

# Impact of an Affective Intervention on the Friendships of Kindergarteners With Disabilities

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## Abstract

This efficacy study investigated whether a class-wide disability awareness curriculum would result in increased close friendships for 26 kindergarteners with disabilities enrolled in six inclusive classrooms. Findings suggest that participation in a disability awareness curriculum alone does not lead to increased friendships. Evidence suggests that having a close friendship may partially mediate the relationship between children's social competence and acceptance. These findings align with research that emphasizes the importance of individualizing class-wide programs based on children's support needs and facilitating children's friendship formation in kindergarten classrooms to promote peer acceptance. Implications for future research and practice are discussed.

## Keywords

disability, friendship, peer relationships, kindergarten, affective intervention

Socially competent children have been described as individuals who can effectively navigate their social world and maximize their own potential through their social experiences with adults and peers (Guralnick, 1990; Katz & McClellan, 1997). For some children, the opportunity to practice and gain skills associated with peer-related social competence begins with entry into child care or preschool settings. In these early childhood years, the relationships formed among peers are just as salient as relationships developed with adults (Berk, 2003). Due to the importance of peer relationships, researchers have recommended close monitoring of children's relationships with peers, especially relationships that include young children with disabilities (Buyse, Goldman, West, & Hollingsworth, 2008).

Parents of children with disabilities hope their children will develop both peer-related social competence and close friendships with peers (Overton & Rausch, 2002). Early care and education professionals also prioritize the establishment of friendships for young children with disabilities. An example of this can be seen in the joint position statement on inclusion by the Division for Early Childhood of the Council for Exceptional Children (DEC) and the National Association for the Education of Young Children (NAEYC). These two national organizations created a statement that embodies the idea that all children benefit from inclusive environments that support "positive social relationships and friendships" (DEC/NAEYC, 2009, p. 2). However, despite parents' desires and professionals' best efforts, it is difficult to know the extent to which children

with disabilities develop close friendships with their peers in inclusive classroom settings.

Research results are mixed on the extent to which young children with disabilities have established friendships with peers (Meyer & Ostrosky, 2014). Much of this variability can be attributed to differences among and between subgroups of children studied (e.g., different etiologies and severity of disability), the methods used to assess friendships (e.g., sociometrics, nomination process, observations, adult-report), and the researcher's definition of what constitutes a friendship (e.g., reciprocity, operational definitions of behaviors used to identify the presence of friendships). These differences make assessing the friendships of children with disabilities difficult.

A predominant finding within the peer relationship research suggests that typically developing children form friendships to an extent that far exceeds the number of friendships established by children with disabilities (Buyse et al., 2008). Even for children with mild developmental delays or disabilities, difficulty interacting with peers can negatively impact their ability to form and benefit from friendships (Guralnick, 2010). Indeed, friendships are a

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critical yet sometimes missing facet of young children's lives, especially for children with developmental delays or disabilities. Considering the benefits of friendships for children with disabilities, researchers suggest that friendships may even mediate the relationship between children's severity of disability and their level of acceptance among peers (Odom et al., 2006).

Supporting peer relationships within classroom settings may involve a multi-tiered model of support as described by Brown, Odom, and Conroy (2001). This model begins with using evidence-based practices with all children to provide class-wide support. Then, if additional support is warranted, more intensive interventions are provided to small groups or individual children. With this framework in mind, a hierarchy of interventions has been outlined to support peer interactions and relations for children with disabilities (Brown, Odom, McConnell, & Rathel, 2008). Class-wide interventions appear at the base of that hierarchy. Brown et al. (2008) highlight four class-wide practices that early educators should use to support peer interactions and peer-related social competence: (a) developmentally appropriate practices, (b) inclusive education, (c) social competence curricula, and (d) affective interventions. Recommended practices (DEC, 2014) build upon developmentally appropriate practices (Copple & Bredekamp, 2009) and provide a structure for successfully including young children with disabilities within early care and education classrooms. In addition, a number of social competence curricula have been validated for use in early childhood classrooms (see Brown et al., 2008 for examples); these include affective interventions.

One example of an affective intervention is the *Special Friends* program (Favazza, LaRoe, & Odom, 1999). *Special Friends* has been validated as a successful program for promoting young children's acceptance of individuals with disabilities (Favazza & Odom, 1997; Favazza, Phillipsen, & Kumar, 2000). This program provides children with developmentally appropriate exposure to disability-related themes (i.e., during book reading and discussion) and consistent opportunities for children with and without disabilities to socially interact over an extended period. The belief is that through this exposure, children will develop positive attitudes about individuals with disabilities and thus increase their acceptance of peers with disabilities.

As suggested by Brown et al. (2008), the use of class-wide affective interventions to promote the inclusion, understanding, and acceptance of individuals with disabilities can create the foundation necessary for increasing the peer interactions, peer-related social competence, and peer relationships of children with disabilities. It is therefore plausible that affective programs such as *Special Friends* may not only influence children's acceptance of peers with disabilities but also promote the development of friendships between children with and without disabilities due to the

consistent opportunities provided for peer interaction. However, even with strong correlations between measures of peer acceptance and friendship, they remain unique constructs (Berndt & McCandless, 2009). That is, the presence of peer acceptance may not be synonymous with the existence of friendships. Currently, there is no empirical evidence to suggest that a class-wide affective intervention, such as the *Special Friends* program, influences the formation of friendships for young children with disabilities.

