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ABSTRACT

The current study examined (1) associations among teachers' experiences regarding children with disabilities (i.e., education, specialized training, years of work experience), their attitudes toward disabilities, and their classroom practices in relation to inclusion and (2) associations among children's attitudes toward peers with disabilities and child and teacher factors. Ninety-one 4- and 5-year-old children participated in an interview, and their teachers completed a survey. Teachers' specialized training and bachelor's degree in early childhood education (ECE) were positively associated with their inclusive practices in the classroom; teachers' bachelor's degree in ECE and experiences working with children with disabilities were positively associated with their attitudes toward disabilities and inclusion; and children's perceived contact with people who have disabilities was positively associated their attitudes toward peers with disabilities. However, none of the teacher factors predicted children's attitudes toward peers with disabilities. Early childhood teachers need more training opportunities to learn about disabilities to develop positive attitudes toward disabilities and inclusion. Providing frequent contact with people with disabilities may enhance children's acceptance of peers with disabilities.

Keywords
Children with disabilities; Early childhood education; Preschoolers; Teacher attitudes; Teacher education and training

As we recognize more diversity in education settings and in society in general, it has become critical for people to understand and accept the different characteristics that each individual brings into the community. This idea of accepting diversity has been well reflected in the inclusion of children with disabilities in early childhood education (ECE) programs (Odorn et al., 2006). The significant growth of interest in inclusion and the number of inclusive classrooms (Office of Special Education Programs, 2002) in the United States and many other countries, such as Canada, China, Greece, and Turkey (Gena, 2006 ; Hu, Roberts, Wang, & Zhao, 2011; Killoran, Tymon, & Prempong, 2007; Secer, 2010), has led to increased attention to teacher quality and preparation. To provide high-quality inclusive education for all children, teachers must acquire the knowledge and skills necessary to plan and implement developmentally appropriate practices (Cassidy, Hestenes, Hegde, Hestenes, & Mims, 2005; Copple & Bredekamp, 2009) and receive training that can promote the effectiveness of inclusive practices (Buell, Hallam, & Gamel-McCormick, 1999; Chang, Early, & Winton, 2005; Gartin, Rao, McGee, & Jordan, 2001; Kilgo et al., 1999). However, we see a gap in opportunities for effective professional development on the content related to working with children with various needs as well as building positive attitudes toward disabilities (Wei, Darling-Hammond, & Adamson, 2010). It is not clear how their training is associated with their attitudes and practices related to inclusion.

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In pursuing the primary goal of inclusion (i.e., maximize the learning and broaden the benefits of social integration for all children, United Nations Educational, Scientific, and Cultural Organization [UNESCO], 1994) in a classroom context, children who are typically developing playa crucial role as they attempt to initiate and sustain their interactions with peers with disabilities (e.g., Katz & Galbraith, 2006; Odom & Bailey, 2001). It seems important for typically developing children to develop positive attitudes toward disabilities because children with more positive attitudes tended to interact more frequently with peers with disabilities in the classrooms than those with less positive attitudes (e.g., Cross, Traub, Hutter-Pishgahi, & Shelton, 2004; Okagaki, Diamond, Kontos, & Hestenes, 1998). This is particularly important in preschool years; during this developmental period, children's emerging awareness of and sensitivity to physical differences and different levels of abilities is more flexible than in later years (e.g., Guralnick, Connor, Hammond, Gottman, & Kinnish, 1996). However, typically developing children's attitudes toward peers with disabilities have not been the primary focus of early childhood inclusion research, and few studies examined individual and classroom factors contributing to positive attitudes of children who are typically developing toward peers. To find a way to promote successful inclusion in preschool contexts, we examine the associations among teacher factors (i.e., teachers' attitudes toward and practices related to inclusion), individual factors of children who are typically developing (i.e., their exposure to people with disabilities), and their attitudes toward peers with disabilities.

Teacher factors: Training, experiences, attitudes, and classroom practices related to inclusion

A degree in ECE, specialized training, and experience related to inclusion are deemed to equip teachers with more appropriate and in-depth knowledge and skills with which they can create more enriched and positive learning environments for all children. Those knowledge and skills also help teachers address different abilities and needs in the classroom (Division for Early Childhood [DEC], 2014; DEC/National Association for the Education of Young Children [NAEYC], 2009; Gartin et al., 2001; Gemmell-Crosby & Hanzlik, 1994; Hsien, Brown, & Bortoli, 2009; Mulvihill, Shearer, & Van Horn, 2002). Training opportunities provide basic knowledge of inclusion and help teachers learn effective pedagogical approaches and instructional adaptations necessary to work in an inclusive classroom (Hsien et al., 2009). The more specialized training about inclusion teachers received, the more likely they were to show positive attitudes toward inclusion (Buell et al., 1999; Gartin et al., 2001; Gemmell-Crosby & Hanzlik, 1994; Hsien et al., 2009; Mulvihill et al., 2002) and the more skillful and knowledgeable they were in modifying their curriculum and adapting the environment for children with disabilities (Hsien et al., 2009). For example, early childhood pre-service teachers who have taken coursework and had field experiences related to disabilities and inclusion showed a gain in their perceived attitudes, knowledge, and skills in working with children with disabilities (deBettencourt, 1999; Jeon & Peterson, 2003).

Due to the importance of teacher education and training on inclusion, there is growth of blended certification programs in ECE and early childhood special education (ECSE) in the United States and inservice training opportunities on inclusive practices (Miller & Stayton, 1998). However, many traditional ECE teacher training programs remain separated from ECSE teacher training programs and frequently do not provide an adequate amount of coursework or field experiences (Chang et al., 2005), and teachers have expressed a need for more training opportunities on inclusion (e.g., Durden, Mincemoyer, Lodl, & Gerdes, 2013; Gettinger, Stoiber, Goetz, & Caspe, 1999; Scruggs & Mastropieri, 1996; Wei et al., 2010). Inadequate teacher preparation has raised a concern about the availability and accessibility of highquality inclusive early childhood programs with well-trained staff (Maxwell, Lim, & Early, 2006). However, findings about the association of training and experiences with teachers' attitudes and practices are inconsistent (Henning & Mitchell, 2002; Lieber et al., 1998; Mitchell & Hegde, 2007; Voss & Bufkin, 2011), which suggests a need for further investigations.

