or related services?  □ Yes  □ No
Child Demographic Form (continued)

If yes, what type of services does he/she receive?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Family Information
   Primary Caregiver (check one)
      ☐ Mother  ☐ Father  ☐ Guardian  ☐ Grandparent  ☐ Other

Education of Primary Caregiver
   ☐ Less than high school  ☐ High school  ☐ Associate’s degree  ☐ 4-year college or above
   ☐ Don’t know

Siblings
   Name ___________________________________________     Age ______
   Name ___________________________________________     Age ______
   Name ___________________________________________     Age ______
   Name ___________________________________________     Age ______
   Name ___________________________________________     Age ______
Child Demographic Form (continued)

What are your child’s favorite interests, toys, and play activities?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Comments: (optional)

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Return this form to
Kathleen Harris, M.Ed.
415 Walnut Trail
Aurora, Ohio 44202
APPENDIX F

TEACHER CONSENT FORM
February 8, 2008
Dear Teacher/Early Interventionist,

My name is Kathleen Harris. I am a doctoral candidate in the department of Special Education at Kent State University. I am working on a research study regarding peer-mediated interventions under the supervision of my dissertation co-directors, Dr. Kristie Pretti-Frontczak, Associate Professor, and Dr. Sanna Hurjusola-Webb, Assistant Professor at Kent State University. The intent of this study is to examine the effects of peer-mediated interventions in promoting social skills for children with disabilities.

This research study is important because children’s social skills are critical for school success. Peer-mediated interventions is one strategy used successfully to increase social skills among children with and without disabilities in integrated (i.e., both children with and without disabilities) settings. Peer-mediated interventions create opportunities for peers to take an instructional role with children with disabilities to promote social skills along with supporting several developmental skills.

Your role during the study will include: identifying a child with a disability and selecting peer mediators with high functioning social skills; helping to obtain consent from family members; creating a social story with the researcher; training peer mediators to prompt social skills to another peer during free play with the support of a social story; and observing the peer mediator and child participant during peer mediated intervention phase of the study.

If you choose to participate in the study, I will also need your assistance with gathering information regarding participating children at the beginning and at the end of the study. The following forms and assessments will be administered and completed in the context of the classroom including:

- Assessment, Evaluation, and Programming System (AEPS®)—assessment completed by researcher
- AEPS® Family Report—assessment completed by researcher and family
Teacher/Early Interventionist Consent Form (continued)

- Battelle Developmental Inventory—Second Edition (BDI-2)—assessment completed by researcher
- Social Skills Rating Scale—assessment completed by teacher
- Citizenship Rubric—assessment completed by researcher
- Demographic Form
- Take A Look At Me Child Portfolio—completed by teacher and family

Throughout the study, appropriate actions will be taken to assure confidentiality to you and your children. Names of children, families, and professional staff will not appear on any of the research documents. Each child will be assigned a pseudonym or a number which will then be used for all assessments and coding forms. All research documents will be stored at Kent State University, where they will be kept in locked files until the data is entered into a computer file. Once the information is entered into the computer, names of children, families, and professional staff will not be attached to the data. At the end of the study, I will disseminate results through publications and conferences. At no time will information reveal the identity of you or your children.

Taking in this study is entirely up to you, and no one will hold it against you if you decide not to. If you take part, you may stop at any time. If you want to know more about this research study, please call Kathleen Harris at 330-995-4027 or Dr. Kristie Pretti-Frontczak at 330-672-0597. The study has been approved by Kent State University. If you have questions about Kent State University’s rules for research, please call Dr. John L. West, Vice President and Dean, Division of Research and Graduate Studies (330-672-2704). I shall provide you with a copy of this consent form.

Thank you for your consideration of this request.

Sincerely,  
Kathleen Harris, M.Ed.

I agree to take part in this project. I know what I shall have to do and that I can stop participation at any time.

Name: ____________________________________________

Signature: __________________________________________ Date: __________
Teacher/Early Interventionist Consent Form (continued)

Contact email and/or phone: ____________________________________________________

Return this form to

Kathleen Harris, M.Ed.
415 Walnut Ridge Trail
Aurora, Ohio 44020
APPENDIX G

TEACHER DEMOGRAPHIC FORM
The Effects of Peer-Mediated Intervention in Promoting Social Skills for Children With Disabilities

**Teacher Demographic Form**

Directions: Please complete the Teacher Demographic Form and return to the researcher of the study. Information is strictly confidential. Thank you.

