Scaffolding Strategies in the Play of Preschool Children with Special Educational Needs: A Systematic Review of Inclusive Practice Research

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ABSTRACT:

The paper presents a systematic literature review of the implementation and effects of scaffolding strategies in children's play in inclusive preschools for children with special educational needs. The review was conducted using the PRISMA framework. Five databases (Google Scholar, Science Direct, EBSCO, WoS, and Scopus) were reviewed. Only papers presenting the implementation and effects of the scaffolding strategy in the play of children with special educational needs from inclusive preschool classes were included. A review of twelve full-text articles published between 2000 and 2025, involving 333 subjects, was conducted by two independent reviewers. The results show that the scaffolding strategy is effective in helping children master the skills of engaging in play, playing, and interacting socially and communicatively with peers. The scaffolding was provided directly by the teacher, peer-mediated, and supported by visual aids. Teachers used various scaffolding methods, such as modelling, instructing and prompting, encouraging, commenting, and asking questions. Most teachers implemented the entire scaffolding procedure, from contingency to the transfer of responsibility. The qualitative nature of the research, small samples, and the diversity of the techniques and measurement tools used made statistical comparisons and generalization impossible. The findings underscore the need for the professional development of preschool teachers in the use of scaffolding strategies to foster inclusive play environments.

Keywords: Scaffolding Strategy, Inclusive Preschool, Play, Children with Special Educational Needs

INTRODUCTION

Play is crucial for the cognitive, physical, and social-emotional development and learning of young children (Ashiabi, 2007; Brussoni et al., 2012; Sanderson, 2011; Taylor & Boyer, 2020; Allee-Herndon, 2022), both of those with typical development (Kobylak & Kalyn, 2017; Taylor & Boyer, 2020) and those with special educational needs (SEN) (Hamm, 2006; Danniels & Pyle, 2023; Piccolo & Pasqualetto, 2025). However, the latter have less control over their engagement in play and over social play than their non-disabled peers (Hillesøy, 2016; Kesäläinen et al., 2022). Nevertheless, a play-based environment is their natural educational context (Hanline & Fox, 1993). Vygotsky argues that a play-based approach can provide children with special needs with the knowledge and skills they need to function at a higher level. The pedagogical approach for such children should mirror that for typically developing children, while incorporating modifications to help them achieve their goals (Vygotsky, cited in Berk & Winsler, 1995). In his theory of social constructivism, Vygotsky emphasizes the important role of teachers in creating such stimulating learning opportunities for children with special educational needs in their interactions with peers (Wood & Bennett, 1998). Rüdisüli et al. (2024) add that the quality of teacher-child interactions is important for the development of children's play skills. Effective early childhood education programs are led by committed, qualified adults who provide developmentally appropriate teaching and a stimulating environment, addressing children's basic and special needs (Jalongo et al., 2004).

Learning through play can be teacher-led while remaining child-centered. Adults support the child in their discovery-based learning with a range of strategies, and the child actively collaborates with both teachers and peers. The support strategy that enables such learning/play is scaffolding (Weisberg et al., 2013). Its implementation is essential when working with children with disabilities who have difficulty acquiring new skills. However, there is a lack of comprehensive reviews that examine how this strategy can be used to support preschool children with special educational needs in play and how effective it is in an inclusive preschool environment. Recent systematic reviews of research on the use of scaffolding strategies have not focused on children with special educational needs (Van de Pol et al., 2010) or have concerned the use of scaffolding to support the learning, but not specifically the play of children with special educational needs in inclusive preschools (Zamkowska & Koczańska, 2024). The aim of this article is, therefore, to conduct a systematic review of the literature on the use of scaffolding strategies in the play of this group of children in inclusive preschools.

LITERATURE REVIEW

Scaffolding is a child-centered strategy based on scientific evidence (Cross et al., 2017). This strategy refers to actions teachers take to support a child's development in line with their developmental trajectory, enabling them to master skills within their zone of proximal development (Vygotsky, 1978). According to Filipiak (2012), scaffolding entails designing specific scenarios in which children, with the assistance of a caregiver, can enhance their existing abilities and understanding.

In relation to other concepts, scaffolding can be implemented as a strategy in both differentiated instruction (DI) and Universal Design for Learning (UDL), but it does not cover the full range of these broader educational concepts. Scaffolding temporarily supports students in grasping new concepts, gradually reducing support as they become independent. It differs from differentiated instruction, which tailors the content, process, product, and affect in response to learners' readiness, interests, and learning profiles (Tomlinson & Imbeau, 2010; Tomlinson, 2017). Scaffolding involves a step-by-step support process, while differentiation uses diverse teaching strategies and materials to accommodate diverse learners. Both strategies aim to enhance student comprehension but address different facets of the learning process.