The purpose of this study was to examine the impact of the *Special Friends* program on the close friendships of kindergarteners with disabilities. This study was part of a larger investigation on the efficacy of the *Special Friends* program (Ostrosky & Favazza, 2007), funded by the Institute of Education Sciences. Specific research questions investigated in the current study were as follows:

**Research Question 1:** Does an affective intervention increase the number of best friendships among kindergarteners with disabilities?

**Research Question 2:** Does the presence of at least one best friendship mediate the relationship between social skills/problem behaviors and peer acceptance?

## Method

### *Larger Study Recruitment and Remuneration*

The principal investigators from the larger study contacted local elementary school principals and informed them about the project. To be eligible for participation, each kindergarten classroom had to have at least four children who could be identified by one of three descriptors: (a) identified as having a disability, as defined in the Individuals with Disabilities Education Improvement Act of 2004; (b) referred for educational support (e.g., behavioral support plan, adaptations in instruction); or (c) in the process of being referred for additional educational support (e.g., a case study was initiated). Hereafter these children are referred to as children with disabilities. Interested principals identified classrooms that met this criterion and introduced kindergarten teachers to research staff. Teachers were provided with information about the study and independently decided whether to participate. After teacher consents were collected, classrooms were randomly assigned to either an intervention condition that implemented the *Special Friends* program or to a contact control condition that used a modified version of the *ScienceStart!* curriculum (French & Conezio, 2007; hereafter referred to as the *Science* program). Both programs are discussed in detail later in this article. Children automatically participated in either the *Special Friends* or *Science* program based on their enrollment in a participating class. A letter describing both programs and seeking consent to collect

**Table 1.** Descriptive Statistics for All Children by Program.

Demographic	SF	S	$\chi^2$ (or t)	p value
	(n = 57)	(n = 53)		
Gender			0.004	.950
Female	24	22		
Male	33	31		
Ethnicity			4.52	.326
Caucasian	27	31		
African American	16	9		
Hispanic	6	9		
Asian	7	4		
Other	1	0		
Free/reduced lunch			2.60	.106
Yes	23	14		
No	34	39		
Disability status			1.29	.256
Yes	16	10		
No	41	43		
Age in months				
M (SD)	71.1 (4.0)	71.5 (3.6)	0.51	.672

Note. SF = *Special Friends*; S = *Science*.

child data was sent home to children's guardians via their backpack. Following the collection of all post-intervention data, classroom teachers received US\$625 for participation. In addition, each teacher received non-consumable materials required for both programs' implementation (US\$2,000 estimated value), and a celebratory party for their classroom.

### Participants

The current study took place in the second year of the larger study, during the spring semester, and included four classrooms in one Midwestern state and two classrooms in a Northeastern state ( $n = 6$  total). While 140 kindergarteners participated that semester, some children did not have parental consent to participate in pre- and post-test assessments ( $n = 7$ ). In addition, some children had missing data ( $n = 5$ ) or results that indicated children had difficulty responding to one of the study's assessments ( $n = 18$ ). As a result, 110 children ( $M$  age in months = 71.2,  $SD = 3.8$ ), 26 of whom had disabilities, participated in this study. Demographic information on these children by the program in which they participated (i.e., either *Special Friends* or *Science*) is presented in Table 1. There were no significant differences between the two groups in terms of gender, ethnicity, receipt of free or reduced lunch, disability status, or age.

**Children with disabilities.** At the start of this study, the 26 children identified as having a disability ranged in age from 66 to 80 months ( $M = 71.3$ ,  $SD = 3.5$ ). This sample was

69.2% male ( $n = 18$ ;  $M$  age in months = 71.3,  $SD = 3.0$ ) and 30.8% female ( $n = 8$ ;  $M$  age in months = 71.4,  $SD = 4.7$ ). Race/ethnicities represented in this sample included Caucasian ( $n = 11$ ; 42.3%), African American ( $n = 8$ ; 30.8%), Hispanic ( $n = 4$ ; 15.4%), Asian ( $n = 2$ ; 7.7%), and Other ( $n = 1$ ; 3.8%). Of the children with disabilities, 42.3% ( $n = 11$ ) were eligible for free or reduced lunch as reported by their teacher. Sixteen children with disabilities participated in the *Special Friends* program, and 10 participated in the *Science* program.

**Severity of disability.** The ABILITIES Index (Simeonsson & Bailey, 1991) was used to create profiles for children with disabilities that addressed nine functional areas. Teachers rated children's ability in each of the nine areas on a scale of 1 (normal functioning for age) to 6 (profound difficulty/disability). Based on these ratings, participants included 18 children with mild disabilities ( $n = 9$ , *Special Friends*;  $n = 9$ , *Science*), 5 children with moderate disabilities ( $n = 5$ , *Special Friends*), and 3 children with severe disabilities ( $n = 2$ , *Special Friends*;  $n = 1$ , *Science*).

