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**Prosocial Behavior among Children *With* and *Without* Disabilities: Centering on Teacher's  
Perception on the Teacher - Child Relationship**

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### Abstract

This study examined the predictors of prosocial behavior among children with and without disabilities attending an inclusive preschool program and those attending a university laboratory preschool program. Data were gathered from 81 preschool children and their teachers, all of whom were participating in an ongoing longitudinal research project in the Midwest, US. The results showed that there were mean differences in prosocial behaviors and teacher-child close relationships by disability type and program type. However, when analyzing children without disabilities, there were no mean differences in prosocial behaviors and teacher-child close relationship by program type. Hierarchical multiple regression analyses indicated that a child's disability status and the teacher-child relationship were significant predictors of children's prosocial behavior. Specifically, a close teacher-child relationship was a positive predictor of children's prosocial behavior among children with and without disabilities. The educational implications were discussed with regard to the future directions in this area of the study.

**Key words:** prosocial behavior, disabilities, teacher-child relationship, inclusive preschool

Prosocial Behavior among Children *With* and *Without* Disabilities: Centering on Teacher's Perception on the Teacher - Child Relationship

Child development is the product of the interaction between a child and the environment in which the child is situated (Sameroff, 1983). That is, the environment and the child's characteristics, including their genetic make-up, are intertwined, explaining, in part, child outcomes, including interpersonal relationships and behaviors (Sameroff & MacKenzie, 2003).

A considerable body of research in attachment relationships has consistently shown that children develop attachment relationships with caregivers within and outside of their home environment early in life, and these attachment relationships influence their prosocial behavior (Baker, 2006; Bretherton, & Munholland, 1999; Mitchell-Copeland, Denham, & DeMulder, 1997; Thompson, 1997). In addition, a child's characteristics such as gender and disability have been considered determinants in the quality of the teacher-child relationship and of children's social relationships with their peers as well (Baker, 2006, Ewing & Tylor, 2009; Hamre & Pianta, 2001; Howes, Phillipsen, & Peisnberg, 2000; Silver, Measelle, Armstrong, & Essex, 2005). In line with this, there has been public interest in the current educational system and how children with disabilities learn and develop in the same classroom as typically developing children. Such an educational setting requires early childhood teachers to adequately guide and instruct both children with and without disabilities, to provide all children with equally socially-desirable relationships, and to encourage equally socially-desirable behaviors among children.

Although a close and supportive teacher-child relationship is significant in developing prosocial behavior (Baker, 2006; Howes, 2000; Pianta & Stuhlman, 2004), early childhood teachers face challenges in teaching in an inclusive environment, and both children with and

those without disabilities face challenges in learning in an inclusive environment. In the literature, it has been reported that preschool children with disabilities sometimes have difficulties in their interactions with their teachers or caregivers and different types of disabilities result in discrete differences in social behavior problems among children with disabilities (Kasari & Sigman, 1996; Schopler & Mesibov, 1995). For example, conflicts and fights are initiated by boys with a behavior disorder four times more often than by boys who do not have a behavior disorder (Farmer & Hollowell, 1994). The findings from these studies suggest that there is some degree of association between disability type, gender, and children's interactional skills and behaviors. However, there is a lack of studies on children in an inclusive environment with regard to their prosocial behavior as a function of the teacher-child relationship and the child's disability status. Therefore, this study was undertaken to shed light on the influence of the learning environment and the child's disability status on the teacher-child relationship and the impact on children's prosocial behavior. In this study, "prosocial behaviors" were defined as acts that promote "the well-being and integrity of others" by proactive helping, sharing, donating, cooperating, and volunteering for a group or individuals in the group (Brief & Motowidlo, 1986).