Teacher and child factors contributing to children's attitudes toward disabilities

The theory of planned behavior (Ajzen, 1988; Fishbein & Ajzen, 1975) provides a framework to conceptualize the process of forming attitudes, including children's attitudes toward peers with disabilities in the classroom context, by highlighting (1) its relation to their actual social behaviors toward peers with disabilities and (2) significant others' attitudes and individual experiences as basic determinants of children's attitudes toward others. First, children's prior contact with people with disabilities can help them develop a better understanding of and/or positive attitudes toward individuals with disabilities (e.g., Favazza & Odorn, 1997; McDougall, DeWit, King, Miller, & Killip, 2004; Vignes et al., 2009). Studies with older children (e.g., 7th-grade children; Vignes et al., 2009) found that children who had more direct and extensive contact or a close friendship with peers with disabilities had more positive attitudes toward peers with disabilities. These children might develop a better understanding of and greater sensitivity toward their peers with disabilities through frequent contact and interactions and thus may be able to form more positive attitudes toward them. It is less clear how associations between young children's contact with people with disabilities in various contexts (e.g., relatives, family, neighborhood, and school) affect their attitudes toward peers with disabilities. Thus, we measured typically developing children's contact with people with disabilities in two ways: their perceived contact with people with disabilities and their actual placement in the inclusive classroom.

According to this theory, teachers also could serve as a subjective norm and model and influence children's attitudes toward peers with disabilities based on the evidence for a positive link between teachers' and children's attitudes (Roberts & Lindsell, 1997; Roberts & Zubrick, 1992). Teachers who have positive attitudes may set the tone for the effective implementation of inclusion and create a positive social emotional climate in the classroom, in general, which may be directly (e.g., teacher support) or indirectly (e.g., positive teacher-child relationships) related to children's positive attitudes toward disabilities (e.g., Vignes et al., 2009). This may be the case even for classes that do not have children with disabilities, as teachers' positive attitudes would be transmitted to children's general attitudes toward peers through the classroom's positive social emotional climate.

Teachers' attitudes are often considered an important determinant and predictor of their classroom practices (e.g., Brownell & Pajares, 1999), which is also consistent with the theory of planned behavior. Some researchers found reciprocal relationships between teachers' attitudes and their practices (e.g., Clark & Peterson, 1986) as well as a considerable gap between attitudes toward or beliefs about inclusion and their actual classroom practices (e.g., Bruns & Mogharreban, 2007; Mitchell & Hegde, 2007). The aforementioned studies are only a few available related to the topic but were conducted with older children (e.g., elementary school children or older). More investigations with younger children (e.g., preschoolers) would be necessary to close the gap in the existing literature.

Inclusive classroom environment and practices also play a critical role in enhancing typically developing children's attitudes toward peers with disabilities and their inclusion/exclusion decisions (e.g., Cooper, 2003; Diamond & Innes, 2001; Favazza & Odom, 1997; Guralnick, 1999; Hurst, Corning, & Ferrante, 2012; Wilson, Pianta, & Stuhlman, 2007). For example, children who had more opportunities to use special equipment such as a wheelchair and discuss and read books about children with disabilities displayed more accepting attitudes toward peers with disabilities than those who had fewer opportunities (Cooper, 2003; Favazza & Odom, 1997). However, Aguiar, Moiteiro, and Pimentel (2010) did not find an association between the global classroom quality of inclusive classrooms (measured by Assessment Profile for Early Childhood Programs-Research Edition II; Abbott-Shim & Sibley, 1998) and children's social acceptance of peers with disabilities. These inconsistent findings may be due to the different aspects of quality on which each study focused (e.g., global quality, disability representation) even though it is likely that these measures may be somewhat correlated. A more proximal predictor of children's attitudes toward peers with disabilities may be teachers' classroom practices that directly and explicitly address the social inclusion of children with disabilities other than the global classroom quality.

On the other hand, some studies (e.g., Nikolaraizi et al., 2005) found that teachers were not modifying their curriculum or teaching strategies to intentionally and systematically facilitate children's acceptance of peers with disabilities, regardless of the inclusion status of the classrooms. Compared with inclusive classrooms, noninclusive classrooms received a significantly higher score on disability representation (Nikolaraizi et al., 2005). This finding is somewhat contrary to beliefs of many professionals and advocates for inclusion that the inclusion status can be an indicator of children's experience in the classroom by exposing children to peers with disabilities. The finding may suggest that the inclusion status itself does not necessarily reflect the quality of classroom practices concerning inclusion. It is possible that the disabilities represented in the classrooms may not be easily noticeable to children (e.g., mild level of developmental delays). In this case, the inclusion status itself may not make a difference either in teachers' inclusive practices or in typically developing children's attitudes.

Not all classrooms for preschool-age children currently include children with disabilities for various reasons. However, it is still important for teachers and typically developing children to have positive attitudes toward inclusion because different characteristics that individual children bring into their classroom (e.g., different levels of abilities) affect their relationships and interactions with others. Thus, we included inclusive and noninclusive classrooms (i.e., containing children who were typically developing only) and examined the role of inclusive status as one aspect of children's experience that might contribute to attitudes of typically developing children toward peers with disabilities.

The current study

Taken together, teachers' attitudes and practices and typically developing children's attitudes toward peers with disabilities are important components for successful inclusion. However, only a few studies examined early childhood classroom factors contributing to children's attitudes toward peers with disabilities. Thus, in this study, we addressed the following research questions in the context of inclusive and noninclusive preschool classrooms: (1) Are teachers' education, training, and experiences associated with their attitudes and classroom practices? (2) Is there an association between children's contact with people with disabilities and their attitudes toward peers with disabilities (i.e., prior contact with people with disabilities, exposure to inclusive classroom)? (3) Is there an association between teacher factors (e.g., teachers' attitudes, education and training, classroom practices) and children's attitudes toward peers with disabilities?

Method

Participants

Participants included (1) 26 teachers from 11 ECE programs and (2) 91 four- and five-year-old typically developing children (mean age = 55.01 months, *SD* = 7.10, 46 girls) enrolled in preschool classrooms. The data were collected from a midwestern (2 programs) and two southeastern (9 programs) cities in the United States, between 2009 and 2011. An average response rate was 40% across the three cities. Twenty-one teachers (81%) had a bachelor's (BA) or higher degree, and 21 teachers had majored in ECE and/or child development. Nineteen teachers (70%) had experience working with children with disabilities. About 32% of the children were enrolled in a classroom where there is at least one child with an identified disability (n = 10 inclusive classrooms). The rest of the children were from classrooms without a child with a disability (n = 16 noninclusive classrooms). The majority of the teachers were female (n = 24), 39% were White, and 23% were African American. As for children, more than 64% of the children were White, 11% were Asian or Asian American, 10% were African American, 6% were Latino. About 87% of the parents had a bachelor's or higher degree, and 87% of them worked at least part-time. The average parents' age was 36.28 years (*SD* = 6.58). Table 1 shows child and teacher demographic characteristics by inclusion status of the classrooms.

