Involvement of Children with Disabilities in Peer Play at Inclusive Preschools: Three Studies with a Single Case Research Design

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ABSTRACT:

Children with disabilities are not always as involved in peer play in inclusive preschools as their peers without disabilities. Children with disabilities can find themselves alone and have fewer friends than their peers. This is not optimal since involvement in play, helps children with disabilities gain a sense of belonging among peers and provides opportunities for learning and development. To maximise the benefits to children with disabilities of being at inclusive preschools, efforts should be made to increase their involvement in play. In this article, three studies with a single case research design conducted in Sweden are presented. In the studies, the aim is to investigate whether the involvement of children with disabilities in play at inclusive preschools changes (i.e., increases) when two types of support (i.e., extra adult support and child preferences) are combined and incorporated into play. Nine children with disabilities, from the same number of preschools, were enrolled. The results are positive. For all children, a positive change in terms of involvement takes place when extra adult support and child preferences are incorporated into play. The researcher concludes by discussing the results and limitations of the three studies, as well as by providing suggestions for further studies.

Keywords: Disabilities; Early Childhood Education; Peer Play; Social Inclusion.

INTRODUCTION

In this article, three studies using single case research design (SCRD) conducted within the context of the Swedish preschool are presented. The three studies focus on children with disabilities, peer play and preschool inclusion. The studies are conducted at a time when there is an emphasis on peer play at inclusive preschools and the value of inclusion is recognized by, for example, UNESCO (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2020) and the United Nations ([UN], 2006) Convention on the Rights of Persons with Disabilities and inclusion is one of several sustainable development goals to be reached by 2030 (UN, 2015).

Involvement

Involvement in preschool activities, such as play, is considered important for children with disabilities (Farran, 2014; Gladh et al., 2022; Hebbeler & Spiker, 2016; Long, 2019; Odom et al., 2004; Sandall et al., 2019) and is an indicator of quality preschool inclusion (Soukakou, 2016; Vlachou & Fyssa, 2016). Involvement in play helps children with disabilities gain a sense of belonging among peers and provides opportunities for learning and development. So, play gives children joy, and it contributes to their learning and development. Involvement is a concept that refers to attendance and a genuine interest in an activity and ranges between low and high (Farran, 2014).

The context of the Swedish preschool and play

In Sweden, early childhood education and care are jointly termed preschool (Education Act, 2010:800). Preschool is not compulsory, but most children (95%) aged 3-5 years, both those with and those without disabilities, attend preschool for several years before they start compulsory school. The Swedish preschool is regulated by an Education Act (2010:800) and a national preschool curriculum (Swedish National Agency for Education, [SNAE], 2018) that states the fundamental values of the Swedish preschool (e.g., respect for the inviolability of human life, individual freedom and integrity, the equal value of all people, equality between girls and boys, and solidarity) and the duties of preschool staff members. These duties are to provide an education that includes instruction and care as well as conditions for indoor/outdoor play (SNAE, 2018). A preschool in Sweden can have a pedagogical profile such as Montessori or outdoor education, and its staff members should pay attention to children with disabilities and provide them with extra support when they need it (SNAE, 2018). They often have access to a special needs educator for consultation and coaching. In Sweden, the number of segregated preschool programs is very few and preschool inclusion is the norm (Lundqvist et al., 2015; SNAE, 2018). As numerous researchers (Allodi & Siljehag, 2023; Fedewa et al., 2023; Ladd, 2005; Pinto et al., 2018) and conventions agree (UN, 1998; UN, 2006), the Swedish preschool emphasizes the importance of play for all children, as the Swedish national curriculum (SNAE, 2018) states: "Play is the foundation of development, learning and well-being" (p. 8).

LITERATURE REVIEW

Previous studies have shown that children with disabilities are not as involved in preschool activities at inclusive preschools as their peers without disabilities (Chen et al., 2019; Gladh et al., 2022; Harper & McCluskey, 2003; Hestenes & Carroll, 2000; Kemp et al., 2013; Odom et al., 2004). One example of a preschool activity is play. As presented in this paper, children with disabilities often find themselves alone, experience peer rejection, are involved in small social networks, lack social skills, interact less with peers and have fewer friends than children without disabilities: Chen et al. (2019) investigated the social networks of children with and without disabilities in inclusive classrooms as well as the relationship between social networks and disability status of children (with disabilities and without disabilities). They found that children with disabilities were involved in smaller social networks than children without disabilities, that children with and without disabilities did not differ when it came to conflicts with peers in social networks, and that children in the same social network often shared the same disability status. Gladh et al. (2022) investigated a peer-based intervention and instruction, Play Time/Social Time (PT/ST), for children with autism spectrum disorders and language disorders in inclusive preschools. The results were positive. The PT/ST helped children with special educational needs to engage in play with peers (without special educational needs) and to practice social skills. Attractive toys and play materials facilitated and enhanced play between peers and so did instructions and encouragement from preschool staff members. Harper and McCluskey (2003) investigated teacher-child interactions as well as child-child interactions in inclusive preschools. The conclusion was that children with disabilities initiated fewer peer interactions than children