### **Literature Review**

This study is grounded on the transactional model of development (Sameroff & Fiese, 2000; Sameroff & MacKenzie, 2003), which emphasizes the transaction between the person and the environment and that individual outcomes are not solely the result of the individuals or the environment alone. Rather, this model stresses that the interactions among the individual and the

environment dictate the outcomes, with bi-directional attributes of each influencing the other (Sameroff, 1983). Therefore, this study applied the transactional model of development to understand prosocial behaviors considering the interplay among the child and the program setting and the teacher-child close relationship as the developmental context.

### **A child's Characteristics and Prosocial Behavior**

Studies suggest that children's characteristics influence children's developmental outcomes and how teachers interact with them. For instance, children's characteristics such as gender and disability type have been associated with children's attachment relationships and social interactions that relate positively to their prosocial behaviors.

Researchers have found gender differences in children's interpersonal/social behaviors (Ewing & Taylor, 2009; Rimm-Kaufman & Kagn, 2005). In their general perception, teachers express that they have more difficulties in establishing rapport with boys (Saft & Pianta, 2001). Teachers also indicate that boys are more difficult to control than girls (Sthulman & Pianta, 2002). According to Silver et al. (2005), teachers feel that they have a closer relationship with girls than with boys. Overall, teachers rate their relationship with girls as closer and less difficult.

Children with disabilities are now accepted into the general educational settings in the United States, which is challenging for both the children with disabilities and for the teachers who are responsible for both typically developing children and children with disabilities across all developmental domains including social development. Due to their cognitive or physical impairments, children with disabilities often exhibit deficits in their prosocial behaviors. Children with cognitive impairments (e.g., Autism, Down syndrome, etc.) demonstrate a lack of receptive and expressive communication skills, difficulties in social interaction and emotion-

regulation showing deficits with joint attention, and lower levels of theory of mind (Baker, Blacher, Cronin, & Edelbrock, 2002; Guralnick, 1999; Guralnick, Connor, Naville, & Hammond, 2006; Guralnick, Naville, Connor, & Hammond, 2003; Woods & Wetheby, 2003). These identified characteristics are negatively associated with interpersonal skills, social competence, and prosocial behaviors among children with intellectual delay (cognitive impairments) in educational settings.

Like cognitive impairments, physical impairments are negatively associated with social skills due to limitations in mobility. Children with physical impairments are often socially and physically isolated. Their relationships are characterized by extremely limited out-of-peer contacts, negligible participation with social activities, and a primary orientation toward sedentary activities (Blum, Resnick, Nelson, & StGermaine, 1991). Thus, social problems among children with physical impairments are differentiated from those of children with cognitive impairments (intellectual disabilities) as they show relatively mild social problems and relatively high levels of interpersonal skills in both verbal and non-verbal communication.

It is conceivable that a lack of social skills negatively influences the social acceptance of children with disabilities by peers without disabilities. Sociometric research findings do indeed suggest that problematic social behaviors and cognitions are associated with peer rejection (Asher & Coie, 1990). For example, across various disability categories, children's disabilities were viewed as negative attributes in regards to the quality of their relationships with others, as well as their developmental outcomes.

Although many students with disabilities are less socially accepted by their typically-developing peers, some studies have shown that children with disabilities have close peer

relationships and maintain friendships (Bear, Juvonen, & McInerney, 1993; Juvonen & Bear, 1992). Studies have also suggested that proximal close relationships enable children with behavior problems or other disabilities to develop positive interactional styles by imitating behavioral models and chanting each other's responsive behavior (Cairns & Cairns, 1994; Dishion, Eddy, Haas, Li, & Spracklen, 1997). Thus, children with disabilities may be more likely to develop positive behavior skills and prosocial behavior if they interact with those who have positive social skills and quality relationships with others.

### **Teacher-child Relationships and Prosocial Behavior**

Two major relationships that are significant in early childhood are the parent-child relationship and the teacher-child relationship. A plethora of studies on the parent-child relationship have shown that a close relationship between a child and their mother is critically important for the child to build a secure base in their relationship with others, and explains later relationships and developmental achievement, including prosocial behavior (Spieker, Nelson, Petras, Jolley, & Barnard, 2003; van Ijzendoorn & van Vliet-Visser, 1998; O'Connor & McCartney, 2007). These studies showed that children's behaviors are the products of the interpersonal relationship, which is in turn related to behavior problems, peer relationships, and school performance.