Name__________________________________________________________

Address________________________________________________________

City____________________________________       State & Zip Code_______________

Sex (check one)   □ Male       □ Female

Age (check one)    □ 20-30       □ 41-50
                     □ 31-40       □ 51-60+

Degree of education (check the highest degree received)
   □ High School Diploma
   □ Associate’s Degree
   □ Bachelor’s Degree
   □ Master’s Degree
   □ Doctorate Degree

Ethnicity (check one)
   □ Hispanic/Latino    □ Black       □ Native American
   □ Other              □ White       □ Hawaiian
   □ Asian              □ Biracial    □ Don’t know
   □ Pacific Islander   □

123
Teacher Demographic Form (continued)

List Certifications/Licensures:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Briefly describe your educational background and experiences in general education, early childhood education, and special education with children with disabilities:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Do you have any experience using peer-mediation intervention in your classroom?
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Teacher Demographic Form (continued)

_________________________________________________________________________
_________________________________________________________________________

Comments: (optional)
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________

Return this form to

Kathleen Harris, M.Ed.
415 Walnut Ridge Trail
Aurora, Ohio 44202
APPENDIX H

CITIZENSHIP RUBRIC
The Effects of Peer-Mediated Intervention in Promoting Social Skills for Children With Disabilities

Citizenship Rubric

Social Studies

Participate as a member of the group in a democratic classroom community. Citizenship Rights and Responsibilities for Early Childhood (Preschool-PreK)

Indicators:

- Helping peers
- Cooperating with peers
- Turn taking with peers
- Participating with peers at play
- Problem solving (negotiate solutions to simple conflicts and develop compromises with others with peers in an age appropriate manner)
- Making age appropriate choices, following plans and rules in the preschool classroom, consequences, and outcomes
- Respecting rules at home, school, and community
- Taking responsibility for one’s own actions

References


1/3/08
Kathleen I. Harris, M.Ed
### Citizenship Rubric (continued)

**Rubric for documenting citizenship rights and responsibilities for preschool children**

<table>
<thead>
<tr>
<th>Beginning Steps Toward Standard Being Met</th>
<th>Making Progress Towards Standard Being Met</th>
<th>Accomplishing the Standard Being Met</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Begins to take steps to take turns. Some impulsive, selfish behavior is still evident. (e.g., will allow another peer to take a turn only if a teacher asks the child to wait for his/her turn).</td>
<td>1. More often take turns with peers without being asked during play.</td>
<td>1. Almost always takes turns with peers when required.</td>
</tr>
<tr>
<td>2. Begins to help peers (e.g., attempts to assist a peer with building a fire station during block play).</td>
<td>2. More often helps peers without being asked during classroom routines and play time.</td>
<td>2. Helps peers often throughout the day and at play.</td>
</tr>
<tr>
<td>3. Demonstrates awareness of group rules. Recognizes the reason for rules (e.g., waits before painting because the easels are full).</td>
<td>3. Follows classroom rules showing concern for other children (e.g., without being asked, a child will wait quietly for his/her turn or helps a peer with a disability during play time to build with blocks or dress a doll during dress-up play).</td>
<td>3. Participates in creating and following classroom rules.</td>
</tr>
<tr>
<td>4. Interacts with other peers as play partners. (e.g., smiles and greets a peer at the sandbox; child holds a peer’s hand during outdoor play).</td>
<td>4. Offers assistance to a peer who needs help (e.g., child says to a peer, “I’ll help you with the puzzle). Participates often in both small and large group activities (e.g., child remains with two peers and paints a picture and gives it to a teacher to dry during free play; child asks questions and interacts with entire class during a game of I Spy).</td>
<td>4. Shows concern for peers (e.g., child gets off swing and lets peer get on; child pats peer who is crying).</td>
</tr>
<tr>
<td>5. Demonstrates a sense of belonging to a classroom community. Contributes to the care of materials, pets in the classroom (e.g., feeding a class pet; watering a plant in the classroom).</td>
<td>5. Develops increasingly abilities to give and take in interactions (e.g., during dramatic play, a child sets a table for</td>
<td>5. Makes suggestions for problem solving within the classroom community (e.g., child shares watercolor paints and paints with peer when there is only one easel in the classroom). Follows routines with little supervision (e.g., a child cleans up after snack time without being told; child transitions from learning center to another without being told by a teacher; child checks picture schedule upon arrival to school without being reminded).</td>
</tr>
</tbody>
</table>
Citizenship Rubric (continued)