without disabilities and that teacher-child interaction was more frequent for children with disabilities than for children without disabilities. They also concluded that teachers tended to initiate teacher-child interaction with children who were not involved in a preschool activity or who were alone. Moreover, they concluded that children after teacher-child interaction tended to experience yet another teacher-child interaction. Hestenes and Carroll (2000) investigated the play interactions of children with and without disabilities in inclusive preschool classrooms and teacher presence in these interactions. They showed that children without disabilities were involved in more cooperative play interactions than children with disabilities and that children with disabilities were involved in more solitary play and repetitive behaviors than children without disabilities. Further, they showed that children with and without disabilities enjoyed the same types of play activities and that play interactions including children with disabilities were predicted by teacher presence. Kemp et al. (2013) examined the effect of activity type (i.e., playtime, mealtime, and teacher-led group activity) on the involvement and interaction of young children with a range of disabilities in inclusive childcare settings. An interesting aspect of the results related to children with an autism spectrum disorder diagnosis. When compared with children with other disabilities, they were less involved during play; they also interacted less with peers. Odom et al. (2004) conducted a review of research on the topic of preschool inclusion. One conclusion was that children with disabilities "are not as socially integrated as their typically developing peers" at inclusive preschools and that "positive developmental and behavioral outcomes occur for children with and without disabilities" in inclusive preschools (Odom, 2004, p. 17). This means that preschool inclusion can be beneficial for all children even if social integration of children with disabilities is lower than that of their counterparts.

To maximize the benefits for children with disabilities in inclusive preschools, efforts should be made to increase their involvement in activities – for example, in (different types of) play. One important effort is the provision of *extra adult support* (Allodi & Siljehag, 2023; Betz et al., 2008; Brodzeller et al., 2018; Hestenes & Caroll, 2000; Krone &Yu, 2019; Lundqvist et al., 2015; Sandall et al., 2019; Soukakou, 2016). Preschool staff members who provide extra adult support to a child with a disability during a preschool activity, for example play, make various efforts to help the child to become involved and continue in an activity. For example, they can be present, model a way to play, join a child's game, show their interest, provide encouragement, and use praise. They can also support children with disabilities by using materials and equipment, facilitating transitions between activities, pairing children in play areas, providing play ideas, and creating joint activity schedules for children with and without disabilities. Concepts related to extra adult support are adult assistance (Brodzeller et al., 2018), integrated interpersonal support (Lundqvist et al., 2015), additional help and attention from adults (Sandall et al., 2019), and help or guidance from someone else in the zone of proximal development (ZPD, Vygotsky, 1978). The ZPD concept is part of a sociocultural learning theory and refers to what a child can do and learn with adequate help or guidance from others – for example, a preschool staff member or a more able peer. The zone is beyond what a child can do and learn independently, and before what a child can do and learn yet, even with help or guidance from others. Something may be too difficult or frustrating even with help or guidance. According to Erwin and Guintini (2000), the task of balancing a child's need for extra adult support and the need for autonomy is complicated. It can also be related to a dilemma. On the one hand, extra adult support is needed, and on the other hand children who interact with a teacher are less likely thereafter to initiate peer interaction and are more likely to initiate another teacher-child interaction (Harper & McCluskey, 2003). Another important effort is the provision of *child preferences*. Child preferences can facilitate and enhance children's involvement in preschool activities, such as (different types of) play, in inclusive preschools (Dietrich, 2005; Fedewa et al., 2023; Gladh et al., 2022; Lundqvist et al., 2015; Sandall et al., 2019). Preschool staff members who provide child preferences to a child with a disability try to help the child become involved and continue in a play activity. They can initiate play that a child likes, incorporate the favorite color, motor action, item/material, topic and person of the child into play, and pair children with similar interests in play areas. In an overview of evidence-based strategies to increase peer play of children with and without autism, Fedewa et al. (2023) wrote: "Incorporating preferred interest in peer play activity may increase motivation and sustain play" (p. 3). Examples of related concepts to child preferences are the likes and interests of children (Sandall et al., 2019), highly preferred items and interests (Fedewa, et al., 2023) and circumscribed interests (Koegel et al., 2012). For preschool children with severe disabilities and low involvement in play with peers, the combination of these types of support has great potential to create a positive change.