As more and more children with disabilities spend most of their day in school, close relationships with teachers are important, influencing the development of positive social skills and prosocial behaviors. Studies have suggested that close teacher-child relationships impact the children's peer relationships and their learning in general, helping them to learn prosocial



behavior patterns and build competence in their behaviors (Pianta, Steinberg, & Rollins, 1995; Valiente, Lemery-Chalfant, Swanson, & Reiser, 2008).

In addition, research suggests that positive peer relationships and less aggressive behavior in the classroom are predicted by the closeness of the teacher-child relationship (Baker, 2006; Birch & Ladd, 1997).

### **Inclusive Settings and Children's Prosocial Behaviors**

Since the Individuals with Disabilities Education Act (IDEA, 1997) was passed, inclusion has become the norm in early childhood education. One of the most important aspects of inclusive classrooms is that they provide both children with and without disabilities ample opportunities to interact with their peers and teachers (Harjusola-Webb, Hubbell, & Bedesem, 2012). Children with disabilities may learn along with their peers in a warm environment. Children without disabilities also benefit as they learn how to work more cooperatively with discretely different others and to find the strengths in all of their peers (Guralnick, 2011; Utley, Mortweet, & Greenwood, 1997). Peer-mediated intervention (PMI) using various social communicative strategies has shown to be effective in fostering socially relevant behaviors (Guralnik, 2011; Harjusola-Webb, Hubbell, & Bedesem, 2012; Utley, Mortweek, & Greenwood, 1997). The inclusive setting enables teachers to apply PMI to enhance prosocial behaviors in all children, regardless of their behavior or physical/intellectual differences.

Even though there is agreement as to the advantages of the inclusive early learning setting for both children with and those without disabilities, the practice of inclusion has not been an extensively explored research topic in early childhood education (Gallagher & Lambert, 2006; Spiker, Hubbeler, & Barton, 2011).

### **The Present Study**

Although there has been plentiful research in the field of early childhood education on typically-developing children or atypical children in special education programs, research exploring the effects of inclusive preschool programs for both typically-developing and atypically developing children is less abundant.

In the current educational system, children with disabilities learn together with typically developing children, in the same classroom; however, it is still unknown how a child's characteristics contribute to the child's close relationship with their teacher, and how that relationship is related to the child's prosocial behavior. In addition, studies of relationship quality and other factors that relate to children's prosocial behavior have rarely been extended to children with disabilities in inclusive classrooms. Therefore, this study was to examine interactional outcomes (relationships, prosocial behavior) among children with and without disabilities, both in an inclusive setting and in a typical university lab school. Specific study questions were as follows:

- (1) How do the teacher-child relationship and a child's prosocial behaviors differ by the child's gender, disability (yes or no), and program type?
- (2) How do the teacher-child close relationship and a child's prosocial behaviors differ by the child's disability type (no disabilities, cognitive impairment, and physical impairment)?
- (3) To what extent does the level of the teacher-child relationship explain a child's prosocial behaviors moderating the effects of the child's gender and disability status?

## Methods

### Sample

Data from 81 preschool children (49.4% were boys, 50.6% were girls) both with and without disabilities, who were participating in an ongoing, longitudinal research project in the Midwest, USA, were used. The current study included 29 preschool children with various types of disabilities in two categories, cognitive impairments and physical impairments, and 52 children without disabilities. About 82% of the children were White, and the preschoolers' average age was 2.95 years.

For the source research project funded by the state Department of Education, the research team recruited a total of 66 parents of children with and without disabilities attending either an inclusive preschool (including both children with and without disabilities) or an accredited university lab school (typical preschool with typically developing children) over the two years. Both the university lab school and the inclusive classroom were well equipped and professionally managed according to the National Association for Young Children and the National Council for the Accreditation of Teacher Education.