Procedure

After the Institutional Review Board (IRB) had approved the proposed procedure and materials, a letter of invitation was sent to directors of early care and education programs. Once the directors agreed to participate by returning their responses, the researchers contacted and visited the programs to distribute two different sets of recruitment packets. The teacher packets consisted of a copy of a study flyer, a teacher consent form, and a survey that includes questions on their educational background (e.g., specialized training, major, years of experiences working with children with disabilities), classroom information (e.g., number of children with disabilities), and their attitudes toward people with disabilities and inclusion. The survey also included questions about educational materials and curriculum that represented teachers' classroom practices. Parent packets contained a parent consent form and a survey including questions on demographic information and child's experience with people with disabilities. Parent and teacher questionnaires took approximately 20 minutes to be completed.

Table 1. Participants' demographic characteristics.

	Inclusion status					
	Total (*N* = 91)		No (*n* = 62)		Yes (*n* = 29)	
Variables	*N*	%	*n*	%	*n*	%
Child						
Boy	45	49.5	29	46.8	16	55.2
Age in months (*M*, *SD*)	55.0	7.1	55.4	6.9	54.2	7.5
Missing	1	1.1			1	3.4
Ethnicity						
European American	58	63.7	35	56.5	23	79.3
African American	9	9.9	9	14.5		
Latino	5	5.5	3	4.8	2	6.9
Asian American	10	11.0	8	12.9	2	6.9
Others	7	7.7	6	9.7	1	3.4
Missing	2	2.2	1	1.6	1	3.4
Teacher	(*N* = 26)		(*n* = 16)		(*n* = 10)	
Gender						
Female	24	92.3	15	93.8	9	90.0
Male	2	7.7	1	6.3	1	10.0
Ethnicity						
European American	10	38.5	5	31.3	5	50.0
African American	6	23.1	5	31.3	1	10.0
Latino	1	3.8	1	6.3		
Others	4	15.4	3	18.8	1	10.0
Missing	5	19.2	2	12.5	3	30.0
Education						
CDA	2	7.7	1	6.3	1	10.0
Associate	3	11.5	3	18.8	0	
BA/BS	11	42.3	7	43.8	4	40.0
Master's	10	38.5	5	31.3	5	50.0
Missing	0	-	0		0	
Major						
ECE	21	80.8	11	68.8	10	100.0
Missing	4	3.8	1	6.3		
BA with ECE major (Yes)	17	65.4	8	50.0	9	90.0
Missing	0	0	0	-	1	10.0
Specialized training (Yes)	15	57.7	7	43.8	8	80.0
Missing	0	-	0	-	-	-
Experience working with children with disabilities (Yes)	19	73.1	9	56.3	10	100.0
Missing	0	-	0	-	0	-
Years of experience (*SD*)	12.8	(8.8)	12.9	(8.2)	12.8	(10.1)
Missing	2	7.7	1	6.3	0	-

Note. CDA = Child Development Associate; BNBS = Bachelor's degree; ECE = Early childhood education major.

Once researchers obtained signed consent forms and completed questionnaires from parents and teachers, they visited those classrooms to interview children whose parents signed the consent form and completed the questionnaire. The semistructured interviews were conducted in a quiet room away from the child's classroom within the center building and lasted approximately 20 to 25 minutes. Nine researchers received a 2-hour training about how to ask questions of children and how to respond to children's answers. The researchers asked each child for a verbal assent before asking any questions, and all participating children agreed to talk with the researcher. They were also verbally notified that they could stop at any time during the interview if they did not feel comfortable talking with the researcher or about the topic being asked or discussed. Interviewers used props and drawings to make it easy for children to understand the questions and handwrote their responses in verbatim on response sheets without audio-or videotaping.

Constructs and measures

Teacher education, training, and experience

Teachers were asked to report their highest education level and the field of study in which they majored. We combined teacher education level and major variables to create one dichotomous variable that represented whether teachers held a BA degree with an ECE-related major (1 = BA degree with ECE major, 0 = no BA degree with ECE major) based on research about the importance of having a BA degree in the ECE area to provide high-quality care and education (Barnett, 2004; Bueno, Darling-Hammond, & Gonzales, 2010; Early et al., 2006). Seventeen teachers (65%) reported that they had a BA degree and majored in an ECE or ECSE-related field. They also reported the number of years during which they had worked with children with disabilities.

Teachers were also asked to list any education or training that they had attended, including workshops and conferences related to inclusion and/or disabilities. More than one half of the teachers (n = 15) reported that they had received specialized training either through workshops and conferences regarding working with children with disabilities or understanding different types of disabilities or as part of their coursework (e.g., autism spectrum disorders). Because teachers combined their pre-service (i.e., coursework) and in-service training in responding to these two questions, we created and used an overall composite variable of teacher specialized training (on ECSE and/or inclusion) by creating a categorical variable with two levels (1 = received specialized training, 0 = no specialized training).

Teachers' attitudes toward people with disabilities and inclusion

We used two measures to capture teachers' attitudes toward people with disabilities and inclusion: the Scale of Attitudes Toward Disabled Persons (SADP; Antonak, 1982) and Opinions Relative to Mainstreaming Scale (ORMS; Larrivee & Cook, 1979; 30 items). The SADP was used to measure teachers' attitudes toward persons with disabilities but was modified to reflect more recent terminology (e.g., *handicapped* and *mainstreaming* were replaced by *children with disabilities* and *inclusion* accordingly). We deleted five items that might elicit uncomfortable feelings from participants (e.g., "People who are disabled should be prevented from having children") based on suggestions from experts in the ECE and ECSE. This modified 19-item scale instrument asked to express their agreement with each statement on a 6-point continuum ranging from strongly disagree (-3) to strongly agree (+3). After negative items were reverse-coded, the score was recoded and averaged so they ranged from 1 to 6, where 6 represented the most positive attitudes toward people with disabilities. According to previous studies (e.g., Beattie, Anderson, & Antonak, 1997; Jeon & Peterson, 2003), the SADP has satisfactory psychometric characteristics, and their internal consistency coefficients ranged from .76 to .88.