Therefore, the three studies aim to investigate whether the involvement of children with severe disabilities and low involvement in play with peers at inclusive preschools changes (i.e., increases) when both extra adult support and child preferences are incorporated into play. Given the respective values of extra adult support and child preferences, the combination of these types of support has great potential to create a positive change (i.e., a high increase in involvement). The question posed is the following: Is there a change (an increase or decrease) in the involvement of the participating children when extra adult support *and* child preferences are incorporated into play with peers at inclusive preschools? Thus, a functional relation is investigated. The studies provide increased knowledge about preschool inclusion and suggest a possible way, for preschool staff members, to, easily and rapidly, address the issue of low involvement of children with severe disabilities in peer play at inclusive preschools. The way reflects a strength-based approach to preschool inclusion, rather than a deficit or remedial-based approach, in which the sustainable development of inclusive preschools is a key objective.

METHODS

In the three studies, SCRD[1] was utilized. SCRD allows for the examination of the relationship between researcher-manipulated independent variables (i.e., extra adult support and child preferences) and dependent variables (i.e., children's involvement) (Ledford et al., 2019). The design, for example, can reveal whether a change occurs when an intervention is implemented and whether an intervention seems effective (Gast et al., 2018; Ledford et al., 2019). In this study, an intervention refers to planned attempts designed to produce a desired change and relates to a child's zone of proximal development.

Participants and ethics statements

The *first* study (autumn 2017 to spring 2018) included five preschool children with high special educational needs and severe disabilities (Children 1 to 5 in Table 1) who were recruited from five inclusive preschools in one Swedish municipality. According to staff members, the children had low involvement in play, and this was not easily changed. The researcher provided information about the study before it commenced and obtained written informed consent from the preschool manager of the municipality and the staff members of the children's preschools (e.g., teachers, special educators, and childminders) and both parents. The municipality was selected using a convenience sample, and the study was part of a research project entitled Inclusive Education and Practices in Preschools: Planning, Implementation and Evaluation. Study one received ethical approval from the Swedish Ethical Review Authority (Reg.no 2018-066) and was a pilot study for studies two and three. The *second* study (autumn 2019) was conducted at an inclusive Swedish preschool (located in another municipality than study one). The preschool was strategically chosen; at the time, it was working hard to increase its inclusiveness for children with disabilities. One child with high special educational needs and severe disabilities was registered there (Child 6 in Table 1). According to preschool staff members, the child had low involvement in play, and they had not been able to change this. Written informed consent was obtained from the head teacher and the child's preschool staff members (i.e., teachers, special educators, specialists in preschool education, childminders, and teacher in training) and both parents. The study was connected to a research project entitled Sustainable Development of Inclusive Preschools: Interdisciplinary Co-production Research for Children with Disabilities and the Teacher Profession in the Preschool of the Future. Study two received ethical approval from the Swedish Ethical Review Authority (Reg.no 2019-03724). Three children with high special educational needs and severe disabilities (Children 7 to 9 in Table 1) at two inclusive preschools in Sweden (not located in the same municipalities as studies one and two) were enrolled in the *third* study (spring 2020 and autumn 2021). These two inclusive preschools were strategically chosen; at the time, they enrolled children with disabilities. According to preschool staff members, these three children had low involvement in play, and no solutions had been found to change this. Before the study commenced, written informed consent was obtained from the head teachers and the children's preschool staff members (i.e., teachers, childminders, and one-on-one assistants) and both parents. In the third study, letters of consent to parents were translated into two additional languages as not all parents spoke Swedish. This study was also connected to the research project entitled Sustainable Development of Inclusive Preschools: Interdisciplinary Co-production Research for Children with Disabilities and the Teacher Profession in the Preschool of the Future and received ethical approval from the Swedish Ethical Review Authority (Reg.no 2019-03724). In studies one to three,

[1] A standard multiple baseline across participants designs.

Table 1. **An overview of the participating children by gender, age, special educational needs and disabilities**

Study and Child	Gender	Age	Special educational needs and disabilities
Study one			
Child 1	Male	3	Low involvement in play, disorder affecting child's body and cognitive functions
Child 2	Male	5	Low involvement in play and language disorder
Child 3	Male	5	Low involvement in play and limited intellectual functioning
Child 4	Male	4	Low involvement in play and attention deficit hyperactivity disorder
Child 5	Male	6	Low involvement in play and a visual and hearing impairment as well as limited intellectual functioning
Study two			
Child 6	Male	4	Low involvement in play and autism spectrum disorder, intellectual disability, and attention deficit hyperactivity disorder
Study three			
Child 7	Male	5	Low involvement in play, language disorder and limited intellectual functioning
Child 8	Female	3	Low involvement in play, autism spectrum disorder and visual impairment
Child 9	Male	4	Low involvement in play and autism spectrum disorder

Note. Age refers to biological age. Limited intellectual functioning is an IQ score between 70 and 85.

the information about the children's special educational needs and disabilities was obtained from staff members who knew them well and had insights into medical assessments made.