### Measures

*Prosocial behavior.* For children's prosocial behavior, this study used teacher-report on the Child Behavior Scale (CBS; Ladd & Profilet, 1996) as the representation of children's social behavior likely to be observed in the presence of peers at school. Teachers more often observe children's social behavior than parents do. Children's behaviors such as empathy, cooperation, and self-sacrifice are indicative of prosocial behavior. The CBS scale we used for this study was composed of 4 items: (1) kindness toward peers; (2) cooperative with peers; (3) offers help or

comfort when other children are upset; (4) helps other children. All items used a 3-point Likert scale: “definitely does not apply (1)”, “may or may not apply (2)”, and “definitely applies (3).” This variable is continuous, with a Cronbach’s alpha reliability coefficient of .89; a child with a higher score on this variable shows a higher level of prosocial behavior than a child with a lower score. Mean scores were used in the analyses.

*Teacher-child close relationship.* Teacher-child close relationship was assessed using the Student-teacher Relationship Scale (STRS; Pianta, 2001), which is a teacher-report measure tapping teachers’ perceptions of closeness and conflict with children. The conflict subscale of the STRS included 8 items such as “This child easily becomes angry with me” and “This child is sneaky or manipulative with me.” The closeness subscale used in this study included 11 items such as “This child values his/her relationship with me” and “My interactions with this child make me feel effective and confident.” Mean scores from each subscale were used in analyses. All items used a 5-point Likert scale: “definitely does not apply (1)”, “does not apply (2)”, may or may not apply (3), “may apply (4), and “definitely applies (5).” Cronbach's alpha of the prosocial behaviors for our sample was  $\alpha = .90$ .

### **Data Analysis**

Descriptive analyses, *t*-tests, ANOVAs, and a hierarchical regression analysis were conducted to estimate basic information, group differences in prosocial behavior, and the degree of predictability of children’s prosocial behavior, respectively.

*t*-tests were performed to examine group differences in prosocial behavior. In order to predict the power of independent variables and changes in the dependent variable, prosocial

behavior, hierarchical multiple regressions were employed, as they are useful to disclose the effect size of independent variables by adding new variables (Leech, Bartett, & Morgan, 2008). This study estimated the magnitude of all independent variables to predict the dependent variable. Once we checked the magnitude of all independent variables' effects on the prediction of the dependent variable, we performed hierarchical regression by adding control variables (child disability, gender and ethnicity in both typical and atypical classrooms). Teacher-child closeness and parent-child secure attachment were entered in the second step, and interaction terms (disability  $\times$  teacher-child closeness) were entered at the third step. To examine the interactive effect of two main factors on the dependent variables, we computed the effect size of the interaction (z scores) between the main effect predictor (disability) and the moderating predictor (teacher-child closeness) prior to the final analysis. At the final step, interactive effects were added into the model to predict the children's prosocial behavior.

### **Ethical Consideration**

This study was approved by the university's Institutional Review Board and procedures abide by the APA's ethical treatment of subjects. Parents and the teachers of the children were invited to give their consent after being provided with adequate information about the study.

## **Results**

### **Descriptive Analysis**

On a 3-point scale, our sample of children with and without disabilities showed high levels of prosocial behaviors ( $M = 2.01$ ,  $SD = .65$ ). On a scale of 1 to 5, our sample of children

with and without disabilities showed relatively high levels of close relationship with their teachers ( $M = 4.02, SD = .76$ ).