Universal Design for Learning (UDL) provides flexible learning environments and an inclusive framework with principles for multiple means of engagement, representation, and expression, ensuring access for all students (CAST, 2024). Both UDL and scaffolding address individual needs, but through different approaches, enhancing comprehension and access to learning. By scaffolding instruction, educators can help students develop the skills and understanding required for more complex content. By applying UDL, educators can ensure that all students have equal access to learning opportunities, regardless of ability or need (King-Sears et al., 2015).

Scaffolding in relation to children's play involves systematically adjusting support, first by increasing it and then withdrawing the help offered to the child in order to initiate and maintain their engagement in play (Vygotsky, 1978). Scaffolding help for a child must meet three criteria: contingency, fading, and transfer of responsibility (Van de Pol et al., 2010). Contingency means that support is tailored to the child's current level of achievement,

and fading means that support is gradually withdrawn. The pace of withdrawal depends on the child's level of development and competence. Transfer of responsibility involves gradually handing over responsibility for the task to the learner.

Van de Pol et al. (2010) identify six ways of using scaffolding: 1) providing feedback; 2) giving hints/suggestions; 3) instructing; 4) explaining; 5) modeling; and 6) asking questions. The most commonly used scaffolding techniques in play are modeling, prompting, instructing, and commenting. Batchelor and Taylor (2005) pointed to the possibility of using modeling by adults and peers to develop appropriate social skills during play. Scaffolding can therefore be provided by the teacher or educational peers/companions (Abbak Kacar & Deretarla Gul, 2024). Teacher-led scaffolding refers to the use of scaffolding techniques by a teacher working directly with a child with a disability, while peer-mediated education describes how a peer provides teacher-supervised learning to another peer (Mitchell, 2014). Peer-mediated scaffolding involves training a non-disabled peer to use scaffolding to support a child with disabilities, e.g., in play. First, the teacher guides play in order to establish and maintain social interactions between the child with disabilities and their peers. In this way, the former has the opportunity not only to observe but also to become directly involved in play with his or her peers. The peers are then trained in the social skills needed to involve children with disabilities in play. The teacher intervenes only when necessary. Increased peer mediation shows peers taking on adult roles effectively in scaffolding play for a child with disability. Moreover, Ganz and Flores (2009) found that visual scripts are helpful in modeling appropriate play skills for typically developing children.

The scaffolding strategy can be applied in working with preschool children with a range of developmental disorders (Hestenes & Carroll, 2000). Children without SEN tend to interact more with their peers with SEN when teachers teach them to initiate or respond more actively to their peers with disabilities (Koegel et al., 2012). However, as van Kuyk (2011) accurately points out, support from teachers or peers should be delivered in an optimized manner. It is both impossible and unnecessary to insist that children are active at an optimal level at all times. Both the child and the teacher have limited possibilities in this regard. The teacher must distribute their energy and time among all children, and the child with SEN must alternate between effort and rest, and also needs time for self-regulation and scaffolding.

METHODS

The study aimed to analyze the use and effects of the scaffolding strategy in the play of children with special educational needs in an inclusive preschool class. A systematic review of studies published in scientific journals on Google Scholar, Science Direct, EBSCO, WoS, and Scopus between January 2000 and July 2025 was conducted. The following research questions were addressed:

1. How do teachers use the scaffolding strategy in inclusive preschool classes in the play of children with special educational needs?
2. What are the effects of its use in supporting the development of children with special educational needs?

The PRISMA guidelines (Booth et al., 2021) were used to develop a systematic review. The data search was organized according to the literature review methodology (Czakon, 2011; Aromataris et al, 2015; Mazur & Orłowska, 2018; Rofiah et al., 2023). To answer the research questions, resources of five databases (Google Scholar, ScienceDirect, EBSCO, WoS, and Scopus) were reviewed. In accordance with the PRISMA scheme, the study was conducted in three stages: identification, screening, and inclusion. The first stage involved a preliminary analysis of scientific articles published in scientific databases from January 2000 to July 2025. The Covidence application was used for the analysis. The articles were selected based on inclusion and exclusion criteria developed using the PICOC (population, intervention, comparison, outcome, context) scheme (see Booth et al., 2021; Petticrew & Roberts, 2006), listed in Table 1.