Research design of the three studies

In the *first* study, A-B designs were utilized. First, the involvement of Child 1 in play at his inclusive preschool was measured during baseline (A) and intervention (B). Baseline refers to involvement as usual and intervention refers to the provisions of extra adult support and child preferences during play. When the child's involvement reached steady stages and when patterns emerged with little variability during baseline (A) and intervention (B), and preschool staff members who knew him well had confirmed the A measures, the measures were ended. Thereafter, the procedure was repeated for Children 2 to 5 in their inclusive preschools. In study one, changes in the involvement of the children were identified. Each procedure took a few days and ruled out the maturity of the explanation. In the *second* study, A-B-A designs were utilized for Child 6. The A-B-A design included one more baseline and demonstration of effect than the A-B design for participating children in study one. The second A (i.e., A-B-A) refers to a withdrawal of intervention and strengthens the presumed effect of these, that is, the change in involvement related to extra adult support and child preferences that had been incorporated. Gast et al. (2018) wrote that the "A-B-A design is more useful than the basic A-B design from an experimental perspective" (p. 217) and that the A-B-A design can be useful "when more complex designs [A-B-A-B] are not feasible" (p. 216), due to, for example, the length of time available for a study and the implementers. In this study, the time available for the study allowed for an A-B-A design. As in study one, each procedure took a few days and ruled out maturity as an explanation. This was also the case in study three. In the *third* study, an A-B-A design as well as an A-B-A-B design was utilized. The involvement of Child 7 was measured during baseline (A), intervention (B) and withdrawal of intervention (A). The procedure was then repeated for Child 8 and Child 9 at their inclusive preschools with one more intervention condition (A-B-A-B). In studies one to three, each session represents 5 to 30 minutes of scheduled playtime. A watch was used to estimate lengths, and the predetermined length was at least 5 minutes. A chronological overview of the studies one to three is presented in Figure 1.

To increase the thoroughness of the three studies, including their internal and external validity, recommendations obtained from Ledford et al. (2019) and Gast et al. (2018) were followed: the dependent variable (i.e., involvement) was socially important and was reversible. The independent variable (i.e., extra adult support *and* child preferences) could be withdrawn and was practical and cost-effective. The dependent variable was described

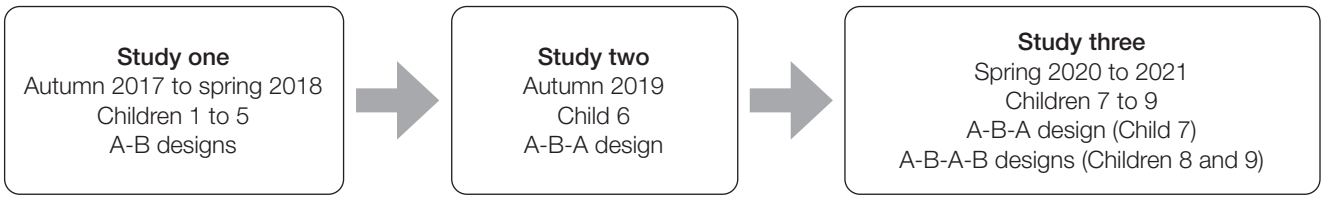

Figure 1. A chronological overview

and measured repeatedly with a minimum of three data points in each condition. Stabilities were established. Data was collected in the children's natural environments and typical social and physical contexts (i.e., preschools), indoors or outdoors. Preschool staff members who knew the children well confirmed the representativeness of baseline measures. The age, gender and disabilities of the participating children were reported as were the role, education, and intervention training/planning of the implementers. The intervention was introduced to preschool staff members by the researcher and planned together with them. Further, replications were made. One example is inter-participant replication (i.e., replications between children). Another example is replication across settings (i.e., several inclusive preschools in different municipalities were enrolled, both indoor and outdoor conditions were incorporated, and the education of the implementers varied). Moreover, replications across materials (i.e., different child preferences) and replication across time (i.e., interventions implemented from 2017 to 2021) were made.