The ORMS asked teachers to express their agreement with each statement (e.g., Children with disabilities can best be served in special, separate classrooms) on a 6-point continuum ranging from *strongly disagree* (-3) to *strongly agree* (+3). In this study, we modified a few words and expressions to reflect more recent terminology (e.g., *regular classroom*, *handicapped*, and *mainstreaming* were replaced by *general education classroom*). After negative items were reverse-coded, the score was recoded and averaged so they ranged from 1 to 6, where 6 represented the most positive attitudes toward inclusion. This decision was made based on previous studies using both of the scales (e.g., Beattie et al., 1997; Favazza & Odom, 1997; Jeon & Peterson, 2003; Monsen & Frederickson, 2004). The ORMS has satisfactory psychometric characteristics, and its internal consistency coefficients ranged from .87 to .92 (e.g., Antonak & Larrivee, 1995; Beattie et al., 1997; Jeon & Peterson, 2003).

With our sample, Pearson correlation coefficient of the total score of the modified SADP with the total score of the ORMS was .71 ($p < .001$), which was similar to the correlation coefficient between the 24-item SADP and the ORMS in other studies (e.g., Beattie et al., 1997; Jeon & Peterson, 2003). We calculated a composite score of the SADP and ORMS to represent teachers' overall attitudes toward people with disabilities and inclusion.

Teacher classroom practices related to inclusion

The Inventory of Disability Representations (IDR; Favazza, LaRoe, & Odorn, 1999) was used to investigate how teachers represent images of people with different ability levels in their classroom and how they set up the classroom environment. The measure included 15 items (31 including sub-items) that captured the availability of the images of children with disabilities in the environment, curriculum-related activities, the availability and accessibility of books and props related to persons with various disabilities, the use of sign language and/or Braille, and center-wide support. Specific focus was on whether people with disabilities are depicted in the visual environment (i.e., bulletin boards), in activity centers (i.e., books and dolls depicting children with disabilities), and through language or school programs. The possible total score was 31 by summing up all the item-level, dichotomous responses (1 = *yes*, 0 = *no*), and the average IDR score of the 26 classrooms represented as teacher practices was 13.88 ($SD = 7.90$; range = 1-31).

Children's experience with people with disabilities

Children's prior contacts with people with disabilities and classroom inclusion status were included as predictors of children's attitudes. Children's prior contacts with people with disabilities were collected using four items from the Primary Student Survey of Handicapped Persons (PSSHP; Esposito & Peach, 1983) (e.g., Do you have a friend with a disability?) and questions included in parent survey (e.g., Do you have a family member with a disability?). Data were corroborated from the two sources to calculate the possible number of instances where children may have been in contact with people with disabilities in their everyday lives. When the two sources (i.e., child vs. parent reports) provided conflicting information, we used parents' responses over children's (i.e., 4 out of 91 cases). The average was 2.03 ($SD = 1.34$, range = 0-6), and this means that, on average, the children encountered two people with disabilities on a somewhat regular basis. Finally, the current inclusion status of classrooms was also included. This variable was created using the data collected from teacher survey on the number of children with identified disabilities in the classroom. If no child with disabilities was present at the time of data collection, those classrooms were considered to be noninclusive classroom ($n = 16$) because teacher practices and child's attitudes may be influenced by the existence of children with disabilities in the classroom. Children's prior contact with people with disabilities and classroom inclusion status were used in the analysis to capture a more comprehensive picture of children's experience with people with disabilities. We did not combine the two variables because they were reported by different sources at different levels and because of the difference in their characteristics (i.e., the number of incidences vs. inclusion-noninclusion).

Children's attitudes toward people with disabilities

To measure children attitudes toward people with disabilities, two different measures were used. First, we modified the interview protocol of the PSSHP (Esposito & Peach, 1983) to collect information about children's understanding of and feelings about people with disabilities. Out of those 11 items included in the interview protocol, four items asked about children's general understanding of disabilities (e.g., Tell me everything you know about a person with a disability). One item asked about children's feelings regarding people with disabilities and justifications for their response (e.g., Are you afraid of people with disabilities? Why?). We did not use two remaining items (i.e., Have you seen children tease a child with a disability? Have you teased a child with a disability?) because they represent children's experience rather than their attitudes and were, thus, irrelevant to our research questions. The other four items were about children's prior contact with people with disabilities. We changed the wording so that preschool-age children could understand and respond to the questions easily. For example, we revised handicapped persons to people with disabilities. In addition, we added a story component to simple, choice questions asking about children's understanding of disabilities (i.e., similar method used by Harter & Pike, 1984). A detailed description of this measure is shown in Table 2.

Second, to add components related to children's behavioral intentions or willingness to make inclusion decisions, we used acceptance vignettes with matching drawings. Researchers used two sets of four vignettes with drawings and paper dolls to ask children about whether they would choose to include a child with a disability in a play activity: one set with a hypothetical child with a motor disability (child in a wheelchair) and the other set with a hypothetical child with a visual impairment (child who cannot see). Two paper dolls were used to represent each hypothetical child with a disability. Previous studies with young children have focused on physical disabilities and sensory impairment (e.g., Diamond, Hong, & Tu, 2008) because these types of disabilities are easier to recognize than cognitive and learning disabilities. Even young children seem to have some awareness about sensory and motor disabilities-understanding that some people cannot see, hear, or walk (Conant & Budoff, 1983).

Two of the activities included in the vignettes were activities in which children with a disability may have difficulties participating (e.g., putting puzzle pieces together for a child with a visual impairment). The other two activities were those in which children with a disability may not have any difficulty participating (e.g., singing a song with a child with a visual impairment, putting puzzle pieces together with a child in a wheelchair). Trained research assistants described the situation and asked whether the child would include the hypothetical child with a disability in their play (1 = *yes*, 0 = *no*). The researchers also asked about the child's justifications for his or her decisions (see example questions in Table 2).

We were interested in the overall attitudes of typically developing preschoolers toward peers with disabilities (i.e., combination of understanding, feelings, and behavioral intentions) in terms of their relation to teacher training, attitudes, and practices. Thus, we summed up the scores from these two measures to obtain an overall attitudes score (M = 9.23, SD = 3.57, range = 0 - 16 out of 19). The detailed code description is included in Table 2.