**Children without disabilities.** At the start of this study, the 84 participants without disabilities ranged in age from 65 to 80 months ( $M = 71.2$ ,  $SD = 3.9$ ). This sample was 54.8% male ( $n = 46$ ;  $M$  age in months = 71.7,  $SD = 4.0$ ) and 45.2% female ( $n = 38$ ;  $M$  age in months = 70.7,  $SD = 3.7$ ). Race/ethnicities included Caucasian ( $n = 47$ ; 56%), African American ( $n = 17$ ; 20.2%), Hispanic ( $n = 11$ ; 13.1%), and Asian ( $n = 9$ ; 10.7%). Of these children, 31% ( $n = 26$ ) were eligible for free or reduced lunch. Forty-one children without disabilities participated in the *Special Friends* program, and 43 participated in the *Science* program.

**Classroom teachers.** All six participating teachers had at least 8 years of teaching experience and had at least 22 children in their respective classrooms. Prior to participating in this study, all teachers had experienced the inclusion of children with disabilities in their general education classroom at least once during the past 5 years. Also, all teachers had previously taken at least one course in special education. Teachers' level of education included (a) bachelor's degree ( $n = 2$ ), (b) master's degree ( $n = 2$ ), and (c) master's degree plus additional coursework ( $n = 2$ ).

### Research Design

The larger study used a randomized cluster research design. Classrooms were randomly assigned to the 6-week *Special Friends* program (i.e., the affective intervention condition) or 6-week *Science* program (i.e., contact control condition). The *Special Friends* program (Favazza et al., 1999) consisted of three components: (a) school literacy experiences; (b) mixed-ability, cooperative learning groups (CLGs); and

(c) home literacy experiences. The *Science* program followed the same format as the *Special Friends* program, but instead highlighted science concepts. Each program component is described next.

**School literacy experiences.** In the *Special Friends* program, the school literacy experiences indirectly exposed children to disability-related themes through class-wide book reading and discussion. Each book focused on the subject of disability and was read by classroom teachers. Over the course of the 6-week *Special Friends* program, teachers read 18 different books about disabilities to the students (i.e., three books each week; for a list of books used in the *Special Friends* program, see Ostrosky, Mouzourou, Dorsey, Favazza, & Leboeuf, 2013). A guided discussion bookmark accompanied each book, and it supported teachers' efforts when leading discussions during and after class-wide book readings. Discussion topics focused on (a) the story's plot, (b) disabilities or unfamiliar terminology, and (c) questions to encourage children to think of ways in which they were similar to the book characters with disabilities. In addition, teachers were encouraged to answer questions that arose from children while the book was being read and after the book was finished. Each school literacy experience took about 15 min to implement.

The school literacy experiences in the *Science* program followed a similar format as the *Special Friends* program and included class-wide book readings, led by teachers, and discussions supported with guided discussion bookmarks. One specific difference was the inclusion of books with science-related themes. Discussion topics included (a) science concepts, (b) new or unfamiliar science-related vocabulary, (c) everyday experiences with science, (d) tools needed for scientific exploration, and (e) children's personal connections to the science book content (e.g., planting a bean). Following the same format of the *Special Friends* program, teachers read three books over the course of 6 weeks in a predetermined order across the 18 sessions (for a list of books used in the *Science* program see Meyer et al., in press).

**Mixed-ability, CLGs.** In the *Special Friends* program, mixed-ability, CLGs provided children with opportunities for direct interactions with classroom peers who had disabilities. The CLGs lasted for 15 min and occurred immediately after the school literacy experiences.

Teachers created four CLGs in their classroom and assigned four to six children to each CLG based on class size. Each CLG contained at least one child with a disability; these groups remained consistent across the 6 weeks. Researchers encouraged teachers to balance the groups in terms of gender, race/ethnicity, and socioeconomic status. The materials used for the 18 CLGs were selected to provide opportunities for social interactions between children

with and without disabilities. Nine sets of CLG materials were developed for use in the *Special Friends* program, and each set was used twice in a predetermined order.

Children in the *Science* program also participated in CLGs immediately following their school literacy experiences. Teachers using the *Science* program followed the same method for assigning CLGs as the teachers using the *Special Friends* program. Likewise, materials used in the *Science* CLGs were selected to support cooperative work between classmates of varying abilities and were related to science concepts (e.g., investigating real worms with magnifying glasses). Similar to the *Special Friends* program, nine sets of *Science* CLG materials were created and each set was used twice in a predetermined order.

**Home literacy experiences.** In both the *Special Friends* and *Science* programs, the home literacy experiences were designed to include family members in the process of learning about disabilities or science. At the end of each week, children selected one of the three books read during that week to bring home. A guided discussion bookmark, similar to teachers' bookmarks, was included inside each book, and a reading record was sent home for family members to document their home literacy experiences across the 6 weeks (for an example of a bookmark, reading record, and families' comments about their home literacy experiences, see Meyer et al., in press).