Dependent measures

In studies one to three, the children's involvement was measured using a structured observation scale called Involvement in Learning Scale (Farran, 2014). It is applicable in a variety of preschool activities (Farran, 2014), one such activity being play. According to the scale, the level of involvement of children ranges between low (L), medium-low (ML), medium (M), medium-high (MH) and high (H). In the three studies, the levels were transformed into a Likert Scale ranging from 1 to 5. A rating of 5 means high involvement (H) and a rating of 1 means low involvement (L). Farran (2014) defines high involvement as follows: "Child is intensely focused on the activity and displays genuine involvement in learning. It would be hard to distract him or her. |…| Child appears to be concentrating and seriously pursuing the activity" (p. 28). "Intense concentration on task" (p. 30). "Seems oblivious to the noise and the behaviors of the other children" (p. 30). Medium involvement is defined as follows (Farran, 2014): "Child pays ordinary attention to the activity. Child may look up now and then to see what others are doing, but then returns to the activity. Seems interested |…| but could also easily give up that activity for another" (p. 28). "On task" (p. 30). "Participating" (p. 30). "May briefly look around but immediately comes back to task" (p. 30). Low involvement is defined as follows (Farran, 2014): "Child clearly not interested in the activity. Low is reserved for a child who is truly off task, not attending at all, or disruptive. Child may sit with materials, but stare[s] off into space or thoughtlessly look[s] at what other children are doing" (p. 28). "Brief indication of attention" (p. 30). "Sitting quietly" (p. 30). Medium-high refers to between medium and high. Medium-low refers to between medium and low. The researcher's permission to use the scale was obtained (D. C. Farran, personal communication, 16 May 2018). The researcher conducted the observations in studies one and three. In study two, both the researcher and a research assistant conducted observations. Training courses on the Involvement in Learning Scale were not available. No film recordings were made. All data is stored securely.

Intervention

An overview of the intervention, implemented in the studies, is presented in Figure 2. Since it was developed for these three studies and together with participants (i.e., the preschool staff members enrolled), the researcher advises that it is referred to as a co-produced intervention.

In the studies one to three, the intervention implementers were preschool staff members who knew the children well. They were teachers, childminders, or one-on-one assistants. Their education and training varied and so did their preschool work experiences. They were introduced to extra adult support and child preferences by the researcher and made aware that these types of supports and additional help and attention were intended to increase the involvement of children with disabilities in play with peers. Then, the details of the intervention were jointly planned by the researcher and the implementers. For each child, the following steps were taken: (1) to identify the preferences of the child with disabilities who has low involvement in play at inclusive preschool

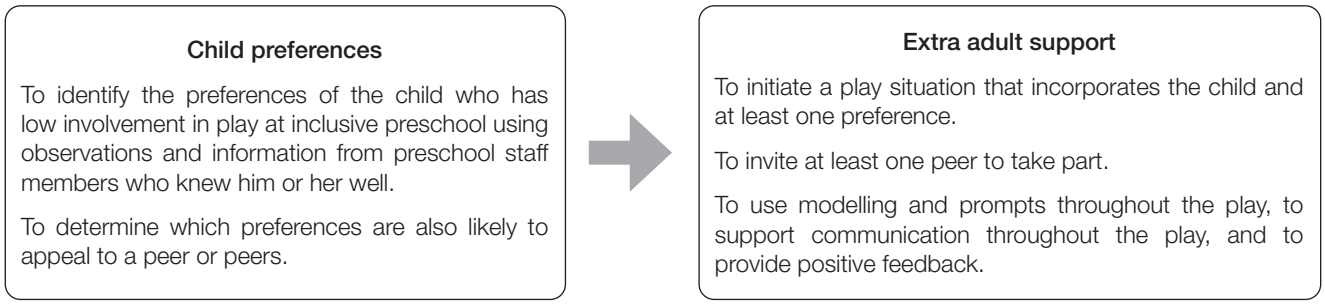

Figure 2. An overview of co-produced peer play intervention

using observations and information from preschool staff members who knows them well, to determine which preferences are also likely to appeal to peers without disabilities, (2) to initiate a play situation that incorporates the child and at least one preference, to invite at least one peer to take part and to use modelling (i.e., showing) and prompts (i.e., pointing, using other gestures, hand over hand, verbal cue, placing preference nearby) throughout play, to support communication (i.e., augmentative and alternative communication besides talking, when needed) throughout play, and to provide positive feedback on their efforts (i.e., acknowledging what the child and peer did well, praise, and providing suggestions when needed). Thus, both child preferences and extra adult support constituted the intervention. What is more, in study one, special needs educators also took part in the planning of intervention. To evaluate the intervention fidelity, the researcher conducted direct observations of all sessions. It was concluded that the intervention in the preschools was implemented as intended. On some occasions, the researcher needed to remind the implementers to give the child and peer(s) positive feedback. In this way, the researcher ensured that the extra adult support and child preferences were implemented correctly across the three studies. During intervention, ongoing attention was paid to children's verbal and body language to ensure the intervention was appreciated by them.

Interobserver agreement and reliability

Interobserver agreement and reliability were calculated using measures of involvement conducted by the research assistant enrolled in study two. The researcher and research assistant conducted measures simultaneously for 33% of the sessions. They measured involvement very similarly (IQA= 80%). The disagreement was understood as minor: a medium-high involvement measure and a high involvement measure. Initially, the number of ratings in agreement was calculated. Next, the total number of ratings was calculated. Third, the number in agreement was divided by the total number of ratings and converted into a percentage. The percentage agreement between the observers meets standards (IOA=80%). Interobserver agreement and reliability were only calculated in study two since study one had limited research resources, studies one and three were performed by one researcher and study three was conducted during the pandemic. Here, only one researcher and observer were allowed to be present in the inclusive preschools.