The following syntax pattern was used in the search command: "scaffolding strategy" AND "preschool" or "kindergarten" or "early childhood education" AND "inclusive (see Annex 1)." In the second phase, screening was performed. The results were retrieved using the RIS code from five databases and then exported to the Covidence web application (Kellermeyer et al., 2018). A total of 1,443 articles were collected from five databases (1) Google Scholar (n = 972), (2) Science Direct (n = 171), (3) EBSCO (n = 19), (4) Scopus (n = 5), and (5) Web of Science (n = 276) and other sources (n = 2), and 39 duplicates were removed (Figure 1). Both authors independently analyzed the titles and abstracts of publications for relevance to the research questions, resulting in a total of 51 publications selected for analysis in the third phase. The inter-rated level of agreement (Cohen's k = 0,44) was moderate. The conflicts were discussed and resolved by both authors. Thirty-eight

Table 1. **Inclusion and exclusion criteria**

PICOC scheme	Inclusion criteria	Exclusion criteria
Population	Children with special educational needs and teachers from inclusive preschool classes	Students, youth, adults with disabilities Children without disabilities
Intervention	Scaffolding strategy in play	Therapy
Comparison	Studies indicating the results of strategy implementation, including experimental studies with an experimental and control group, pre and post-test	Studies not showing the results of using the strategy
Outcome	Effects of the strategy	No indication of the effects of the strategy
Context	Inclusive preschool	Special preschool or mainstream preschool without children with special educational needs, school, nursery

studies were excluded for the following reasons: full text not available (n = 1), no detailed scaffolding strategies provided (n = 12), no empirical studies (n=4), wrong setting (n = 13), and wrong intervention (n = 9). Ultimately, 12 articles that met all the inclusion and exclusion criteria were analyzed. The full-text screening was also dual; no disagreement occurred. Both the PRESS 2015 checklist for search strategies and the JBI Critical Appraisal-Checklist for Systematic Reviews (Suri, 2020; Hilton, 2024) gave a positive assessment of the systematic review process.

RESULTS

The analyzed studies were published between 2004 and 2024 and conducted in inclusive preschools, mainly in the United States and European countries. Most of them used a qualitative approach; only one article reported experimental research using a single-subject Applied Behavior Analysis (ABA) design, and one quantitative study used an online survey (Table 2).

The sample size and composition varied. Only two articles used a large research sample, while the others used single cases. Most articles used triangulation of sources, surveying teachers, children, and their parents, which enabled a more complete understanding of scaffolding techniques. The most frequently studied group was children with autism spectrum disorders (ASD) (Table 3). The studies analyzed used various methodological approaches: qualitative, quantitative, and experimental, with qualitative methods being the most commonly used.

The research aim in analyzing the articles was, first, to determine how scaffolding is used in play and, second, to determine its effects. Considering the first objective, the research described in the articles was divided into two categories based on how these techniques were implemented: 1) techniques used directly by the teacher and 2) techniques used with the help of peers.

Techniques used directly by the teacher: The analysis of the research showed that teachers used six direct scaffolding techniques: encouragement, modeling, instruction, prompting, commenting, and asking questions. Encouragement took the form of encouraging children to play, to join in the play, and to take on roles in the play (Sanches-Ferreira et al., 2022; Tan & Perren, 2021). During interactions in the playgroup, teachers modeled social behaviors through verbalization, songs, storytelling, and puppetry (Argyropoulou & Papoudi, 2012; Batchelor & Taylor, 2005; Danniels & Pyle, 2023; Hillesøy, 2016; Recchia & Soucacou, 2006; Siljehag & Westling Allodi, 2022). Instruction and prompting consisted of reminding the child with SEN of the relevant skills that could be used in play: suggesting how to join in, what to play, what other children are playing and how individual and group play could proceed, as well as reminding the child of the rules of cooperative play, such as sharing toys between children and repeating/rephrasing words that the child with disabilities says quietly (Danniels & Pyle, 2023; Hillesøy, 2016; Recchia & Soucacou, 2006; Siljehag & Westling Allodi, 2022 Tan & Perren, 2021). Visual scripts (Ganz & Flores, 2009), visual timers, schedules, and rules for play (Danniels & Pyle, 2023) turned out to be supportive in shaping the play skills of children with autism spectrum disorder. Teachers commented on the child's successes (Argyropoulou & Papoudi, 2012; Siljehag & Westling Allodi, 2022) and asked questions about what other children were playing. In didactic play, the questions asked by teachers required cognitive processing, e.g., questions about the similarity of objects, their number, and the evaluation of the effects of the activities undertaken (Hestenes et al., 2004).

Sanches-Ferreira et al. (2022) described the process of teacher support, as defined by Vygotsky (1978) and Van de Pol et al. (2010). This process consisted of four stages:

1) promoting children's choice of play, e.g., encouraging children to choose between two or more play options; 2) encouraging children to gradually develop autonomy, e.g., supporting children when they take the initiative to solve a task in a play situation; 3) maintaining a balance between helping children discover and facilitating their independent discovery; 4) encouraging problem solving, e.g., discussing problems and encouraging children to propose solutions.