### Fidelity of Treatment

For each day that a teacher implemented either the *Special Friends* or *Science* program, a member of the research team collected fidelity of treatment data. An implementation checklist was used to document whether teachers performed behaviors specific to the school literacy experiences and CLGs. The checklist included 16 questions that evaluated the manner in which teachers introduced, read, and discussed the story. Thirteen items assessed the extent to which CLG activities were set up and teachers' behaviors during the CLGs. Fidelity of treatment for the school literacy experiences, across all six classrooms, ranged from 73.6% to 94.9% ( $M = 87.6\%$ ). Fidelity of treatment for the CLGs ranged from 95.6% to 97.8% ( $M = 97.3\%$ ).

Interobserver agreement on the fidelity of treatment measure was assessed weekly (i.e., 33% or 6 sessions total). Interobserver agreement for the school literacy experiences ranged from 94.8% to 97.9% ( $M = 95.5\%$ ), and from 92.3% to 98.7% ( $M = 95.3\%$ ) for the CLGs.

### Measures

**Child measures.** Trained research staff individually administered two measures related to this study to children in a quiet space at their school (e.g., in the library; additional

information about training provided to support research staff's administration of these measures is included later in this article). Each measure took less than 5 min to administer. The order in which each measure was administered was randomly counterbalanced within each classroom with half of the class receiving the *Sociometric Peer Rating Scale* first and the other half receiving the *Child Friendship Nominations* first.

**Sociometric Peer Rating Scale.** An adapted version of the *Sociometric Peer Rating Scale* (Asher, Singleton, Tinsley, & Hymel, 1979) was used to assess peer acceptance among children in each of the classrooms. Prior to beginning the assessment, to gain familiarity with the procedures, children were shown pictures of three food items, one at a time (e.g., a banana, a carrot, and an ice cream cone). When each picture was shown, researchers asked, "Do you like to eat [food item] 'a lot,' 'a little,' or 'not at all'?" Children were then asked to place the picture into one of three containers labeled with a happy face, straight-lined face, or a sad face. The happy face represented liking the food item "a lot," whereas the straight-lined face represented "a little," and the sad face represented "not at all."

Using the same containers from the familiarity task, children were then shown 4 × 6 photos of their classmates, one at a time. As each photo was presented, researchers asked, "Do you like to play with [classmate's name] 'a lot,' 'a little,' or 'not at all'?" Children were instructed to place the photo into the container that best represented how much they liked to play with this peer. This continued until all photos were rated.

**Child Friendship Nominations.** The *Child Friendship Nominations* measure was designed to gather information about children's three best friends and one very best friend from their classroom. This measure was adapted from a friendship nomination procedure used by Parker and Asher (1993). To begin, a familiarization task was used to acclimate children to the testing procedure. First, 10 photos of animals, printed on cardstock and laminated, were placed on a table in front of children in two rows of 5 photos each. As the photos were being placed, researchers named each animal (e.g., "Here's a lizard."). Once all photos were displayed, children were asked to turn over the photos of all the animals they liked. Researchers acknowledged children's selection and returned the selected photos face-up. Next, children were instructed to turn over photos of three animals they liked best. Again, researchers acknowledged children's selection and returned selected photos face-up. Finally, children were instructed to turn over one photo of an animal they liked the very best. Researchers acknowledged children's selection and removed the animal photos to begin the *Child Friendship Nominations* measure.