Statistical analyses

In the studies, statistical analyses on ranges, means (Ashbaugh & Peck, 1998), Percentage of Exceeding the Median (PEM, Lenz, 2012; Ma, 2006) and seeming effect sizes (Lenz, 2012) were conducted. PEM is the "percentage of data points exceeding the median of baseline phase" (Ma, 2006, p. 598). A PEM> 90% and an effect size of 0.9 and greater are indicative of very effective support. A PEM between 70-89% and an effect size of 0.7 to 0.89 are indicative of moderate effectiveness of support. A PEM between 50-69% and an effect size of 0.5 to 0.69 are indicative of questionable effectiveness. Less than 50% and an effect size below 0.5 are indicative of ineffective support.

RESULTS

The results of the three studies are presented in the sections below and in a table (Table 2).

Child 1 (study one) has low or medium-low involvement level in play (indoors) with peers at his inclusive preschool. His baseline sessions range from 1 to 2 (m=1.1). He often crawls around and looks at his peers. At times he picks up and holds a book, a toy, or another play material. His child preferences are picture books, films, tablets, music and film characters [Babblarna™, in Swedish]. When intervention is provided, the involvement level increases to a mean of 4.5 (range from 4 to 5). His intervention sessions and involvement levels are browsing picture books with one peer (4), looking at characters on a tablet with two peers, one on each side

(4), looking at a music video on the tablet with two peers, one on each side of the child, the child holds the tablet (5) and looking at a music video on the tablet with two peers, one on each side of the child, the child holds the tablet (5). The change in involvement in play with peers is immediate with all intervention sessions well above his baseline sessions.

Child 2 (study one) has low or medium-low involvement in play (indoors) with peers at his inclusive preschool. He often sits at a table with a staff member, wanders around or plays by himself. His baseline sessions range from 1 to 2 (m=1.4). His preferences are Lego, town toys and stories. When the intervention is provided, the involvement level increases to a mean of 4.2 (range from 3 to 5). His intervention sessions and involvement levels are building a house in Lego with one peer (3), building a town in Lego with one peer (4), continuing to build the Lego town with a peer (4), listening to a story with three peers (5), building Lego with peers (4) and, once again, playing with Lego with peers (5). The change is gradual and at the fourth intervention session, the child shows high involvement. All his intervention sessions are above baseline sessions.

For Child 3 (study one), the increase in involvement throughout the intervention condition is lower than for Child 1 and Child 2. He has low or medium-low involvement in play (indoors) with peers at his inclusive preschool (m=1.3; range from 1 to 2), and when the intervention is provided the involvement level increases to a mean of 2.4 (range from 2 to 3). In no intervention session does he show medium-high or high involvement. His preferences are wooden trains, tablets, films, music and drawing templates, and his intervention sessions and involvement levels are playing with wooden trains with one peer (2), looking at a film on the tablet with one peer (2), attending a preschool disco (3), listening to music, and jumping and holding hands with peers (3) and artwork with one peer incorporating drawing templates (2).

Changes to involvement level for child 4 (study one) are also positive. Before the intervention condition (i.e., during baseline condition), he has low, medium-low or medium involvement levels in play (indoors) with peers at his inclusive preschool (m=1.9; range from 1 to 3). He often runs around and is very energetic. At times he picks up a toy, a board game, or another play material, and plays with it for a while. His preferences are toy figures, clay, board games and gross motor activities. Throughout the intervention, his level of involvement increases to a mean of 3.8 (range 3 to 4). His intervention sessions and involvement levels are playing with toy figures and two peers (4), playing with clay with several peers (4), playing a board game (3), and playing freeze dance with peers (4). The change is immediate.

Child 5 (study one) has low or medium-low involvement in play (indoors) with peers at his inclusive preschool. His baseline sessions range from 1 to 2 (m=1.5). He enjoys playing with one peer, Frank [fictitious name], but when this peer is not in preschool he sits or plays by himself. In addition to Frank, his other preferences are tractors, scissors, jigsaw puzzles and tablets. When intervention is provided, his involvement level increases to a mean of 3.7 (range from 3 to 4). His intervention sessions and involvement levels are cutting out tractor pictures from newspapers with one peer (4), doing a jigsaw puzzle with one peer (3) and playing a game on the tablet with two peers, one on each side, one is Frank [fictitious name], the child holds the tablet (4). The change is immediate, and all his intervention sessions are above baseline sessions.