Results

Preliminary analyses

Descriptive statistics of the study variables by the inclusive status of classroom are shown in Table 3. Children who were enrolled in inclusive classrooms had prior contact with more people with disabilities than those enrolled in noninclusive classrooms, $t(89) = 2.24$, $P = .03$, $d = .51$. Children's attitudes toward peers with disabilities did not significantly differ by the inclusion status of the classrooms. Likewise, scores on teachers' attitudes toward people with disabilities and inclusion and classroom practices (IDR) in inclusive classrooms were not statistically different from those of teachers in noninclusive classrooms.

Table 2. Children's attitudes interview items and codes for qualitative responses.

Interview items	Code	Label/description	Examples
A. Tell me everything you know about disabilities (1 item; 0 to 2)	0	I don't know; no response; misunderstanding	Does it mean playing golf? My daddy knows the circus.
	1	Some misunderstanding but acceptable	I have a book about someone who fell off the tree. My dad and sister also wear glasses.
	2	Basic level of understanding	She can't walk, she can't see. I know it cannot heal sometimes.
B. Children's misunderstanding about disabilities (2 items; 0 to 2)	0	Misunderstanding	(Disabilities are contagious)
	1	Understanding	(Disabilities are not contagious)
B-1. Children's justifications about their responses (2 items; 0 to 2)	0	I don't know; no response; misunderstanding; irrelevant response	I won't be able to see or walk if I play with a child who cannot see or walk. She is a nice girl; she has blonde hair.
	1	Basic level of understanding–disabilities are not contagious	I will still be able to walk or see. Children who cannot see or walk are just born like that. It just can't happen.
C. Are people with disabilities a lot like you or a lot different from you? (1 item; 0 or 1)	0	A lot different from me	
	1	A lot like me	
C-1. Why? (1 item; 0 or 1)	0	I don't know; no response; irrelevant responses; or irrelevant physical characteristics	Because one time I got flu, we had the same soup, and I catch a cold. My hair is dark and I have a ponytail.
	1	Relevant physical characteristics or beyond physical characteristics	They are blind or in a wheelchair. Kind of different but the same person.
D. Are you afraid of people with disabilities? (1 item; 0 or 1)	0	Yes	
	1	No	
D-1. Why? (1 item; 0 to 2)	0	I don't know; no response; irrelevant response	I am brave. I am not afraid of anything.
	1	Empathy-driven responses or just a lack of experience	Because I don't want them to feel hurt. I want to like them.
	2	Understand that people with disabilities are not scary	They are not monsters or tornadoes. They are just persons.
E. Vignettes with matching drawings (8 items; 0 to 8)	0	No, she or he cannot play	
	1	Yes, she or he can play	

Note. Total score possible range = 0 to 19.

Table 3. Descriptive statistics of main variables.

	Total					Inclusion status									
	(*N* = 91)					Noninclusive (*n* = 61)					Inclusive (*n* = 29)				
Variable	*N*	*M*	*SD*	Min	Max	*n*	*M*	*SD*	Min	Max	*n*	*M*	*SD*	Min	Max
Child															
Attitudes	91	9.23	3.57	0	16	62	9.53	3.52	2	16	29	8.59	3.65	0	16
Contact	91	2.03	1.34	0	6	62	1.82*	1.21	0	6	29	2.48*	1.50	0	6
Teacher (*N* = 26)															
Attitudes	25	4.39	0.64	3.09	5.56	16	4.27	0.70	3.09	5.56	9	4.60	0.49	3.74	5.28
Practices (IDR)	26	13.88	7.90	1.00	31.00	16	13.13	5.97	4.00	23.00	10	15.10	10.55	1.00	31.00

Note. IDR = Inventory of Disability Representation.
*$p < .05$.

The child-level data were nested within classrooms and sites. Multilevel linear modeling was used to determine whether the child-level data were significantly clustered in site or classroom level compared to the general linear modeling (multiple regression modeling). The intraclass correlations of children's attitudes were .017 at the site level (average cluster size = 30) and .046 at the classroom level (average cluster size = 3.3). Design effects were 1.49 at the site level and 1.11 at the classroom level, which indicates that the site and the classroom cluster effects are minimum ($D_{eff} < 2$). Even though the current sample size was somewhat small, multiple regression modeling was employed to examine an association between children's attitudes toward peers with disabilities and each of multiple factors controlling for the other factors.

Prior to multiple regression analyses, bivariate correlations among teachers' variables, children's variables, and inclusion status were examined. The critical values of Pearson product-moment correlation coefficients were examined to determine whether correlation coefficients in the current study occurred by chance. In the current sample, the most degrees of freedom of correlation coefficients were 89, ranging from 83 to 89 depending on missing values. The critical values of correlation coefficients with 83 and 89 degrees of freedom were .2133 and .2061, respectively, with an alpha level of .05 (two-tailed). Therefore, all statistically significant coefficients in Table 4 could not be assumed to occur by chance. Correlational analyses (see Table 4) revealed that teachers' BA degree with ECE major (phi = .42, $p < .001$), specialized training (phi = .40, $p < .001$), years of experience working with children with disabilities ($r = .25$, $p < .05$), and attitudes toward people with disabilities and inclusion ($r = .34$, $p < .01$) are positively correlated with classroom inclusion status. The scores of children's attitudes toward peers with disabilities were positively related to their age ($r = .24$, $p < .05$) and prior contact with people with disabilities ($r = .21$, $p < .05$). None of the teacher factors was correlated with children's attitudes toward peers with disabilities.

Associations among teacher training and experiences, attitudes, and practices

Pearson product-moment and point biserial correlation coefficients and phi coefficients among teachers' specialized training, BA with ECE major, years of experience working with children with disabilities, attitudes toward people with disabilities and inclusion, and classroom practices (IDR) were examined for the 26 participating teachers. Correlational analyses revealed that teachers' BA degree with ECE major was positively associated with their attitudes toward people with disabilities and inclusion ($r = .31$, $p < .01$) and classroom practices related to inclusion ($r = .34$, $p < .001$). Teachers' specialized training on inclusion was positively associated with BA with ECE major ($r = .31$, $p = .003$) and classroom practices ($r = .36$, $p < .001$) but not with their attitudes toward people with disabilities and inclusion. Their years of experience working in ECE settings were negatively related to BA with ECE major ($r = -.37$, $p < .001$) but positively to their attitudes toward people with disabilities and inclusion ($r = .31$, $p = .003$) and their classroom practices ($r = .34$, $p < .001$). Finally, teachers' attitudes were positively related to their classroom practices ($r = .29$, $p = .006$).