Techniques involving peers: Analysis confirms that teachers also involve peers in creating supports for their classmates with disabilities. Peers supported their classmates mainly by setting an example and encouraging them. Setting an example involved teachers deliberately pairing children with specific playmates who showed them how to play (Gretschel et al., 2022; Tan & Perren, 2021). Encouragement involved a child without autism encouraging their peer with autism to participate in social interactions (Argyropoulou & Papoudi, 2012). In addition, children were encouraged to solve problems that arose during play (Danniels & Pyle, 2023).

Abbak Kacar and Deretarla Gul (2024) analyzed the process of training and implementing peers in the use of support for classmates with disabilities. The process consisted of three stages: preparation, implementation, and evaluation. The preparatory stage involved raising peers' awareness of their classmates' needs with disabilities and developing their empathy through films, storybooks, and appropriately selected exercises. The game-teaching process consisted of explaining the exercise, demonstrating how to invite a child with ASD to play, and presenting the game's materials and rules. Then, the peers and the

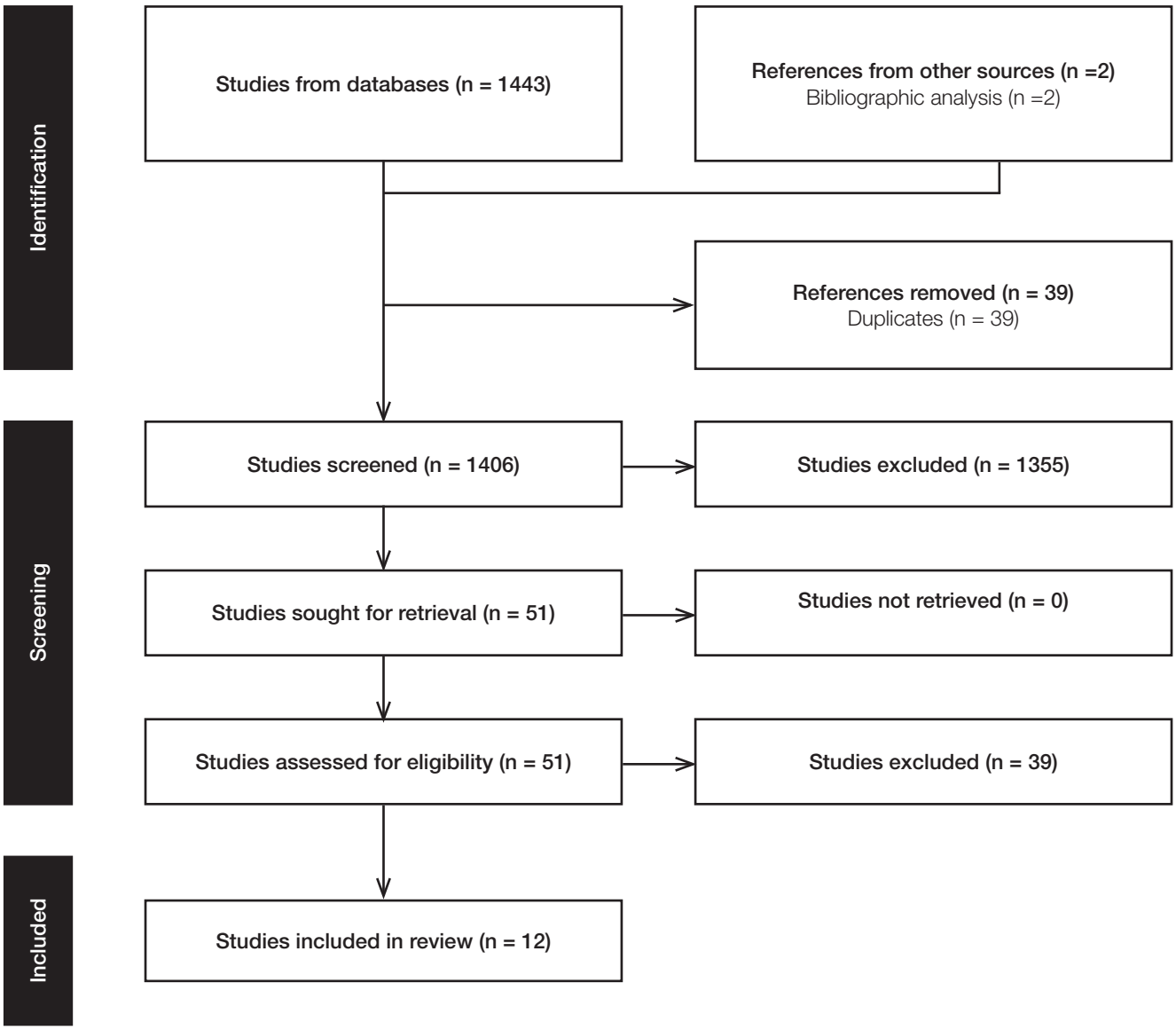

Figure 1. PRISMA flow diagram for study selection

researcher played together several times until the children learned to play without the researcher's help. In the implementation phase, selected peers led the game with a child with ASD. The evaluation was carried out through interviews with peers after the exercise, identification of problems encountered, and introduction of changes for the next exercise. Danniels and Pyle (2023) compared the use of direct teacher support, peer involvement, and visual aids in their research, indicating the possibility of combining them to support children with special educational needs in play. (Figure 1).

The research presented in seven articles indicates that teachers used all three levels of scaffolding, from contingency, through fading, to transfer of responsibility, which indicates full use of the strategy. The remaining five articles describe only contingency - providing children with support tailored to their current level of achievement (Table 3).

The second aim of the research was to determine the effects of scaffolding in children's play in inclusive classrooms. In most articles, the indicator of scaffolding effectiveness was a description of the child's observable behaviors; the percentage increase in the frequency of interactions was described in two studies, mean scores in one study, the results of variance analysis in one, and Cohen's d effect size (Table 3) in only one. The effects of applying the strategy are mainly observed in social and communication skills (Table 3). Most articles reported an increase in children's engagement in play (Argyropoulou & Papoudi, 2012; Gretschel et al., 2022; Recchia & Soucacou, 2006; Tan & Perren, 2021). Three articles showed an increase in the frequency of spontaneous interactions between peers (Batchelor & Taylor, 2005; Hillesøy, 2016; Tan & Perren, 2021), and two showed improvements in the social, emotional, and communication skills of children with disabilities (Abbak Kacar & Deretarla Gul, 2024; Recchia & Soucacou, 2006). A detailed description of the effects is provided in Table 2.