On the first baseline for Child 6 (study 2), the involvement level ranges from 1 to 2 (m=1.2). He has low or medium-low involvement in play (outdoors) at his inclusive preschool. He often sits by himself or wanders around. His preferences are soap bubbles, ants, a tree stump, fish, fruit and walking with peers. When intervention is provided, the involvement level increases to a mean of 4.2 (range from 4 to 5). His intervention sessions and involvement levels are blowing and catching soap bubbles with peers (5), looking at ants by the tree stump with a peer (4), looking at colorful fish pictures with peers (4), eating fruit with a group of peers in the playground (4) and going for a walk with three peers (4). The change in involvement in play with peers is immediate, with all intervention sessions well above his baseline sessions. When intervention is no longer provided, the involvement level decreases to a mean of 1.2 (range from 1 to 2). Once again, he is alone and wanders around.

Similarly, Child 7 (study three) has low, medium-low and medium involvement in outdoor play with peers at his inclusive preschool. He often walks around by himself. On the first baseline for Child 7, the involvement level ranges from 1 to 3 (m=1.4). When intervention is provided, the involvement level increases to a mean of 3.6 (range from 3 to 4). He shows a change in involvement in play with several sessions above his baseline levels but does not, in any session, show high involvement. When intervention is not provided, his involvement level in play with peers decreases to a mean of 1.3 (range from 1 to 2). Again, he is often alone and wanders around. His preferences are gross motor activities, and his intervention sessions and involvement levels are running

around the outdoor playground with peers (3), carrying water to a fireplace with peers (4), playing the game Tag with peers (4), playing the game Under the Wings of the Hawk with peers (4), and playing the game One-two-three-stop with peers (3).

The levels of involvement of Child 8 (study three) throughout baseline and intervention conditions are more consistent than the conditions of those of the others. On the first baseline, the involvement level is low (m=1). She walks around in the preschool and, at times, picks up and holds a piece of equipment or a toy. She uses these as drums. She does not play with peers. Her preferences are sand, clay and water. When intervention is provided, the involvement level increases to a mean of 3 (no range). When intervention is not provided, the involvement level decreases to a low level (m=1). During the last intervention, the involvement level once again increases to a mean of 3 (no range). She does not show

Table 2. **Involvement of the children with disabilities in peer play at inclusive preschools, by baseline (A) and intervention (B)**

Study and Child	$A_{(1)}$	$B_{(1)}$	$A_{(2)}$	$B_{(2)}$
Study one				
Child 1				
Involvement levels:	1 1 1 1 2 1 1	4 4 5 5		
Range and mean:	1 to 2 (m=1.1)	4 to 5 (m=4.5)		
Child 2				
Involvement levels:	1 1 1 1 2 2 2	3 4 4 5 4 5		
Range and mean:	1 to 2 (m=1.4)	3 to 5 (m=4.2)		
Child 3				
Involvement levels:	1 2 1 1	2 2 3 3 2		
Range and mean:	1 to 2 (m=1.3)	2 to 3 (m=2.4)		
Child 4				
Involvement levels:	2 1 2 2 3 2 1	4 4 3 4		
Range and mean:	1 to 3 (m=1.9)	3 to 4 (m=3.8)		
Child 5				
Involvement levels:	1 2 2 1	4 3 4		
Range and mean:	1 to 2 (m=1.5)	3 to 4 (m=3.7)		
Study two				
Child 6				
Involvement levels:	1 2 1 1 1	5 4 4 4 4	1 1 1 2 1	
Range and mean:	1 to 2 (m=1.2)	4 to 5 (m=4.2)	1 to 2 (m=1.2)	
Study three				
Child 7				
Involvement levels:	1 1 2 3 1 1 1	3 4 4 4 3	1 2 2 1 1 1	
Range and mean:	1 to 3 (m=1.4)	3 to 4 (m=3.6)	1 to 2 (m=1.3	
Child 8				
Involvement levels:	1 1 1	3 3 3 3	1 1 1	3 3 3
Range and mean:	1 (m=1)	3 (m=3)	1 (m=1)	3 (m=3)
Child 9				
Involvement levels:	1 1 1 1 2	3 3 3 4 3	1 1 1 1 1	3 4 3
Range and mean:	1 to 2 (m=1.2)	3 to 4 (m=3.2)	1 (m=1)	3 to 4 (m=3.3)

Note. A rating of 5 means high involvement (H) and a rating of 1 means low involvement (L).

medium-low, medium-high or high involvement in any session. The first intervention condition includes sand play with peers at four different times (i.e., four sessions; 3, 3, 3 and 3). The second intervention condition includes twice sand play with peers (3 and 3) and playing with clay, water, and a peer (3).

Child 9 (study three) often walks around in the preschool. At times, he picks up and holds a piece of equipment or a toy. He then drops them onto the floor. On the first baseline, the involvement level is low (m=1.2; range from 1 to 2). His involvement in play with peers is low or medium-low. When intervention is provided, the involvement level increases to a mean of 3.2 (range from 3 to 4). When no intervention is provided, the involvement level decreases to a low level (m=1). During the last intervention condition, the involvement level increases to a mean of 3.3 (range from 3 to 4). In no session does he show high involvement. His preferences are stories, photographs of nature, block building, soup bubbles and a paintbrush. The first intervention condition includes listening to a story with one peer (3), looking at photographs of nature with peers (3), and three block building with one peer [3, 4 and 3]. The second intervention condition includes blowing and catching soap bubbles with one peer (3), artwork with one peer incorporating the child's favorite paintbrush (4), and block building with one peer (3).