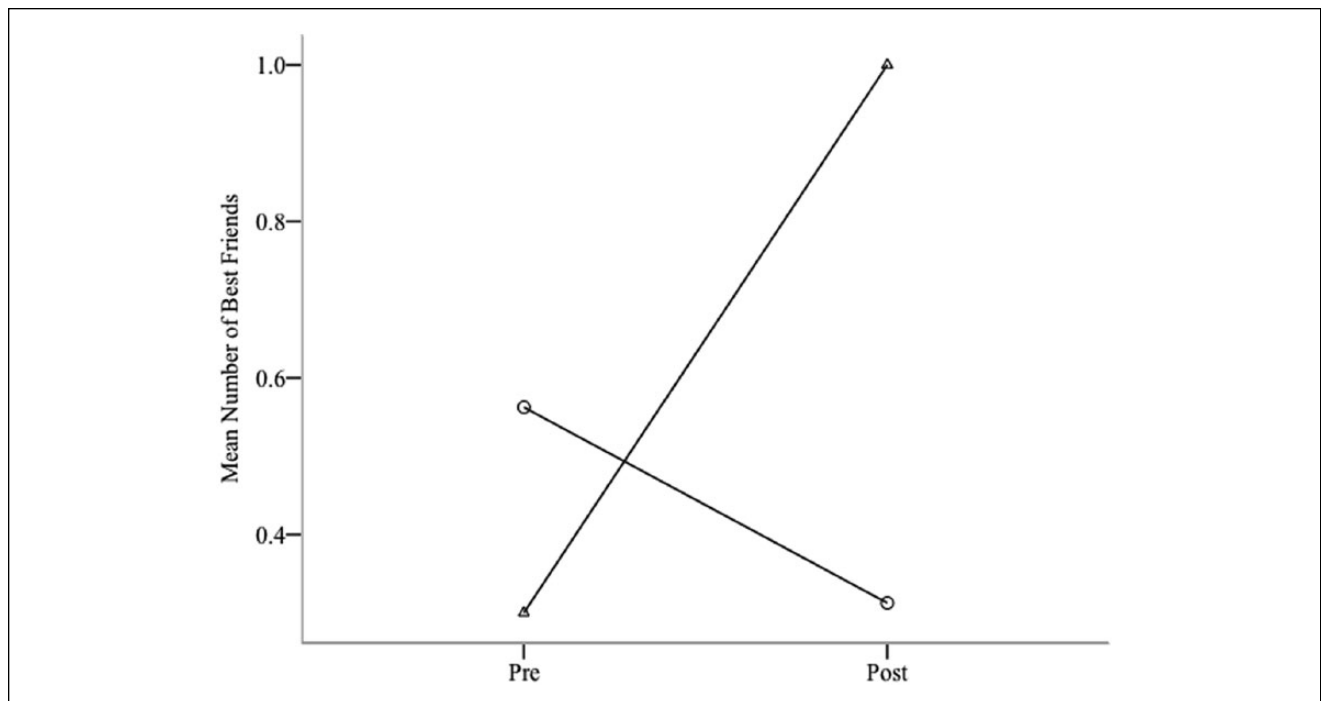
Following the same format, children were shown wallet-sized photographs of all of their classmates. Other than size,

these photos were similar to those used for the *Sociometric Peer Rating Scale* measure. Prior to administration of this measure, researchers randomized the sequence in which classmates' photos would be presented to all children during the assessment. As the photographs were displayed, each classroom peer was named (children were permitted to label their classmates' photos, and researchers provided verbal correction when necessary).

Once the array of classmates' photos was laid out, researchers asked children to turn over photos of *all* their friends. Children were allowed to turn over as many photos as they desired. Researchers recorded children's responses and then returned the photos face-up. Children were then instructed to turn over photos of their *three* best friends. Children were allowed to identify less than three best friends. If children chose not to identify any best friends after two prompts to do so, the measure was stopped and a debriefing protocol was followed. During this debriefing, researchers asked children whether they would like to share something about other school friends who were not necessarily in their classroom or friends from outside of school. When children did identify three best friends from their classroom, the results were recorded and photos were returned to the face-up position. The last step in the measure involved researchers instructing children to turn over one photo of their very best friend. Following children's selection of a very best friend, researchers recorded their response. If children did not select a very best friend, the measure was stopped and children were thanked for their participation.

**Identification of reciprocal close friendships.** To prepare children's friendship nominations for analysis, the first author examined the data to identify how many close friendships children had (i.e., best and very best friendships). The primary criterion for this identification process was the presence of reciprocity in friendship nominations. For example, if *Joey* was identified as having one best friend, this meant that a classmate, who *Joey* nominated as a best friend, also named *Joey* as his best friend or very best friend. If *Joey* was identified as having one very best friend, this meant that a classmate, who *Joey* nominated as a very best friend, also nominated *Joey* as either a best or very best friend.

**Teacher measures.** Teachers used the *Social Skills Improvement System* (SSiS; Elliott & Gresham, 2007) to rate the social skills/problem behaviors of their students. The SSiS was completed twice on all children with and without disabilities (pre- and post-program implementation). Two of the SSiS scales were used for this study: social skills and problem behaviors. Each scale is composed of several subscales. The social skills scale has seven subscales: (a) communication, (b) cooperation, (c) assertion, (d) responsibility, (e) empathy, (f) engagement, and (g) self-control. The problem behaviors



**Figure 1.** Mean number of best friends of children with disabilities pre- and post intervention by condition.

Note. O = *Special Friends*; Δ = *Science*.

scale has five subscales: (a) externalizing, (b) bullying, (c) hyperactivity/inattention, (d) internalizing, and (e) autism spectrum. Teachers were asked to complete 76 items related to the frequency of students' social skills (46 items) or problem behaviors (30 items) on a 4-point Likert-type scale (i.e., *never*, *seldom*, *often*, and *almost always*). Only pre-program implementation SSiS data were used in this study.

**Research staff training for measure administration.** Graduate students served as research staff for this study. They attended an hour-long, large-group training session to learn how to administer the *Child Friendship Nominations*. As part of the larger study, research staff had already received training on how to administer the *Sociometric Peer Rating Scale*. Out-of-state research staff attended the training session via web-based conferencing. The goal for the training was to familiarize all staff with the materials, protocols, recording sheets, and various testing scenarios that could arise during assessment administration.