### **Group Mean Differences in Teacher-Child Close Relationship and Prosocial Behavior by Gender, Disability, and Program Type**

First, independent  $t$ -tests were performed to test whether there were significant group mean differences in children's teacher-child close relationship by gender (e.g., girl or boy), disability (e.g., with and without disability), program type (inclusive setting vs. regular lab school). The results of the  $t$ -tests revealed that there were no differences in the teacher-child close relationship by child gender ( $t = 1.29, p > .05$ ) while there were differences by program type ( $t = -2.14, p < .05$ ) and disabilities ( $t = 5.49, p < .001$ ). In turn, children attending the inclusive preschool showed lower levels of teacher-child close relationship ( $M = 3.87, SD = .83$ ) than children attending the university lab preschool ( $M = 4.21, SD = .56$ ). Children with disabilities showed lower levels of teacher-child close relationship ( $M = 3.49, SD = .80$ ) than typically developing children ( $M = 4.31, SD = .55$ ) (see Table 1).

[Insert Table 1 about here]

Next, additional independent  $t$ -tests were performed to test whether there were significant group mean differences in children's prosocial behaviors by gender (e.g., girl or boy), disability (e.g., with and without disability), and program type (inclusive setting vs. regular lab school). Like the outcomes of the teacher-child close relationship, the results of the  $t$ -tests showed that there were no differences in prosocial behaviors by child gender ( $t = 1.16, p > .05$ ) while there were differences by program type ( $t = -1.19, p < .05$ ) and disabilities ( $t = 4.87, p < .001$ ). In turn,

children attending the inclusive preschool showed lower levels of prosocial behavior ( $M = 1.19$ ,  $SD = .73$ ) than children attending the university lab preschool ( $M = 2.19$ ,  $SD = .46$ ). Children with disabilities showed lower levels of prosocial behavior ( $M = 1.60$ ,  $SD = .67$ ) than typically developing children ( $M = 2.25$ ,  $SD = .52$ ) (see Table 1). In sum, there were statistically meaningful differences both in the teacher-child close relationship and prosocial behaviors by program type and child disability while there are no differences by child gender.

[Insert Table 2 about here]

### **Group Mean Differences in Teacher-Child Close Relationship and Prosocial Behavior by a Child's Disability Type**

This study further examined mean differences by child disability type (no disability, cognitive impairment, and physical impairment) both in the teacher-child close relationship and in prosocial behaviors. The results showed that both teacher-child close relationship ( $F = 10.55$ ,  $p < .01$ ) and prosocial behaviors ( $F = 7.09$ ,  $p < .01$ ) were differentiated by disability type. To further examine the differences in the teacher-child close relationship and prosocial behaviors, post-hoc analyses were performed using the Scheffe test, which is often used to identify for which groups the differences were significant. The statistical differences in prosocial behaviors can be attributed to the differences between child without disabilities ( $M = 2.16$ ,  $SD = .55$ ) and children with cognitive impairments ( $M = 1.16$ ,  $SD = .71$ ). For the differences in the teacher-child close relationship, the differences between child without disabilities ( $M = 4.21$ ,  $SD = .61$ ) and children with cognitive impairments ( $M = 3.47$ ,  $SD = .88$ ) and the differences between child

with cognitive impairments and children with physical impairments ( $M = 4.42$ ,  $SD = .76$ ) contributed to the differences (see Table 3).

[Insert Table 3 about here]

In addition, this study examined whether there were mean differences in both prosocial behaviors and teacher-child close relationship by program type among children without disabilities. The result of  $t$ -tests showed that there were no mean differences in both outcomes.

### **Predictors of children' prosocial behavior**

Hierarchical regression analyses were conducted to examine how children's gender, disability status, and teacher-child closeness predicted children's prosocial behavior. To reduce multicollinearity problems, predictor variables were standardized (Aiken & West, 1991), and then interaction terms were created by multiplying the standardized predictor variables. Children's gender and disability status were entered as covariates in the first step of the regression model and teacher-child closeness was entered as the main effect predictor variable in the second step of the model, followed by interaction terms between child disability and teacher-child close relationship in the third step. After a preliminary regression analysis was conducted, we entered a two-way interaction term between child disability and teacher-child closeness in the final regression model.

The results of regression analyses (found in Table 4) show the magnitude of the predictors' effects. The magnitude of the predictors showed differences in predicting prosocial behavior depending on the informant of the child's prosocial behavior (see Table 4).