For all the children, the PEM is 100%, which is indicative of very effective intervention.

DISCUSSION

The results are consistent with previous studies, showing that children with disabilities can have low involvement in preschool activities such as play (Chen et al., 2019; Gladh et al., 2022; Harper & McCluskey, 2003; Hestenes & Carroll, 2000; Kemp et al., 2013; Odom et al., 2004), and that extra adult support (Betz et al., 2008; Brodzeller et al., 2018; Hestenes & Caroll, 2000; Krone &Yu, 2019; Lundqvist et al., 2015; Sandall et al., 2019; Soukakou, 2016) and child preferences (Dietrich, 2005; Fedewa et al., 2023; Gladh et al., 2022; Lundqvist et al., 2015; Sandall et al., 2019) can be useful and valuable in inclusive preschool.

Although the results reveal desirable change across participants, settings, materials, and time, not all participating children (Children 3 and 8) showed medium-high or high involvement when extra adult support *and* child preferences (Figure 2) were incorporated into play. One explanation for this could be that the two types of support were beneficial for them but more beneficial for the other children (Children 1, 2, 4, 5, 6, 7 and 9). Another possible explanation relates to the Involvement in Learning Scale. The indications of involvement levels in the scale may not be fully appropriate for all participating children; these may be based on more (neuro)typical expectations of what involvement should look like for a child.

The three studies can form a basis for interesting preschool discussions and sustainable development work related to preschool inclusion. They also contribute with examples of how involvement levels and support provisions can be monitored and evaluated in a preschool as well as be investigated by a researcher. This is important knowledge at a time when inclusion is valued (UN, 2006; UNESCO, 2020); when inclusion is one of several sustainable development goals to be reached by 2030 (UN, 2015, goal 4); when involvement in preschool activities, such as play with peers, is considered important for children with disabilities (Farran, 2014; Gladh, 2022; Hebbeler & Spiker, 2016; Ladd, 2005; Long, 2019; Odom et al., 2004; Pinto et al., 2018; Sandall et al., 2019; UN, 1998; UN, 2006); and when involvement is one indicator of quality preschool inclusion (Soukakou, 2016). Preschool staff members who successfully increase involvement in play among children with disabilities also successfully increase the quality of the preschool inclusion they provide.

CONCLUSION

The results reveal desirable changes across participants, settings, materials, and time. For all participating children, the extra adult support *and* child preferences created a positive change: their involvement in play at inclusive preschools increased, and, thereby, also their opportunities to sense belonging, learn and develop. Therefore, a positive change and an increase in the involvement of children with disabilities seem possible to achieve in inclusive preschools when these two types of support are combined and incorporated into play. The change was surprisingly rapid and achieved without either certain play or social skills training of the children before the intervention started or certain training of their peers, and with limited training/planning of preschool staff members. Thus, this change did not seem that difficult to achieve.

LIMITATIONS

Generalizations of the results should be made with caution. The total number of participants is limited. Studies one and three were conducted by one researcher, and only

one study (study three) utilized A-B-A-B designs. A pandemic also happened. Therefore, the researcher failed to establish experimental control within each of the three studies. Further, the researcher examined the combination of extra adult support and child preferences without separating these two to conclude if one of these, independently, created changes in involvement level. More research is needed, and this could investigate extra adult support and child preferences with stronger research designs.

An investigation of the use and value of extra peer support and child preferences, thereby decreasing the need for extra adult support, would be interesting. Although extra adult support seems to play a key role, it may be the case that some of the support provided by adults, for example in initiating play, can be transferred to peers. According to Balaz et al. (2020), peers can be instrumental in facilitating early childhood inclusion. Moreover, investigating the use and value of peer play intervention in other preschools, and how the social networks of children with disabilities change when their involvement in play increases and is supported at inclusive preschools, would be interesting to investigate. It is possible that an increase in involvement boosts the formation of bigger social networks. Finally, further research could investigate whether there are any negative consequences of incorporating extra adult support and child preferences. One possible negative consequence could be that the likes and interests of children with disabilities are not broadened since their existing preferences are applied. Another possible consequence is that children who receive extra adult support during play first and foremost go to preschool staff members for play, not their peers. When Harper and McCluskey (2003) investigated teacher-child interactions and child-child interactions in inclusive preschools, they concluded that children with disabilities after teacher-child interaction tended to have yet further teacher-child interaction, not child-child interaction.

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The author declares no conflict of interest.

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