The most reliable results are provided by articles that report effect sizes. Sanches-Ferreira et al. (2022) showed that encouraging children to make choices, gradually developing autonomy, maintaining a balance between helping children discover and facilitating their independent discovery, and encouraging problem solving have a moderate effect, greater at the child level than at the group level (d_{dz} = 0.673, d_g = 0.403).

Batchelor and Taylor (2005) analyzed the impact of the Stay, Play & Talk program on the development of a girl's social and communication skills with moderate developmental disabilities. They observed an increase in the frequency of peer-initiated interactions with the child: from 2.65% at the beginning of the study to 31.24% at the end of the intervention period. This high level was maintained after the intervention ended. A significant increase in the child's social acceptance by peers was noted. At the end of the program, there was a 64.31% increase in peers' assessment of the focus child. At the end of the maintenance period, 78.63% of peers rated her higher than during the baseline tests.

DISCUSSION

The aim of this article was to analyze the methods and effects of using the scaffolding strategy in play with children with special educational needs in an inclusive preschool. To achieve this goal, a systematic review of studies published between January 2000 and July 2025 was conducted. Twelve articles published between 2004 and 2024 were selected for detailed methodological and content analysis. The studies presented in the articles were mainly qualitative in nature and used a variety of research techniques and tools. Most of them were conducted on a small sample, diverse in terms of the type of special educational needs. The qualitative nature of the research can therefore be justified by the type of sample and the need for an individual approach, especially when working with children with more serious developmental and educational needs. Only one article reported a moderate effect size, which was insufficient to allow quantitative comparisons. However, the collected material provided a broad picture of the various ways scaffolding can be used in children with disabilities' play in an inclusive preschool class. These are techniques used directly by the teacher, with peer participation and the use of visual aids. The possibility of combining teacher support activities with peer involvement and the use of visual aids was also pointed out. In addition, a list of scaffolding techniques used by teachers in inclusive classrooms was compiled. The techniques most frequently observed in the analyzed studies are modeling (9 articles); instructing and prompting (9 articles), encouraging (3 articles), commenting (2 articles), and asking questions (2 articles). It can therefore be assumed that teachers use all the scaffolding techniques proposed by Van de Pol et al. (2010) in play, with encouragement emerging as a separate category in our study. Comparing the described results with the results of a systematic review of scaffolding strategies used in typical educational situations presented by Zamkowska and Koczańska (2024), in which the dominant category was giving hints or suggestions, the two most frequently observed categories in articles on play situations were mod-