[Insert Table 4 about here]



The overall regression model was significant ( $R^2$  of .55) with a significant increase in  $R^2$  at each step. The results of the regression models at step one showed that child disability ( $\beta = -.47, t = -4.65, p < .001$ ) was negatively related to child prosocial behavior ( $R^2 = 23.6, F = 11.55, p < .001$ ) with the reporting of higher levels of prosocial behavior among children without disabilities. Entry of teacher-child relationship at the second step resulted in a significant increase in  $R^2$  by 30.3% and teacher-child close relation emerged as a strong, positive predictor of child prosocial behavior ( $R^2 = 53.9, \beta = .65, t = 6.97, p < .001$ ), indicating that children whose relationship with their teacher is close are likely to have higher levels of prosocial behavior ( $F = 28.79, p < .001$ ). Although child disability and teacher-child closeness were significant predictors at step one and two, respectively, there was no significant interaction effect between them ( $\beta = -.12, t = -1.43, p > .05$ ) in predicting child prosocial behavior at step three, while adding a statistically significant increase in the  $R^2$  by 1.3% of variance (see Table 4). The effects of the teacher-child close relationship remained significant even after the main effect predictors and the interaction term were added to the regression model at the third step.

Using  $R^2$ , approximately 23.6% of the total variance and covariance of the child prosocial behavior could be explained by the child disability qualifier exclusively; and adding a moderator, teacher-child close relationship, in the model, the  $R^2$  was dramatically increased ( $R^2 = .539$ ), showing the positive effects of the close teacher-child relationship on child prosocial behavior. There was no signal of multicollinearity violation among the predictors found in the regression models.

In sum, the overall regression model was significant, with a significant increase in  $R^2$  at each step. The results of the regression models at step 1 showed that child disability was

negatively related to child prosocial behavior, with higher levels of prosocial behavior reported among children without disabilities. Entry of teacher-child close relationship into the model resulted in a significant increase in  $R^2$ . Teacher-child close relationship emerged as a strong, positive predictor of child prosocial behavior.

### **Discussion**

This study explored the predictors of prosocial behavior among children with and without disabilities attending an inclusive preschool program and a university laboratory preschool program. Grounded in the transactional model of preschool inclusion (Odom et al., 2004), this study analyzed 81 preschool children who were participating in an ongoing longitudinal research project in the Midwestern USA. Findings indicated that child disability status and teacher-child relationship were significant predictors of children's prosocial behavior. Specifically, a close teacher-child relationship was a positive predictor of children's prosocial behavior. These results support the idea that socio-emotionally supportive relationships between teachers and students provide students with a sense of security within their learning environment at school. These results stress the role of the teacher in the development of young children's early learning patterns and their relationships with others (Hamre & Pianta, 2001; Murray & Greenberg, 2002).

This study made several findings. First, the results of this study showed that there were meaningful differences both in the teacher-child close relationship and prosocial behaviors by program type (inclusive setting vs. regular lab school) and child disability (yes vs. no) while there are no differences by child gender. Children attending the inclusive preschool showed lower levels of teacher-child close relationship than children attending the university lab

preschool. The findings are congruent with the idea that teachers may have more difficulties in establishing a good relationship with children with disabilities in an inclusive setting (Saft & Pianta, 2001; Stuhlman & Pianta, 2002). Since there was a difference in teacher-child close relationship by program type among children with and without disabilities, differences by program type in prosocial behaviors may be related to the lower level of close relationships between the teachers and the children with disabilities (children with cognitive impairments in this study) in the inclusive setting (Hamre & Pianta, 2001; Howes, Phillipsen, & Peisnberg, 2000).