<table>
<thead>
<tr>
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<tr>
<td><strong>Beginning Steps Toward Standard Being Met</strong></td>
<td><strong>Making Progress Towards Standard Being Met</strong></td>
<td><strong>Accomplishing the Standard Being Met</strong></td>
</tr>
<tr>
<td>Classroom.</td>
<td>stuffed animals and put all the red dishes on the table requested by another peer.</td>
<td>peers and reminds others of the rules (e.g., during a game, each peer is given a turn and follows the rules as a group).</td>
</tr>
<tr>
<td>Begins to cooperate with other peers in small group activities (e.g., during playtime a child reaches for a chuck of play dough to share with another peer).</td>
<td>Begins to play cooperatively with peers. Expresses interest to others (e.g., during restaurant play, a child takes crayon and paper and asks a peer, “Do you want a hot dog or a hamburger?”).</td>
<td>Demonstrates leadership skills in organizing play with peers and/or cooperating with peers (e.g., leads other peers in pretend play such as a grocery store or hospital; tells other peers to wash their hands before snack time).</td>
</tr>
<tr>
<td>Watches and listens about the importance of following simple directions in the classroom (e.g., listens quietly to the teacher who gives directions about playground safety).</td>
<td>Plays cooperatively with peers (e.g., two peers mixing play dough together to makes different farm animals; two peers painting together and mixing colors to create a rainbow).</td>
<td>Willing to follow other peers and negotiate roles and rules during play (e.g., only 4 children at the sand table; when playing a board game, a child suggests to peers to roll a pair dice to see who will go first, second, third, etc.).</td>
</tr>
<tr>
<td>Plays side by side with peers. Shows interest in others by playing beside or briefly with one or more children (e.g., child plays next to a peer at the water table; child draws a picture across from a peer during free play; nonverbal negotiation of toy materials may occur).</td>
<td>Demonstrates strategies to join play with adult’s support (e.g., child starts to build with blocks with peers after the teacher sensitively enters into the activity).</td>
<td>Assumes some responsibility for contributing to a classroom community (e.g., during circle time, child participates by singing songs, welcoming peers by shaking their hand, and listens to a peer count).</td>
</tr>
<tr>
<td>Responds to and initiates interaction with others through gestures, vocalizations, and/or body contact (e.g., a child offers toys, hugs, pats, thumbs-up, signs, or high-five to a peer).</td>
<td>Participates actively as a member of the class (e.g., child helps to put toys away during clean up time; passes out napkins and cups to each child</td>
<td></td>
</tr>
</tbody>
</table>
Citizenship Rubric (continued)

<table>
<thead>
<tr>
<th>Beginning Steps Toward Standard Being Met</th>
<th>Making Progress Towards Standard Being Met</th>
<th>Accomplishing the Standard Being Met</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Understands different places have different rules (e.g., child knows that “outside voices” are not for the classroom).</td>
<td>▪ Makes simple choices when playing with peers and adults (e.g., during free play, a child makes a choice between two activities; playing with blocks or playing with play dough).</td>
<td>▪ the days of the week and do weather bear).</td>
</tr>
<tr>
<td>▪ Makes simple choices when playing with peers and adults (e.g., during free play, a child makes a choice between two activities; playing with blocks or playing with play dough).</td>
<td>▪ Begins to show empathy toward peers (e.g., child tells a teacher if a peer is crying).</td>
<td>▪ Demonstrates awareness of the outcomes of one’s own choices (e.g., picking up toys creates a safe environment).</td>
</tr>
<tr>
<td>▪ Begins to show empathy toward peers (e.g., child tells a teacher if a peer is crying).</td>
<td>▪ Begins to use courteous words and actions to peers and adults (e.g., during snack time when given a drink and the teacher says, “What do we say,” child responds, “Thank you.”).</td>
<td>▪ Participates in voting as a way of making choices (e.g., child may raise his or her hand to choose which snack to have at snack time: apples or popcorn).</td>
</tr>
</tbody>
</table>
| ▪ Begins to use courteous words and actions to peers and adults (e.g., during free play, a child makes a choice between two activities; playing with blocks or playing with play dough). | ▪ Demonstrates ability to create rules in play (e.g., the days of the week and do weather bear). | ▪ Uses compromise and conflict resolution skills in resolving conflicts with peers. (e.g., child take turns during block play, “I’ll play with the cars and you play with the blocks.”)