Table 2. **Characteristics of the studies**

No.	Study	Country	Method	Population	Research aim	Results
1.	Hestenes et al. (2004)	USA	Qualitative research (observation)	186 children aged M=58 months, including 73 with disabilities: ASD (n=2), speech impairment (n=35), Pathological Demand Avoidance (n=33), motor impairment (n=1), hearing impairment (n=1); visual impairment (n=1); teachers: 15 women, 1 man	To determine whether teachers modify their practice of asking questions depending on the children's skill level, whether they differ in their sensitivity when addressing children with different skill levels, and whether teachers' verbalization differs when they speak to children with different skill levels	Teachers do not perceive free play time as an opportunity for individual learning for children with disabilities to the same extent as for children with typical development.
2.	Recchia & Soucacou (2006)	USA	Qualitative (naturalistic classroom observations -Inclusive Classroom Profile)	4 boys and 1 girl aged 3-5 years old; Spina bifida, hydrocephalus; prematurity, developmental delays; PDD-NOS; concentration and language difficulties; fragile X syndrome; 3 teachers (experience: 10; 10.5; 1)	To examine how teachers engage in social relationships with individual children and what they do to support social interactions between peers	Improvement in the social skills of children with disabilities, their involvement in play.
3.	Batchelor & Taylor (2005)	Australia	Quantitative and qualitative case study Participation and Engagement-Revised (CASPER II); adapted version of McConnell and Odom's (1986) 'Friendship Train' sociometric peer rating scale; questionnaire for parents	A 4 year-old girl with moderate developmental disability; 2 teachers	To analyze the effects of the Stay, Play & Talk program on the development of social and communication skills in a child with moderate disability	Increase in the frequency of interactions with the child initiated by peers: and in her social acceptance.
4.	Ganz & Flores (2009)	USA	Qualitative (observation: visual, written, and pictorial scripts)	2 boys with ASD aged 5-6; 3 teachers	To assess the use of visual scripts to support the skills of children with ASD.	The children were more communicative during play, named the objects they were playing with more often, and used many contextually appropriate phrases. Their peers were more willing to play with them.

5.	Argyropoulou & Papoudi (2012)	Greece	Experimental (single subject ABA design), observation, recording of interactions	1 boy with ASD aged 6; 1 special educator; 1 speech therapist	To examine the effectiveness of intensive interactions arranged in a play situation	The boy showed a high level of engagement, eye contact, shared focus, laughter, and initiation of communicative behaviors. His social interactions with a peer and frequency of play initiation increased.
6.	Hillesøy (2016)	Norway	Qualitative (observation)	3 children with hearing impairment; boys and girls	To examine how support teachers contribute to the interaction of children with special educational needs with their peers.	The use of scaffolding strategies by the support teacher promotes peer interaction of children with hearing impairment.
7.	Tan & Perren (2021)	China	Qualitative (case study: In-depth participatory observation and analysis of documents)	7 children aged 3-6 (physical disabilities, ASD; developmental delays, behavioral disorders); 7 teachers (experience: 2-30 years)	To examine the strategies used by teachers to promote interaction between children with and without SEN in an inclusive preschool	Increase in children with SEN's involvement in play and peer relationships.
8.	Gretschel et al. (2022)	South Africa	Qualitative descriptive study/ crossover, semi-structured interviews, caregiver and teacher interview guides	5 boys with ASD; 3-8 y.o.; 5F (2 mothers, 3 teachers)	To analyze strategies supporting the involvement of children with ASD in play	Purposefully pairing children with specific playmates encouraged children with ASD to engage in social play.
9.	Sanches-Ferreira et al. (2022)	Portugal	Quantitative (survey research – online questionnaire)	89 teachers (95.5% women; 4.5% men); M = 48.41 years; 27 teachers had between 10 and 20 years of experience (30.3%), and 6 teachers had fewer than 10 years of experience (6.7%).	To assess preschool teachers' perspectives on the usefulness and applicability of a set of empirically verified strategies aimed at improving teacher-child interaction in early education and care settings, with reference to groups and children with disabilities.	The effect of using scaffolding strategies in play was an increase in children's autonomy, creativity, cognitive and communication skills
10.	Siljehag & Westling Allodi (2022)	Sweden	Qualitative (structured observations and group and individual interviews) Inclusion Classroom Profile (ICP); Teaching Impression Scale (TIS-S); Children's Engagement Questionnaire (CEQ); and Intervention Rating Profile (IRP)	3 children with SEN; 4 preschool teachers, 1 special educator	To analyze the implementation and effects of the Play Time/Social Time (PT/ST) program supporting play and social interaction of children with SEN	The interactions between children with special educational needs and other children was strengthened. The engagement of children from the focus group in preschool activities improved; one of them took the initiative to organize a game.