Table 4. Bivariate correlations among the study variables ($N = 91$).

Variable	1	2	3	4	5	6	7	8	9	10
1. Child age										
2. Child gender (boys)	.14[a]									
3. Child prior contact with people with disabilities	.03	-.01[a]								
4. Classroom inclusion status	-.08[a]	.08[b]	.23[a]*							
5. Child attitudes toward peers with disabilities	.24*	.07[a]	.21*	-.12[a]						
6. Teacher specialized training (yes/no)	-.11[a]	.03[b]	.27[a]	-.40***[b]	.04[a]					
7. Teacher BA with ECE major	.14[a]	.10[b]	.14[a]	.42[b]***	-.05[a]	.31[b]**				
8. Teacher years of experience	-.04	-.05[a]	.11	.25*	-.03	.01[a]	-.37[a]***			
9. Teacher attitudes toward people with disabilities and inclusion	.19+	-.07[a]	.17	.34**[a]	.10	.20[a]+	.31[a]**	.26*		
10. Teacher classroom practices (IDR)	-.13	.06[a]	.42***	.21+[a]	.04	.36[a]***	.34[a]***	.08	.29**	

Note. BA/BS = Bachelor's degree; ECE = Early Childhood Education; IDR = Inventory of Disability Representation. Pearson productmoment correlation coefficients were reported for continuous variables.
[a]Point biserial correlation coefficients. [b]Phi coefficients. / +$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

Children's attitudes predicted by child and teacher factors

We employed a hierarchical multiple regression analysis to predict children's attitudes toward peers with disabilities using children's experience with people with disabilities, teachers' education, specialized training, and experience, their attitudes toward people with disabilities and inclusion and their classroom practices related to inclusion, as well as child's gender and age (see Table 5). In the first step, children's age and gender were submitted to the regression model of children's attitudes toward peers with disabilities (Model 1). In the second step, children's prior experience of people with disabilities and their classroom experience with peers with disabilities measured by classrooms' inclusion status were added in the regression model (Model 2). Finally, teacher variables (teachers' specialized training for inclusion, BA degree with major in ECE, and years of teaching experience, as well as their attitudes toward people with disabilities and inclusion and classroom practices) were submitted to the regression model (Model 3). Models 1, 2, and 3 explained 10%, 18%, and 20% of the total variance in children's attitudes toward peers with disabilities, respectively. Overall, Model 2 explained significantly more variance in children's attitudes than Model 1, but Model 3 was not improved from Model 2 ($F = 1.90$, $p = .065$, Δ adjusted $R^2 = -.03$). Therefore, we identified Model 2 as the best representation of our data. In Model 2, children's age, prior experience with people with disabilities, and classroom inclusion status were predictors of their attitudes toward peers with disabilities. Children's age and prior experience with people with disabilities were positively related to their attitudes toward peers with disabilities, but their inclusion status was negatively related to their attitudes toward peers with disabilities. Any teacher factors (teachers' specialized training on inclusion, BA with ECE major, years of experience, attitudes toward people with disabilities and inclusion, and classroom practices) did not predict children's attitudes toward peers with disabilities after controlling for child's variables.

Discussion

The current study examined associations among teachers' education and specialized training, their attitudes toward disabilities and inclusion, and classroom practices in relation to inclusion and children's attitudes toward peers with disabilities. The study contributes to advancing our understanding of the role of teacher as an indicator of readiness for inclusion by including multiple teacher variables (e.g., training, attitudes, and practices related to inclusion) and examining associations among them. We also investigated typically developing children's attitudes toward peers with disabilities, which is often neglected in inclusion research, as an important predicted variable, and examined individual child and teacher factors related to their attitudes to make implications for future research and practices for successful inclusion.

Table 5. Predictors of children's attitudes toward peers with disabilities.

	Model 1	Model 2	Model 3
Predictor	β	β	*b*
Child age (months)	.26*	.24*	.23*
Child gender	.77	.08	.11
Child prior experience with people with disabilities		.24*	.25*
Classroom inclusion status		-.22*	-.22
Teacher specialized training			.12
Teacher BA with ECE major			-.13
Teacher years of experience			-.09
Teacher attitudes toward people with disabilities and inclusion			.11
Teacher classroom practices (IDR)			-.08
Adjusted R^2	.06	.12	.09
Δ Adjusted R^2		.06	-.03
F	3.46*	3.74**	1.90+

Note. BNBS = Bachelor's degree; ECE = Early Childhood Education; IDR = Inventory of Disability Representation.
+$p < .10$. *$p < .05$. **$p < .01$.

Associations among teacher training and experiences, teachers' attitudes, and classroom practices related to inclusion

Our hypothesis that there would be associations among teachers' education, training, experiences, and their attitudes and/or practices regarding inclusion was partially supported. Teachers' specialized training and BA degree in ECE were positively associated with their inclusive practices in the classroom. In addition, teachers' BA degree in ECE and experiences working with children with disabilities were positively associated with their attitudes toward disabilities and inclusion. Due to the correlational nature of the study design, these results can be interpreted in two ways. First, with more ECE-related coursework and specialized training on inclusion and disabilities, teachers might have acquired better knowledge and skills to create more enriched learning environments for all children and represent different abilities and needs in the classroom. In addition, teachers appeared to benefit from general ECE-related education and experiences with children with disabilities in developing more positive attitudes toward disabilities and inclusion. Alternatively, teachers who had a classroom with more representation of different levels of abilities might have received more teacher education in the field of ECE and specialized training on inclusion, as noted in Mulvihill et al. (2002). In addition, teachers who already had positive attitudes toward disabilities and inclusion might have been more likely to seek out opportunities to receive a degree in ECE and work with children who had disabilities.