Second, this study found that both teacher-child close relationship and prosocial behaviors were differentiated by disability type (no disability, cognitive impairment, and physical impairment). According to Baker, Blacher, Cronin, and Edelbrock (2002), children with cognitive impairments and physical impairments are likely to manifest behavior problems which aggravate interpersonal relationships showing steady continuity over time. The deficits in interpersonal skills and communicative skills may cause less positive teacher-child relationships and prosocial behaviors among children with cognitive impairments. From the results, it is conceivable that the differences in teacher-child relationships were caused by the differences between cognitive impairment and physical impairment: children with cognitive impairments were likely to have less positive teacher-child relationships than those of children with physical impairments. The limitation in mobility and the nature of the social isolation among children with physical impairment did not cause lower levels of teacher-child close relationships compared to those of typically developing children. That is, physical impairments did not cause differences between typically developing children and children with physical impairments in the

teacher-child close relationship and prosocial behaviors, respectively. Thus this study is partially congruent with Baker et al. (2002)'s study on the outcomes of the impact of disabilities among children with cognitive impairments. Early special intervention efforts (e.g., applied behavior analysis, play therapy, occupational therapy, etc.) should be provided to the children with disabilities to break the chain and modify their problematic behaviors to enhance the interpersonal skills and communication skills among children with cognitive impairments.

Third, the results of hierarchical regression analyses showed that child disability was negatively related to child prosocial behavior, with higher levels of prosocial behavior reported among children without disabilities. Entry of teacher-child close relationship into the model resulted in a significant increase in *predicting prosocial behavior*. In turn, teacher-child close relationship emerged as a strong, positive predictor of child prosocial behavior, indicating that children whose relationship with their teacher is close are likely to have higher levels of prosocial behavior. Contrary to previous studies (De Schipper, Tavecchio, van Ijzendoorn, & van Zeijl, 2004; Fantuzzo, Bulotsky, McDermott, Mosca, & Lutz, 2003)), this study did not show that a child's gender was a significant factor affecting the teachers' relationship with the child and their perception of the child's prosocial behavior. Congruent with previous research (Odom, Zercher, Li, Marquart, Sandall, & Brown, 2006), children's prosocial behavior was predicted by their disability status. However, as we have seen a lower level of teacher-children close relationships among children with cognitive impairments compared to the other two comparison groups, having a disability should not be considered a unified influential factor in a child's prosocial behavior. It implies that the application of a universal design to support both children with and without disabilities into general education classroom settings to meet all children's

needs is feasible. To make this possible, teachers should enhance all children regardless of their abilities by accentuating the positive using developmentally appropriate assessment and instructional materials. Teachers also need to develop and use multisensory approaches to assist in meeting diverse needs in an inclusive classroom.

The results of this study contribute to the literature showing the salience of close relationships with caregivers, both in and out of the family context. The results underpin that close teacher-child relationships act as contexts for a child's development of prosocial behavior. In a future research, it would be useful to include more children with and without disabilities in an inclusive setting to examine the impact of the context on a child's prosocial behavior. As this study analyzed a relatively small number of children with disabilities and as their types of disabilities were varied in nature, it is difficult to generalize the impact of disability status and program type on prosocial behavior as the function of a child's relationship with their teacher. Thus, this study shed light on the impact of the inclusive learning setting on children with and without disabilities in that it implies that simply being in an inclusive setting has no harm for both typically developing children and children with disabilities, rather inviting education personals to further enhancing the current general educational system to meet all individual children's needs.

This study suggests that future research should examine in-depth peer relationships to see its associations with prosocial behaviors in an inclusive learning setting as prosocial behaviors are understood when peers are present. Disabilities can be considered important factors in explaining teacher-child relationship and prosocial behaviors, it is worthwhile to examine peer relationships in an inclusive setting to better understand how different patterns of peer

relationships (between typically developing children, between typically developing children and atypically developing children, and atypically developing children) influence a child's prosocial behaviors in the inclusive classroom setting. As children with disabilities enter the general education system and learn with typically developing children, this study also suggests extended longitudinal studies to examine the impact of early healthy relationships with primary caregivers in an early inclusive program on child development (i.e., teacher, family, and peers) and later school readiness.