## Results

### Affective Intervention Impact on Close Friendships

We hypothesized that the number of best friendships would increase from pre- to post-test for children with disabilities participating in the *Special Friends* program. Contrary to

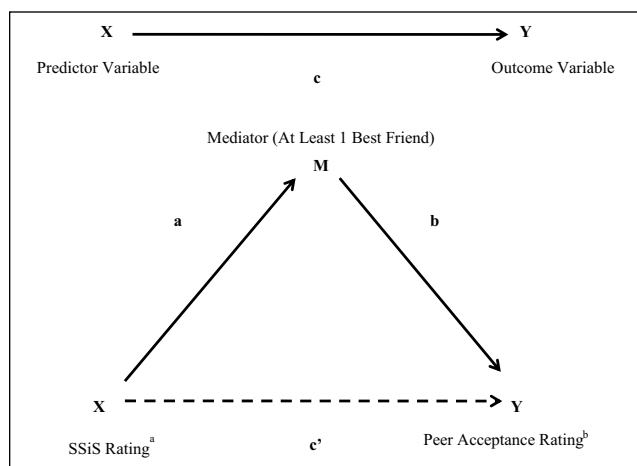
this hypothesis, there was a significant increase in the number of best friendships for children with disabilities participating in the *Science* program. A mixed-design ANOVA with time (pre, post) as a within-subjects factor, and disability status (yes, no) and program (*Special Friends*, *Science*) as between-subjects factors revealed a significant interaction between time and program  $F(1, 106) = 9.916, p = .002$ , partial  $\eta^2 = .086$ . About 8.6% of the variance in the number of best friendships from pre- to post-test could be explained by the variance in program and indicated a medium effect size. An independent samples  $t$  test showed that children with disabilities in the *Science* program gained significantly more best friends after the 6-week intervention ( $M = .70, SD = .68$ ) than children with disabilities in the *Special Friends* program ( $M = -.25, SD = .86$ ),  $t(24) = -2.97, p = .007$  (see Figure 1). For children without disabilities, there was no significant difference in the number of best friendships gained by participants in either program  $t(82) = -1.79, p = .08$ . The number of best friendships for children by condition and disability status is presented in Table 2.

### Best Friendship as a Mediator

The results of the second research question, regarding whether the presence of having at least one reciprocal best friendship mediates the relationship between social skills/problem behaviors and peer acceptance of children, are presented with respect to the Baron and Kenny (1986) four-step

**Table 2.** Mean Number of Best Friendships by Condition and Disability Status.

Condition by disability status	Pre	Post
	M (SD)	M (SD)
<i>Special Friends</i>		
Yes	0.56 (0.81)	0.31 (0.87)
No	0.88 (0.96)	0.76 (0.83)
<i>Science</i>		
Yes	0.30 (0.48)	1.0 (0.82)
No	0.81 (0.96)	1.1 (1.08)

**Figure 2.** Mediation model.

Source: Baron and Kenny (1986).

<sup>a</sup>Social Skills Improvement System (Elliott & Gresham, 2007). <sup>b</sup>Adapted version of Sociometric Peer Rating Scale (Asher, Singleton, Tinsley, & Hymel, 1979).

process that was used to determine mediation effects (for a visual representation of this mediation model, see Figure 2). For the first step, ordinary least squares (OLS) regression was used to examine the relationships between each major scale and subscale score of the SSiS ( $X$ ) and the dependent variable, peer acceptance ( $Y$ ). This examined the total effect of  $X$  on  $Y$  (path  $c$ ). The peer acceptance ratings were standardized within classroom and gender, and these variables were included in all models as covariates. The unstandardized regression coefficients indicated that both major SSiS scales (i.e., social skills and problem behaviors) significantly predicted peer acceptance ratings ( $p < .001$ ). Nine of the 12 SSiS subscales were significantly related to peer acceptance scores. The three subscales that were not significantly associated with peer acceptance were assertion, engagement, and internalizing problem behaviors.

As a significant relationship between  $X$  and  $Y$  was necessary for mediation to be present, only the SSiS scales and subscales that were significantly related to peer acceptance were entered into models for further mediation analysis

(Steps 2–4). For the second step, logistic regression was used to test the effect between  $X$  and  $M$ . For Steps 3 and 4, OLS regression was used to calculate the regression coefficients for paths  $b$  and  $c'$ . Afterwards, paths  $a$  and  $b$  were examined. For further analyses to be done, all paths (i.e., paths  $a$ ,  $b$ , &  $c$ ) had to be statistically significant.

There were five mediation models that showed significant effects for both paths  $a$  and  $b$ : (a) social skills, (b) problem behaviors, (c) cooperation, (d) self-control, and (e) externalizing problem behaviors. Upon examination, the direct effects (path  $c'$ ) for each of these mediation models were still significant, but they decreased in size. Due to this, the presence of partial mediation was tested. Due to the dichotomous mediating variable (i.e., having or not having at least one best friend), a mediation calculator (Herr, 2006) was used to calculate comparable regression coefficients and standard errors for conducting a Sobel test (Preacher & Leonardelli, 2001) for each model. The Sobel tests confirmed that the decrease in total effect was significant ( $p < .05$ ) for social skills, problem behaviors, and cooperation. The decrease in total effect was marginally significant ( $p < .10$ ) for self-control and externalizing behaviors. The mediation models and results from the Sobel tests are presented in Table 3.