| ▪ Shows awareness of what it means to be a leader. Show increasing abilities to use compromise and discussion in play and conflict resolution with peers (e.g., during dramatic play, a child tells other peers, “Let’s make soup together, okay? We’ll need to put in alphabet letters for our soup. You get the letters and I’ll get the pot). | ▪ Shows respect for other peers, their uniqueness, and individuality (e.g., child opens a door with a teacher so a peer who uses a wheelchair can go into the classroom). | ▪ Demonstrates empathy to the feeling of other peers (e.g., child says, “I’m sorry” to another peer if he/she grabbed a toy away from the peer). |
| ▪ Shows awareness of what it means to be a leader. Show increasing abilities to use compromise and discussion in play and conflict resolution with peers (e.g., during dramatic play, a child tells other peers, “Let’s make soup together, okay? We’ll need to put in alphabet letters for our soup. You get the letters and I’ll get the pot). | ▪ Demonstrates empathy to the feeling of other peers (e.g., child says, “I’m sorry” to another peer if he/she grabbed a toy away from the peer). | ▪ Often uses courteous words and actions to
**Citizenship Rubric** (continued)

<table>
<thead>
<tr>
<th>Beginning Steps Toward Standard Being Met</th>
<th>Making Progress Towards Standard Being Met</th>
<th>Accomplishing the Standard Being Met</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>everyone gets one turn in the circle.</td>
<td>peers and adults (e.g., a child encourages peers in the class to use nice manners during snack time; child says goodbye when leaving school to peers and teachers).</td>
</tr>
<tr>
<td>Demonstrates some understanding of</td>
<td>▪ Demonstrates some understanding of</td>
<td></td>
</tr>
<tr>
<td>respecting other peers and individuality</td>
<td>respecting other peers and individuality (e.g., during show-n-tell child is careful when passing a toy that belongs to another peer).</td>
<td></td>
</tr>
<tr>
<td>(e.g., during show-n-tell child is</td>
<td>▪ Frequently uses courteous words and</td>
<td></td>
</tr>
<tr>
<td>careful when passing a toy that belongs</td>
<td>actions to peers and adults (e.g.,</td>
<td></td>
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<tr>
<td>to another peer).</td>
<td>During snack time when given a drink,</td>
<td></td>
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<tr>
<td></td>
<td>responds by saying “thank you” without</td>
<td></td>
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<tr>
<td></td>
<td>being reminded).</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX I

SOCIAL VALIDITY QUESTIONNAIRE FOR TEACHERS
I am interested in how you used peer-mediated intervention over the past few months in your classroom. Please answer the following questions and return the form to me in the envelope provided. Thank you.

Please rate the questions with a rating scale from 1 (not at all) to 5 (very much)

1. Do you feel peer-mediated intervention was effective in promoting social skills for the child participant in your classroom?

| Not at all | 1 | 2 | 3 | 4 | Very much | 5 |

Please give specific examples:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

2. Do you feel peer-mediated intervention was effective in promoting social skills for the peer mediator in your classroom?

| Not at all | 1 | 2 | 3 | 4 | Very much | 5 |

Please give specific examples:
3. Do you feel the materials (social stories) and procedures used in the study were effective?

Not at all                      Very much
1                          2                        3                         4                             5

Please give specific examples:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

4. Do you feel other peers in the classroom benefited from observing the peer mediator prompting the child participant during peer-mediation intervention?