11.	Danniels & Pyle (2023)	USA	Qualitative research (case study, observation, semi-structured interviews)	3 teachers (M, 7 years of experience; F, 20 years of experience; F, 27 years of experience); 11 kindergarten classes	To analyze the ways of supporting children with disabilities in play	Child-centered, flexible support that maintains a balance between assistance and independence allows for increased engagement in play, play skills, and peer interaction.
12.	Abbak Kacar & Deretarla Gul (2024)	Turkey	Qualitative case study, interviews and observations, picture sociometry, researcher's diary, teacher's diary	1 boy with ASD (66 months old)	To study the impact of structured peer play on the peer relationships of children with ASD in an inclusive classroom	Significant differences were observed in participants' functional skills before and after structured peer play. Typically developing children and the boy with ASD improved their social, emotional, and language skills. The children played together longer. Playtime increased, and the number of participating children rose. Typically developing children (TD) cooperated more and took on greater responsibility. The child with ASD attempted to say meaningful words, and his participation in play was observed.

Table 3. **Characteristics of the studies**

No.	Study	Setting	SEN type	Scaffolding components	Outcome domain	Effect indicator
1,	Hestenes et al. (2004)	inclusive preschool	various disabilities	C	not clear	results of Anova analysis of variance
2.	Batchelor & Taylor (2005)	inclusive preschool	moderate developmental disability	C	social interaction	frequency of interactions in %
3.	Recchia & Soucacou (2006)	inclusive preschool	various disabilities	C	social interaction	description of child's behavior
4.	Ganz & Flores (2009)	inclusive preschool	ASD	C, F, T	social interaction, communication	description of child's behavior
5.	Argyropoulou & Papoudi (2012)	inclusive preschool	ASD	C, F, T	emotional, social interaction	frequency of interactions in %
6.	Hillesøy (2016)	inclusive preschool	hearing impairment	C	social interaction	description of child's behavior
7.	Tan & Perren (2021)	inclusive preschool	various disabilities	C	social interaction	description of child's behavior
8.	Gretschel et al. (2022)	inclusive preschool	ASD	C, F, T	social interaction	description of child's behavior
9.	Sanches-Ferreira et al. (2022)	inclusive preschool	Not specified	C, F, T	Personal, cognitive, language and communication	Cohen's d
10.	Siljehag & Westling Allodi (2022)	inclusive preschool	children with SEN (no impairment)	C, F, T	social interaction	mean scores
11.	Danniels & Pyle (2023)	inclusive preschool	ASD	C, F, T	social interaction, communication	description of child's behavior
12.	Abbak Kacar & Deretarla Gul (2024)	inclusive preschool	ASD	C, F, T	social interaction, communication	description of child's behavior

Contingency- C, fading- F, transfer of responsibility-T

eling, instructing, and prompting. However, it should be acknowledged that in preschool practice, both categories of play, i.e., free play and didactic play, often coexist. Consequently, it is therefore difficult to distinguish between the two categories of situations observed, as free play can also serve educational purposes, as described by Hestenes et al. (2004). Research confirms the effectiveness of scaffolding strategies in increasing children's engagement in play, increasing the frequency of spontaneous peer interactions, and improving the social, emotional, and communication skills of children with disabilities, suggesting that teachers can use them skillfully. However, Hestenes et al. (2004) found that some educators do not see play as an opportunity to stimulate the development of children with disabilities to the same extent as in their work with children without disabilities.

Despite the positive results, generalizing these studies is not possible due to their limited scope: most were conducted with small samples of children and teachers in a single kindergarten, without replication or interobserver agreement.

LIMITATIONS

The study has several limitations. First, only 12 full-text articles published between 2004–and 2024) were included in the analysis. Perhaps an analysis of studies from the 1970s, when the first definitions of scaffolding appeared (Tharp & Gallimore, 1988; Wood et al., 1976; Vygotsky, 1978), would have yielded a larger number of articles. Secondly, the inclusion of other journal databases might have broadened the scope of the study and provided a more comprehensive picture of the issue under investigation. The exclusion of gray literature was motivated by the desire to ensure the high quality of the publications included in the analysis and to consider only those that contain not only a description of the activities but also their effects. However, the scaffolding strategy is most often described by practitioners, so the exclusion of gray literature may have resulted in the omission of items that would have provided valuable information on scaffolding techniques in inclusive preschool classrooms. The search in the EBSCO database was limited to texts in English and Polish. Translation of the few articles in other languages and inclusion of research from other countries would enable a more complete picture of the use of scaffolding around the world. Thirdly, due to the qualitative nature of the research, small samples and the diversity of the techniques and measurement tools used, it was not possible to compare the collected results, but only to compile and describe them. Only one article presented the effect size, necessary for statistical comparisons. This made it impossible to perform a quantitative synthesis of scaffolding effectiveness and generalize the findings. Future analyses should include meta-analyses or evaluations of the effectiveness of scaffolding using mixed methods and more advanced designs such as a cluster RCTs, standardized outcome measures or fidelity checks.