## Discussion

Overall, three points warrant further discussion based on key findings. The first point is that participation in a class-wide affective intervention does not automatically increase the number of best friendships for children with disabilities. Surprisingly, there was a significant increase in the number of best friendships for children with disabilities in the contact control classrooms. To interpret this finding, it is important to examine differences between the *Special Friends* and *Science* interventions.

The larger study's principal investigators intentionally designed the contact control condition (i.e., the *Science* program) to mirror the main components of the *Special Friends* program. However, one difference between the two programs was a slight variation in the goal of each program's respective CLGs. While CLG materials were carefully selected to encourage peer interactions in both programs, the *Science* CLGs primarily included consumable materials and project-based activities that had clearly defined outcomes (e.g., all children within a CLG made one bird's nest with a variety of consumable materials). However, the *Special Friends* CLGs were primarily play-based and involved open-ended play themes (e.g., restaurant or doctor-themed play). With this in mind, it is important to consider how play-based CLGs might have influenced peer interactions in the absence of adult facilitation.

Play is often viewed as a means for promoting children's social-emotional skills and cognitive development (Coplan

**Table 3.** Comparison of Five Mediation Models.

Regression coefficient	Social skills	Problem behaviors	Cooperation	Self-control	Externalizing behaviors
a	0.046* (0.020)	−0.056* (0.022)	1.157* (0.459)	0.979* (0.463)	−1.407* (0.631)
b	0.675*** (0.177)	0.612** (0.172)	0.671*** (1.80)	0.684*** (0.176)	0.712*** (0.182)
c	0.038*** (0.009)	−0.047*** (0.009)	0.777*** (0.187)	0.856*** (0.200)	−0.895** (0.264)
c'	0.030*** (0.008)	−0.039*** (0.008)	0.609** (0.182)	0.699*** (0.192)	−0.674** (0.254)
F	6.44	7.93	6.064	6.40	5.372
Adj. R <sup>2</sup>	.29	.34	.27	.29	.245
Sobel Test	1.97* (0.028)	−2.07* (0.028)	2.09* (0.026)	1.86† (0.006)	−1.94† (0.026)

†*p* < .10. \**p* < .05. \*\**p* < .01. \*\*\**p* < .001.

& Arbeau, 2009). Play may also be viewed as its own developmental domain, requiring attention to children's progress in the area of play (Lifter, Foster-Sanda, Arzamarski, Briesch, & McClure, 2011). Evidence from this study suggest that children in the *Special Friends* program may not have had the play skills necessary to engage in extended, independent play interactions during CLGs. This may account for the group's decline in mean number of best friendships following participation in the *Special Friends* program. Researchers have found that when children are engaged in play that is developmentally more difficult, their peer interactions can be compromised (Pierce-Jordan & Lifter, 2005).

The second point is that self-regulatory and social skills are significantly related to the presence of having at least one best friend and acceptance among peers. In contrast, problem behaviors, specifically externalizing behaviors, are negatively related to friendships and peer acceptance. Our findings add support to the literature regarding the important role that children's temperament and social skills play in peer acceptance, friendship, and overall peer-related social competence. These findings highlight the fact that the development of self-control and cooperation, along with a decrease in externalizing behaviors result in increased peer acceptance and friendships.

The third point is that the presence of at least one reciprocal best friendship partially mediates the relationship between reports of children's high rates of problem behaviors/low rates of social skills and peer acceptance. That is, children who had higher rates of problem behaviors and lower social skills, according to teacher report, also had lower rates of peer acceptance. However, when children with these social-behavioral characteristics had a best friendship, it did not result in lower peer acceptance scores. Prior research has shown a clear link between children's problem behaviors and peer rejection (Asher & Coie, 1990). Yet, the literature shows that children with problem behaviors do still form friendships. These friendships are sometimes an "aggressive affiliation" as they may include other children who also have aggressive tendencies (Hanish,

Kochenderfer-Ladd, Fabes, Martin, & Denning, 2004, p. 148). However, recent longitudinal research involving kindergarteners through third graders found that for children with externalizing behaviors, having a best friend who also had externalizing behaviors did not have an unique effect on children's development of externalizing behaviors over time (Sturaro, van Lier, Cuijpers, & Koot, 2011). Sturaro et al.'s findings suggest that rejection among peers, not the problem behaviors of their best friends, contributed to the maintenance of externalizing behaviors among children.

Previous literature supports the idea that peer rejection influences children's levels of externalizing behavior and that it can predict the continuation of externalizing behaviors (Laird, Jordan, Dodge, Pettit, & Bates, 2001). Hanish et al. (2004) suggested that peer relationship interventions for young children should focus on eliminating aggressive behaviors among peers. In addition, based on our findings, it may be equally important to focus on supporting children's development of close friendships to promote acceptance among peers and hopefully decrease externalizing problem behaviors over time.