Not at all                      Very much
1                          2                        3                         4                             5

Please give specific examples:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
5. Referring to the social skills listed below, which social skills did you observe were increased by the child participant?

___ Helping peers
___ Turn taking with peers
___ Cooperating with peers
___ Participating with peers during play
___ Problem solving (negotiating solutions to simple conflicts)
___ Making age appropriate choices, following plans and rules in the classroom
___ Taking responsibility for one’s own actions
___ Developing independence
___ Concern for other peers in the classroom

6. Referring to the social skills listed below, which social skills did you observe were increased by the peer mediator?

___ Helping peers
___ Turn taking with peers
___ Cooperating with peers
___ Participating with peers during play
___ Problem solving (negotiating solutions to simple conflicts)
___ Making age appropriate choices, following plans and rules in the classroom
___ Taking responsibility for one’s own actions
___ Developing independence
___ Concern for other peers in the classroom

7. Did you receive feedback from other classroom teachers and professionals about the implementation of peer-mediated in your classroom?

Not at all 1 2 3 4 Very much 5

Please give specific examples:

________________________________________________________________________
________________________________________________________________________
Social Validity Questionnaire for Teachers (continued)

8. Would you recommend peer-mediated intervention to other teachers in your program?

Not at all                      Very much
1                          2                        3                         4                             5

Additional Comments: (optional)

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Thank you for your participation!

Kathleen I. Harris, M.Ed.
415 Walnut Ridge Trail
Aurora, Ohio 44202
APPENDIX J

SOCIAL VALIDITY QUESTIONNAIRE FOR FAMILIES
The Effects of Peer-Mediated Intervention in Promoting Social Skills for Children With Disabilities

Social Validity Questionnaire for Families

I want to thank you very much for the opportunity to work with your child over the past several months as part of my dissertation study. The dissertation study focused on the effects of peer-mediated intervention in promoting social skills for children with disabilities. I am now interested in finding out your thoughts regarding peer-mediated intervention along with any changes in your child’s social skill development. Thank you in advance for taking time to answer the following questions and returning the form to your child’s teacher.

Please rate the questions with a rating scale from 1 (not at all) to 5 (very much)

1. Do you feel peer-mediated intervention was effective in promoting social skills for your child at school?

Not at all                      Very much
1                          2                        3                         4                             5

Please give specific examples:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

2. Do you feel the materials (social stories, Take a Look at Me™ portfolio) and procedures used in the study were effective?

Not at all                      Very much
1                          2                        3                         4                             5
Social Validity Questionnaire for Families (continued)

Please give specific examples:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

3. Referring to the social skills listed below, which social skills you observed have increased by your child at school and home?

___ Helping peers
___ Turn taking with peers
___ Cooperating with peers
___ Participating with peers during play
___ Problem solving (negotiating solutions to simple conflicts)
___ Making age appropriate choices, following plans and rules in the classroom
___ Taking responsibility for one’s own actions
___ Developing independence
___ Concern for other peers in the classroom

Additional Comments:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Thank you for your participation!

Kathleen I. Harris, M.Ed.
415 Walnut Ridge Trail
Aurora, Ohio 44202
APPENDIX K

CHILD PARTICIPANT DATA COLLECTION SHEET AND TEACHER FIDELITY CHECKLIST
**Child Participant Data Collection Sheet and Teacher Fidelity Checklist**

**Date:** _____________       **Baseline:** ________       **Intervention:** ________     **Generalization _________**     **IOA:** ________