Different from previous research (Buell et al., 1999; Gartin et al., 2001; Gemmell-Crosby & Hanzlik, 1994; Hsien et al., 2009; Mulvihill et al., 2002), we did not find a significant association between teachers' attitudes toward people with disabilities and inclusion and their participation in specialized training opportunities for working with children with disabilities. One possible explanation is that, overall, teachers in the sample exhibited positive attitudes toward inclusion with small variations (M = 4.39 out of 6, SD = .64). Another explanation may be that the specialized training they received may have been sufficient for teachers to acquire the skills to adapt the environment but may not be sufficient to promote their positive attitudes toward disabilities and inclusion. While examining the specialized training component, we recognized a gap in the ways that researchers measure the amount of specialized training teachers received. In the current study, we used a dichotomous variable that combined different forms of specialized training including coursework related to disabilities, conference workshops, and trainings provided by their employers. However, it is possible that attending a conference may not be a comparable experience to a coursework of several hours or semesters in terms of potential impact. Further investigations on different types and quality of specialized training should be followed to examine the role of the training in their practices in a more nuanced way.

Despite the importance of a BA degree in ECE, specialized training, and experiences working with children with different levels of abilities, traditional early childhood teacher education programs have not prepared teachers to become effective in meeting individual children's unique needs, including those of children with disabilities (Chang et al., 2005). Teachers often do not perceive that they received sufficient training on working with children with disabilities (Buysse, Wesley, Keyes, & Bailey, 1996; Wei et al., 2010). Providing pre-service teachers with the opportunity to earn a unified endorsement of ECE and ECSE seems like an important endeavor to address the need for improving teachers' attitudes and practices related to inclusion. It is important for pre-service teachers to have sufficient coursework and field experiences to be well equipped to work effectively with children, with and without disabilities.

Consistent with the theory of planned behavior (Ajzen, 1988; Fishbein & Ajzen, 1975) and previous research (e.g., Brownell & Pajares, 1999; Clark & Peterson, 1986), the association between teachers' attitudes and practices regarding inclusion was significant in the current study. The positive association between these two teacher factors might reflect that teachers' attitudes about disabilities and inclusion may be translated into their classroom practices, or their practices related to inclusion may lead to more positive attitudes toward people with disabilities and inclusion. However, due to the correlational nature of this relationship, we are not certain whether the associations are reciprocal (Clark & Peterson, 1986) or one leads to the other (Brownell & Pajares, 1999). We recommend further

investigation of the relations using at least a quasi-experimental design with a larger sample to better understand whether teachers' attitudes predict their classroom practices or vice versa.

Finally, the extent to which disabilities are represented in the classroom has not changed much over the years, though more attention has been paid recently to inclusive practices and the unified endorsement in teacher education programs. Nikolaraizi and her colleagues (2005) observed very similar results to our finding: on average, classrooms had the medium level representation of disabilities. The recent endeavor in improving teacher preparation and training may have been embodied in teachers' attitudes but not have been fully reflected in their classroom practices. It also might reflect that teachers do not place a high emphasis on creating an explicitly inclusive environment and that there may not be enough resources and facilities available to implement successful inclusion. Many of the participating classrooms had no children with disabilities at the time of our data collection, but it is important to prepare the classroom environment to represent various ability levels that children exhibit and accommodate the unique needs of the children at any given time. More general education related to ECE, more specialized teacher training (i.e., pre-service and inservice training on working with children with different levels of abilities and types of disabilities) and support, and more opportunities for teachers to work with children who have disabilities would be critical to improve classroom readiness for successful inclusion.

Child and teacher factors associated with children's attitudes toward disabilities

We also examined the associations between the child's individual factors (e.g., age, children's experiences with people with disabilities) and his or her attitudes toward peers with disabilities. Although there are some overlaps between children's exposure to people with disabilities and their placement in the inclusive classroom (i.e., peers with disabilities), they were reported by different sources at different levels and were only moderately correlated with each other. We assumed that children might not have perceived that they had met someone with a disability when the disability was not easily noticeable. Thus, we considered their perceived contact with people with disabilities (e.g., family members, friends) and their placement in the inclusive classroom separately as their experiences with people with disabilities.

As a result, we found that there was a positive association between children's contact with people with disabilities in various contexts and their attitudes toward peers with disabilities. Children who have direct contact with more people with disabilities in their daily lives and have a close friend with disabilities may be more likely to have positive attitudes toward peers with disabilities because they may have a better understanding of and more sensitivity to the peers with disabilities through the frequent contact and interactions. This finding is consistent with those from previous research (Favazza & Odorn, 1997; McDougall et al., 2004; Vignes et al., 2009) in that prior contact with people with disabilities helped young children develop a better understanding of and/or more positive attitudes toward peers with disabilities. The theory of planned behavior also suggests that an individual's attitudes and beliefs about a certain issue or experience influence his or her behavior and practice by changing their behavioral intentions (Ajzen, 1988). In that sense, children's attitudes toward peers with disabilities may have encouraged them to have more contact with people with disabilities. However, it also seems possible that frequent enough experiences, such as contact with people with disabilities, may affect individuals' attitudes, which is the opposite of the direction suggested by the theory of planned behavior.

However, it is puzzling that there is a negative association between children's placement in the inclusive classroom and their attitudes toward peers with disabilities. It may be possible that children's perceived contact with people with disabilities in various contexts is independent from their placement in the inclusive classroom. The majority of inclusive classrooms in the sample (total = 10 inclusive classroom) had only one child with an identified disability, and that disability was not severe and so may not have been easily noticeable to young children (e.g., mild developmental delay).

Our further analysis showed that children placed in the inclusive classroom often did not realize that there was a peer or peers with disabilities in the classroom, and thus responded that they did not know any friends or classmates with disabilities. This may be due to the unnoticeable characteristics of their peers' disabilities or children's limited knowledge or understanding of certain types of disabilities (e.g., mild learning disabilities). Another explanation may include that children who are typically developing in inclusive classrooms may have actually held somewhat negative attitudes toward peers with disabilities because they may know better about possible limitations or interruptions they could experience in playing with those with disabilities. It still warrants further investigations, but this finding sheds some light on some researchers' arguments (e.g., Cooper, 2003; Diamond & Innes, 2001; Favazza & Odorn, 1997) that, without more explicit and intentional interventions, placing children with and without disabilities in the same classroom would not produce positive outcomes in children with or without disabilities as planned or intended.