As the National Association for the Education of Young Children (NAEYC, 2009) advocates diversity and inclusion, we suggest that the early childhood teacher education programs should build an effective curriculum to enhance preservice teachers' efficacy in working with children with and without disabilities to enhance their interactional skills and adopt universal design (UD) in their future classrooms. This systematic curriculum using UD should include ample field experience containing both observation and hands-on experience with children with disabilities as well as those without disabilities. In that way, the university, school, and family will be able to make a meaningful collaboration for excellence in learning for all students. As educational policy has become intertwined across the nations, the educational implications from this study may be useful for general early childhood teacher education for *all* children.

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Table 1

*Group Mean Differences in Teacher-child Close Relationship by Gender, Disability, and*

*Program Type*

Variables	Groups	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>
Child gender	Female	41	4.12	.69	1.29
	Male	40	3.91	.82	
Disability	No	52	4.31	.55	5.49***
	Yes	29	3.49	.80	
Program type	Inclusive preschool	50	3.87	.83	-2.14*
	University lab preschool	31	4.24	.56	

*Note.* \* $p < .05$ , \*\*\* $p < .001$ .

Table 2

*Group Mean Differences in Prosocial Behaviors by Gender, Disability, and Program Type*

Variables	Groups	<i>n</i>	<i>M</i>	<i>SD</i>	<i>t</i>
Child Gender	Female	40	2.09	.61	1.16
	Male	39	1.92	.70	
Disability	No	50	2.25	.52	4.87 <sup>***</sup>
	Yes	29	1.60	.67	
Program type	Inclusive preschool	50	1.19	.73	-1.99 <sup>*</sup>
	University lab preschool	29	2.19	.46	

Note. <sup>\*</sup> $p < .05$ , <sup>\*\*\*</sup> $p < .001$ .

Table 3

*Group Mean Comparison in Prosocial Behavior and Teacher-child Close Relationship by Disability Type*

Dependent Variable	Disability Type	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>Post Hoc</i>
Prosocial behavior ( <i>N</i> = 79)	No disability <sup>a</sup>	49	2.16	.55	7.09**	a > b**
	Cognitive impairment <sup>b</sup>	23	1.61	.71		
	Physical impairment <sup>c</sup>	7	2.25	.63		
Teacher-child close relationship ( <i>N</i> = 81)	No disability	51	4.21	.61	10.55***	a > b*** c > b**
	Cognitive impairment	23	3.47	.88		
	Physical impairment	7	4.42	.76		

*Note.* \*\*  $p < .01$ , \*\*\*  $p < .001$ . Post Hoc = Scheffe test; A represents typically developing children without any disabilities; b represents developmental disabilities such as Autism, Down Syndrome, Sanfilippo Syndrome, , Unspecified Chromosome, etc.; c represents mobility impairments such as Nager Syndrome, Spina Bifida, Cerebral Palsy, etc.



Table 4  
*Hierarchical Regression Analyses Predicting Child Prosocial Behaviors*

Predictor Variables	<i>B</i>	$\beta$	<i>t</i>	<i>VIF</i>	$R^2(\Delta)$	<i>F</i>
Step 1					.236	11.55***
Child gender	-.08	-.06	-.59	1.02		
Disability	-.64	-.47	-4.65***	1.02		
Step 2						
Child gender	-.02	-.01	-.18	1.03	.539	28.79***
Disability	-.19	-.14	-1.49	1.39	(.303)	
Teacher-child closeness	.55	.65	6.97***	1.39		
Step 3						
Child gender	-.03	-.02	-.24	1.03	.551	22.41***
Disability	-.17	-.13	-1.36	1.40	(.013)	
Teacher-child closeness	.55	.60	6.13***	1.57		
Disability $\times$ Teacher-child closeness	-.09	-.13	-1.43	1.23		

Note. \* $p < 0.05$ , \*\* $p < 0.01$ .  $R^2(\Delta)$ =changes in  $R^2$ ; *VIF* =Variance Inflation Factor.