<table>
<thead>
<tr>
<th>Target Child: Target Child 1</th>
<th>Peer Mediators:</th>
<th>Teacher:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target Behavior: Takes object from PM</td>
<td>1. Environment (free play area) arranged</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Setting: Free Play</td>
<td>2. Social story read to PM up to 10 minutes, prior to free play</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observer Initials:</td>
<td>3. Peer instructed to play with target child</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 30 minutes</td>
<td>4. Praises PM following prompt given to target child</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start Time</td>
<td>5. Reprompts PM up to 2 times as needed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stop Time</td>
<td>6. Tells PM to try again later after 3 unsuccessful prompts by PM</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Child Participant Behaviors</th>
<th>5 minutes</th>
<th>Rating</th>
<th>5 minutes</th>
<th>Rating</th>
<th>5 minutes</th>
<th>Rating</th>
<th>5 minutes</th>
<th>Rating</th>
<th>Summary</th>
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<tbody>
<tr>
<td>Takes the object from the peer</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>Total Rating from 4 intervals</td>
<td>Average Rating from 4 intervals</td>
<td>(total rating/4)</td>
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<tr>
<td>Touches the object</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td></td>
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<tr>
<td>Points to the object</td>
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<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
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</tr>
<tr>
<td>Looks at the object but doesn’t reach for object</td>
<td>3</td>
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141
**Child Participant Data Collection Sheet and Teacher Fidelity Checklist**  
(continued)

<table>
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<tr>
<th>Child Participant Behaviors</th>
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<th>Rating</th>
<th>5 minutes</th>
<th>Rating</th>
<th>5 minutes</th>
<th>Rating</th>
<th>5 minutes</th>
<th>Rating</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child ignores peer</td>
<td>2</td>
<td></td>
<td>2</td>
<td></td>
<td>2</td>
<td></td>
<td>2</td>
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<tr>
<td>Child leaves area</td>
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<tr>
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<th>5 minutes</th>
<th>Sub Total</th>
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<th>Sub Total</th>
<th>Totals</th>
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<tr>
<td>Initiations</td>
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<td>Prompts</td>
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<td>Feedback</td>
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<tr>
<th>Peer Mediator Behaviors</th>
<th>5 minutes</th>
<th>Sub Total</th>
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<tbody>
<tr>
<td>Initiations</td>
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</table>

Comments:
**Child Participant Data Collection Sheet and Teacher Fidelity Checklist** (continued)

<table>
<thead>
<tr>
<th>Date: ___________</th>
<th>Baseline: ________</th>
<th>Intervention: ________</th>
<th>Generalization ________</th>
<th>IOA: ________</th>
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</thead>
</table>

**Child Participant Behaviors**

<table>
<thead>
<tr>
<th>Behaviors</th>
<th>5 minutes Rating</th>
<th>5 minutes Rating</th>
<th>5 minutes Rating</th>
<th>5 minutes Rating</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Looks at peer and takes the object from the peer</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>Total Rating from 4 intervals: 28/28</td>
</tr>
<tr>
<td>Takes an object without looking at peer</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>Average Rating from 4 intervals: 6/4</td>
</tr>
<tr>
<td>Reaches for the object without looking at peer</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>Total rating: 20/20</td>
</tr>
</tbody>
</table>

**Target Child:**
Target Child 2

**Peer Mediators:**

1. Environment (free play area) arranged
2. Social story read to PM up to 10 minutes prior to free play
3. Peer instructed to play with target child
4. Praises PM following prompt given to target child
5. Reprompts PM up to 2 times as needed
6. Tells PM they can try again later after 3 unsuccessful prompts by PM

**Teacher:**

<table>
<thead>
<tr>
<th>Setting: Free Play</th>
</tr>
</thead>
</table>

**Observer Initials:**

_________

**Time 30 minutes**

**Start Time:** ___________

**Stop Time:** ___________
**Child Participant Data Collection Sheet and Teacher Fidelity Checklist** (continued)

<table>
<thead>
<tr>
<th>Child Participant Behaviors</th>
<th>5 minutes Rating</th>
<th>5 minutes Rating</th>
<th>5 minutes Rating</th>
<th>5 minutes Rating</th>
<th>5 minutes Rating</th>
<th>Rating</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Looks at the object but doesn’t reach for object</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child ignores peer</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
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<tr>
<td>Child protests</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
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<tr>
<td>Child leaves area</td>
<td>1</td>
<td>1</td>
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<td>1</td>
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<th>5 minutes Sub Total</th>
<th>5 minutes Sub Total</th>
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<th>Sub Total</th>
<th>Totals</th>
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<tbody>
<tr>
<td>Initiations</td>
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<td>Prompts</td>
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<td>Feedback</td>
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<th>Peer Mediator Behaviors</th>
<th>5 minutes Sub Total</th>
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Comments:
**Child Participant Data Collection Sheet and Teacher Fidelity Checklist** (continued)