Our hypothesis that teachers' education, attitudes, and/or practices regarding inclusion would predict children's positive attitudes toward peers with disabilities was not supported. This finding is different from the majority of previous literature that found links among them (e.g., Cooper, 2003; Diamond & Innes, 2001; Favazza & Odorn, 1997; Guralnick, 1999; Hurst et al., 2012; Roberts & Lindsell, 1997; Roberts & Zubrick, 1992; Wilson et al., 2007). This result is also inconsistent with the idea presented by the theory of planned behavior that the attitudes the teachers (i.e., children's subjective norm or model) had about people with disabilities and inclusion were not transmitted into the attitudes children expressed toward others (Ajzen, 1988; Fishbein & Ajzen, 1975). One possible explanation about this lack of significant associations between teachers' and children's attitudes toward disabilities and inclusion is that teachers' attitudes toward inclusion and people with disabilities may not have been sufficiently reflected in their everyday interactions so as to affect children's attitudes toward disabilities. It also could be the case that children with disabilities in the inclusive classroom may not have been particularly considered to need more assistance or adaptation and that therefore the teachers did not overtly display inclusive attitudes and behaviors. A discrepancy between the previous studies (Roberts & Lindsell, 1997; Roberts & Zubrick, 1992) and the current study may come from differences in participating children's characteristics (e.g., age) and the data collection methods used. For example, Roberts and Lindsell (1997) studied older children (e.g., 4th-and 5th-graders) than those in the current study. In addition, because we used different data collection methods to examine teachers' (i.e., questionnaire) and children's (i.e., interview) attitudes, it might be harder for us to find an association between teachers' and children's attitudes than researchers (e.g., Roberts & Lindsell, 1997) who used one method (i.e., a similar set of questionnaire) for teachers and children.

Another possible speculation about this insignificant association between teachers' practices related to inclusion and children's attitudes toward peers with disabilities is that, although the quality of the participating classrooms in terms of disability representations (i.e., assessed using the IDR) varied across classrooms, the average quality was presented at a medium level (i.e., 13.3 out of 31 possible points). This may indicate that the observed degree to which different ability levels were represented in the classroom may not have been sufficient to make a difference in children's attitudes toward peers with disabilities. In addition, teachers' practices captured with the IDR inform us about how the classroom was set up and the kinds of experiences provided in the classroom regarding people with different levels of abilities (i.e., more structural aspects); however, that does not tell us much about what teachers were actually doing in the classroom to promote inclusion and acceptance among children. This may explain why our findings differ from previous studies that found a significant association between teachers' classroom practices promoting inclusion and children's attitudes (e.g., Cooper, 2003; Favazza & Odorn, 1997). Different from the current study, teachers who implemented a specific intervention program designed to promote children's understanding of and positive attitudes toward peers with disabilities produced positive outcomes. We could infer from those studies that teachers need to be more intentional in implementing inclusive practices more explicitly to promote children's positive attitudes toward inclusion.

The insignificant associations between teacher factors and children's attitudes toward disabilities may not necessarily reflect the unimportance of teacher support in the development of children's positive attitudes toward disabilities but do address an important issue that calls for an action. Children will be more likely to be influenced by teachers' attitudes, for example, when they have opportunities to directly observe adults' interactions with people with disabilities or when they discuss people with disabilities explicitly with adults (e.g., Cooper, 2003; Favazza & Odorn, 1997). The insignificant link between teachers' and children's attitudes in the preschool period may reflect lack of opportunities for preschool-age children to learn about people with different levels of abilities. Thus, to make a significant and positive difference in children's attitudes toward disabilities, teachers may need to be more intentional in providing opportunities for children to interact with people with disabilities, modeling positive attitudes and behaviors toward people with disabilities, and discussing disabilities more explicitly and more accurately in the classroom.

Future directions and implications for research

There are several limitations in the current study. First, the sample size, especially at the teacher/classroom level, is small. Within the small sample, children were disproportionately distributed in inclusive and noninclusive classrooms. Although we attempted to balance out the number of children in inclusive and noninclusive classrooms, we had more children in noninclusive classrooms than in inclusive classrooms. Having a balance in the number of children in inclusive and noninclusive classrooms will enable us to adequately compare their experiences in relation to their attitudes toward peers with disabilities.

Second, we examined teachers and children's attitudes and did not observe their actual behaviors in the classroom (i.e., children's behavior toward peers with disabilities, teachers' actual interactions with children), though teachers' actual behaviors may be more likely to influence children's attitudes than the environmental set-up and the activities available to them. More information about the teaching strategies that teachers actually use in their classrooms would be necessary to examine the more elaborated link of classroom practices to children's positive attitudes toward their peers with disabilities.

In addition, we acknowledged a limitation with the measures we used to capture teachers' attitudes toward disabilities and inclusion and modified several items (i.e., SADP, Antonak, 1982; ORMS, Larrivee & Cook, 1979). Although these measures are still widely utilized, the outdated items may have prevented us from properly capturing current teachers' attitudes toward disabilities and inclusion.

Finally, the measures used to examine teachers' specialized training need to be further refined to reflect their experience working with children with disabilities in a more systematic manner. As more blended ECE teacher training programs become available at higher education institutions that include coursework and practicum experiences with children with and without disabilities, research needs to reflect the recent trend in ECE teacher education and training programs more accurately. One way to improve the accuracy of the data would be to collect objective information about the courses and the conference workshops and trainings in which teachers participated through the actual materials used in the training rather than relying solely on teacher report.

Implications for practice and policy

The findings of the current study suggest that providing frequent personal interactions with people with disabilities is important for promoting children's positive attitudes toward peers with disabilities. Teachers' BA degree in the field of ECE, specialized training related to inclusion, and experiences working with children are important factors in teacher's attitudes and classroom practices related to disability and inclusion (cf. no link between specialized training and teachers' attitudes); however, their attitudes and practices are not linked to children's attitudes toward people with dis-

abilities, which provides an implication for the content of teacher training programs. The content of teacher training should be developed and implemented more explicitly and intentionally to enhance teachers' understanding of disabilities and recommended practice of curriculum modification and promote children's understanding and acceptance of disabilities and peers with disabilities (Hadadian & Hargrove, 2001). Based on the findings, it is appropriate to make some policy recommendations. Teachers should be prepared to encourage children to learn about and interact with people with disabilities, and the acceptance should be explicitly represented in classroom environment and curriculum and instruction. Efforts should be made to require a common platform of knowledge, skills, and dispositions to prepare all teachers through teacher training and state certification programs. In addition, states can make sure to provide sufficient funding and resources to schools and teacher education programs so that teacher training includes continuous provision of adequate resources and support to enhance their attitudes and classroom practices related to inclusion.

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