### Limitations

Although this study contributes to the literature in several ways, there are limitations that must be addressed. First, the *Child Friendship Nominations* measure used in this study provided a conservative estimation of close friendships. That is, for a close friendship to be identified, we required reciprocal nominations from both peers. Given that there were several children who could not participate in testing due to a lack of parental consent, the accurate identification of close friendships was jeopardized. To add to this, the responses from several children (*n* = 18) were eliminated when their comments indicated that they might not have understood the directions (e.g., they identified peers as best friends whom they had not previously identified as a friend). Taken together, these actions may call into question the findings related to the total number of best friendships identified for children with disabilities. It is possible that



kindergartners with disabilities had more best friendships than were identified.

Second, we limited children's close friend nominations to three best friends and one very best friend. Following Berndt and McCandless's (2009) continuum of friendships, we sought to capture only the strongest bonds of friendship among classroom peers. While only allowing three best friend nominations and one very best friend nomination was a strategy for identifying a child's closest and strongest friendships, it may have eliminated the identification of other close friendships for some kindergartners. Although these are noteworthy limitations, they are issues that are repeatedly mentioned in the research literature when choosing methods for identifying children's friendships (Berndt & McCandless, 2009).

Third, while this study focused on the impact of the *Special Friends* program on the friendship formation of children with disabilities, there were too few children with disabilities to only use their data in the mediation analysis. Due to this, data for the second research question were analyzed for all children regardless of disability status. Although not necessarily a limitation, it is important to note this factor for the findings to be appropriately interpreted.

Fourth, following randomization protocols for efficacy research (Shadish, Cook, & Campbell, 2002), intervention and contact control assignments were made at the classroom level. Having said that, the research questions posed in this study and data analyses were done at the child level. In terms of experimental design, the research questions would have been better situated in a study that assigned children randomly to classrooms and then randomly assigned classrooms to intervention conditions. Yet, this level of randomization is not practical in most educational settings and was not possible given the randomization procedures of the larger efficacy study. Therefore, this presents a limitation.

### Implications for Future Research

The findings from this study suggest several directions for future research. First, research on the relationships between class-wide affective interventions and children's friendships should take into account the strengths and needs of children with and without disabilities. For example, research on the *Special Friends* program should consider children's play skills and the match between play materials and children's developmental skills. Equally important may be an examination of the influence a class-wide affective intervention has on the development of close friendships when it is combined with a tiered model of support.

Several models of tiered supports exist for young children such as Recognition and Response (Buysse & Peisner-Feinberg, 2010), the Teaching Pyramid (Hemmeter, Ostrosky, & Fox, 2006), and Building Blocks (Sandall &

Schwartz, 2008). Furthermore, models of tiered supports for friendship development (Buysse et al., 2008) and peer interactions/peer-related social competence (see Brown et al., 2001) have been described in the early childhood peer relationship literature. Future research should examine whether a class-wide program, such as the *Special Friends* program, promotes the development of close friendships when children, who are struggling with play skills, receive an enhanced, child-focused intervention and intensive social skills instruction as needed on a small group or individual basis.

Second, future research should examine the extent to which young children with disabilities are provided meaningful and contextually relevant opportunities to form friendships in inclusive classrooms. The literature suggests numerous strategies that teachers can implement to support the development of friendships for children with disabilities (Buysse et al., 2008; Center on the Social Emotional Foundations for Early Learning [CSEFEL], 2006; Hollingsworth & Buysse, 2009; Kemple, 2003; Strain & Joseph, 2006). Despite this, there may be inherent barriers to embedding these child-focused strategies in inclusive classrooms. Barriers that may lead to limited opportunities for children to practice skills related to friendship formation and maintenance is currently an under-researched area.

**Implications for practice.** The first implication for practice that emerged from this study focuses on the fact that children with disabilities do develop close friendships with peers in their general education classrooms, though they form friendships to a lesser extent than their typically developing peers. However, it appears that the types of activities planned for children may affect the development of friendships, regardless of children's abilities. For example, if a child needs to exert substantial effort to engage in cooperative play during a small group activity, he or she may inadvertently behave in ways that are counterintuitive to forming close friendships with peers, even when in proximity to potential friends. This suggests that teachers should monitor children's play abilities and provide support as needed to enhance skill development.

Overall, prior research highlights the positive influence that peer relationships and friendships have in the social-emotional and academic lives of young children (Bowman, Donovan, & Burns, 2000; Rubin, Bukowski, & Laursen, 2009; Shonkoff & Phillips, 2000). Yet, research on the friendships of young children with special needs is sparse (Goldman & Buysse, 2007). There is currently a strong research-base on how to teach children with disabilities specific peer-related social skills, but less is known about how those interventions influence the development of close friendships. Likewise, little is known about how class-wide affective interventions, such as the *Special Friends* program, influence the development of friendships for children

with disabilities. This study was an initial attempt to examine the influence of a class-wide affective intervention on the development of close friendships for children with disabilities. Furthermore, it extends our understanding of the instructional support that may be necessary in early elementary classrooms when the development of positive peer relationships for children with disabilities is a desired outcome.

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