<table>
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<tr>
<th>Date: _____________</th>
<th>Baseline: ________</th>
<th>Intervention: ________</th>
<th>Generalization ________</th>
<th>IOA: ________</th>
</tr>
</thead>
</table>

**Target Child:** Target Child 3  
**Target Behavior:** Child takes object from peer and maintains job that supplements the peer’s play  
**Setting:** Free Play  
**Observer Initials:** __________  
**Time:** 30 minutes  
**Start Time:** __________  
**Stop Time:** __________

<table>
<thead>
<tr>
<th>Child Participant Behaviors</th>
<th>5 minutes</th>
<th>Rating</th>
<th>5 minutes</th>
<th>Rating</th>
<th>5 minutes</th>
<th>Rating</th>
<th>5 minutes</th>
<th>Rating</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child takes object from peer and maintains job that supplements the peer’s play</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>Total Rating from 4 intervals</td>
<td>______</td>
<td>Average Rating from 4 intervals (total rating/4)</td>
</tr>
<tr>
<td>Child takes object from peer and plays independently</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>______</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Child looks at peer and takes object from peer</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>______</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Peer Mediators:</th>
<th>Teacher:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Environment (free play area) arranged</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2. Social story read to PM up to 10 minutes prior to free play</td>
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<tr>
<td>3. Peer instructed to play with target child</td>
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<tr>
<td>4. Praises PM following prompt given to target child</td>
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<tr>
<td>5. Reprompts PM up to 2 times as needed</td>
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<tr>
<td>6. Tells PM they can try again later after 3 unsuccessful prompts by PM</td>
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<tr>
<td>Child Participant Behaviors</td>
<td>5 minutes</td>
<td>Rating</td>
<td>5 minutes</td>
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</tr>
<tr>
<td>Child looks at peer but doesn’t take the object</td>
<td>3</td>
<td></td>
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</tr>
<tr>
<td>Child ignores peer</td>
<td>2</td>
<td></td>
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<tr>
<td>Child leaves area</td>
<td>1</td>
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<td>1</td>
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<table>
<thead>
<tr>
<th>Peer Mediator Behaviors</th>
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<th>Totals</th>
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<tr>
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</table>

Comments:
APPENDIX L

DATA COLLECTION DIRECTIONS FORM
Data Collection Directions Form
Glossary and Directions

Setting: Free Play

Free Play: A selected time during the morning and/or afternoon that children practice a variety of social, emotional, gross-motor, and communicative skills with materials, props, and/or toys within a developmentally appropriate environment by themselves or with peers. Examples of free play are playing with blocks, sociodramatic play, sand/water table play, sensory play, painting, and preschool manipulatives.

Environment arranged: Teachers place materials and toys designed to support peer mediation in the free play area prior to the start of free play. Examples of desired materials and toys are highlighted in children’s social stories.

Social story: A child-specific, visual short story written to inform and advise a child about a social situation.

Child Participant Behaviors:

Target Child 1

<table>
<thead>
<tr>
<th></th>
<th>Child leaves area</th>
<th>Child ignores peer</th>
<th>Child looks at object but doesn’t reach for object</th>
<th>Child points to the object</th>
<th>Child touches the object</th>
<th>Child takes the object from the peer</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

- Leaves area is when the child physically leaves the free play area in the classroom during free play
- Ignores is when the child does not have eye contact with the peer mediator during free play
- Child looks at object that the peer mediator is holding and/or referring to but does not reach for object
- Child points to the object that the peer mediator is holding and/or referring to
- Child touches the object that the peer mediator is holding and/or referring to
- Child takes the object that the peer mediator is holding and/or referring to – taking can include grabbing, selecting, or in any way to obtain the object in their possession
### Data Collection Directions Form (continued)

#### Target Child 2

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</thead>
<tbody>
<tr>
<td></td>
<td>Child leaves area</td>
<td>Child protests</td>
<td>Child ignores peer</td>
<td>Child looks at object but doesn’t reach for object</td>
<td>Child reaches for the object without looking at peer</td>
<td>Child takes an object without looking at peer</td>
<td>Child looks at the peer and takes the object from the peer</td>
</tr>
</tbody>
</table>

- Leaves area is when the child physically leaves the free play area in the classroom during free play
- Child protests peer. Protest is a verbal or physical expression of objection, disapproval, or dissent towards a peer
- Ignores is when the child doesn’t have eye contact with the peer mediator indicating he does not acknowledge the presence of another peer. Child is not focused on the peer or intended event.
- Child looks at object that the peer mediator is holding and/or referring to but doesn’t reach for object
- Child reaches for the object that the peer mediator is holding and/or referring to without having eye contact at peer mediator
- Child takes an object that the peer mediator is holding and/or referring to without having eye contact at peer mediator
- Child has eye contact with the peer mediator and takes the object that the peer mediator is holding and/or referring to—taking can include grabbing, selecting, or in any way obtaining the object in their possession

#### Target Child 3

<table>
<thead>
<tr>
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<th>2</th>
<th>3</th>
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<th>5</th>
<th>6</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Child leaves area</td>
<td>Child ignores peer</td>
<td>Child looks at peer but doesn’t take the object</td>
<td>Child looks at peer and takes an object from peer</td>
<td>Child takes object from peer and plays independently</td>
<td>Child takes object from peer and maintains job that supplements another child’s play</td>
</tr>
</tbody>
</table>

- Leaves area is when the child physically leaves the free play area in the classroom during free play
- Ignores is when the child does not have eye contact with the peer mediator during free play
Data Collection Directions Form (continued)

- Child looks at peer but does not take the object the peer mediator is holding and/or referring to
- Child looks at peer and takes an object from the peer mediator
- Child takes object from peer and plays independently – takes object from peer mediator and begins to play with object by him/herself without any interactions from peer mediator
- Child takes object from peer and maintains job that supplements another child’s play – For example: Peer says, “You place your block on top of my block; child places block on top of peer’s while peer puts a third block on top of a building).

Peer Mediator Behaviors

Initiations: Vocal or motor behaviors (e.g., greetings, comments, questions) clearly directed to a child participant that attempt to prompt a social response.

Prompts: Verbal, visual, or nonverbal prompts specific to a child participant to remind a child of his assigned role (e.g., taking a turn).

Feedback: (e.g., praise, high fives, smiles, stickers, M&Ms) Verbal or nonverbal responses to the child participant.

Directions for completing the data collection sheet

1. Note the date of the observation.
2. Indicate with a check mark if the data being collected is during baseline or the intervention phase.
3. Initial form: Observer and/or Interobserver.
4. Note the start and stop time of the observation during free play.
5. Indicate the peer mediator being observed during baseline and/or intervention with a check mark.
6. Just prior to free play, check yes or no to indicate if the teacher arranges the environment with toys and materials for peer mediator and target child.
7. Check yes or no to indicate if the teacher reads the social story to peer mediator up to 10 minutes prior to free play.
8. Check yes or no if the teacher instructs peer mediator to prompt the target child.
9. Check yes or no if the teacher praises peer mediator following prompt given to target child.
Data Collection Directions Form (continued)

10. Check yes or no if the teacher participant reprompts peer mediator up to 2 times as needed during PMI.
11. Check yes or no if the teacher participant asks peer mediator to try again later after 3 unsuccessful prompts.
12. During baseline phase and intervention phase, observe target child’s positive social behaviors and negative social behaviors for four, 5 minute intervals. Place tally marks indicating positive social behaviors and negative social behaviors for each 5 minute interval.
13. Calculate a total by adding up each subtotal.
14. During baseline phase and intervention phase, observe peer mediator initiations, prompts, and/or feedback to target child for four, 5 minute intervals each. Place tally marks indicating initiations, prompts, and/or feedback for each 5 minute interval.
15. Calculate a total by adding up each subtotal.
16. Summarize any significant observations in the comment section.
17. Graph data.

March 31, 2008
REFERENCES


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doi: 10.1016/S0022-4405(98)00005-3


Press.


doi: 10.1111/j.1939-0025.1983.tb03352.x


doi: 10.1177/ 109830070100300405


doi: 10.1177/ 027112140002000104


are differently abled in typical early childhood educational settings. Young Children, 53(2), 40–41.