CONCLUSIONS

A systematic review of research on the use of scaffolding strategies in play with children with special educational needs has shown that these strategies are used in inclusive preschool classrooms. Teachers use various scaffolding techniques, adapting them to the needs and abilities of the child and the group. This practice has positive effects, especially on the emotional and social development of children with special educational needs and on their integration with peers. Not only is the implementation of scaffolding in the teacher's direct work with a child with special needs promising in the context of the inclusive classroom, but also the use of peer assistance and visual scripts, which allows children with disabilities to better integrate with their peers and become more independent, while their peers without disabilities develop play skills and empathy. It is therefore advisable to use both direct support and peer support, and to use visual aids where necessary. Using all stages of scaffolding, from contingency, fading, and transfer of responsibility, increases the level of independence of children with disabilities. When using peer-mediated scaffolding, it is recommended to prepare peers in advance and monitor the course and effects of the support they provide, thereby ensuring increased involvement of children with disabilities in this relationship. The complete application of scaffolding strategies in an inclusive classroom requires adequate teacher preparation (Hestenes, 2004). Preschool teachers need training in designing environments and using scaffolding techniques during free play. Practical applications are presented in the Annex 2.

The training for future inclusive education teachers should include the full process for using scaffolding techniques in play, both directly by the teacher and with a peer, the preparation of visual scripts, and tools for reflective assessment of the effects of implemented activities in the social and communication domains of children with disabilities. It is also advisable to enrich the body of special education research with more studies analyzing the use of scaffolding strategies in play using

a representative sample and standardized tools that allow for the determination of a reliable effect size. Their wider dissemination may increase both the quantity and quality of inclusive practices in inclusive preschools.

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DECLARATION OF INTEREST STATEMENT

The authors reported no potential conflict of interest.

ETHICAL STATEMENT

The research procedure did not involve human participants; therefore, no ethical assessment was conducted. However, action had been taken to comply with ethical requirements for systematic reviews. Only recognized databases containing scientific publications were considered in the search for papers; gray literature was not included. The scope of the systematic review was clearly defined and applied to prevent unintended extrapolation of the review findings to contexts where they are not applicable. This conscious choice was dictated by adherence to strict inclusion and exclusion criteria. Efforts were made to preserve the original perspective of the authors and participants of the original studies and to maintain impartiality through an objective presentation of the review findings. In describing the findings, attempts have been made to ensure transparency appropriate for the potential audience.

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REFERENCES

Abbak Kacar, B. S., & Deretarla Gul, E. (2024). Peer-mediated education and autism spectrum disorder (ASD) in preschool inclusive programs: the power of games. *Early Years*, *45*(2), 334–348. https://doi.org/10.1080/09575146.2024.2349756

Allee-Herndon, K. A., Roberts, S. K., Hu, B., Clark, M. H. & Martha, L. (2022). Let's Talk Play! Exploring the Possible Benefits of Play-Based Pedagogy on Language and Literacy Learning in Two Title I Kindergarten Classrooms. *Early Childhood Education Journal, 50*, 119–132. https://doi.org/10.1007/s10643-020-01141-6

Argyropoulou, Z., & Papoudi, D. (2012). The training of a child with autism in a Greek preschool inclusive class through intensive interaction: A case study. *European Journal of Special Needs Education*, *27(1)*, 99-114. https://doi.org/10.1080/08856257.2011.640489

Aromataris, E., Fernandez, R., Godfrey, C., Holly, C., Kahlil, H., & Tungpunkom, P. (2015). Summarizing systematic reviews: methodological development, conduct and reporting of an Umbrella review approach. *International Journal of Evidence-Based Healthcare, 13*(3), 132-40.

Ashiabi, G. S. (2007). Play in the preschool classroom: Its socioemotional significance and the teacher's role in play. *Early Childhood Education Journal, 35*(2), 199–207. https://doi.org/10.1007/s10643-007-0165-8

Batchelor, D., & Taylor, H. (2005). Social Inclusion—The Next Step: User-Friendly Strategies to Promote Social Interaction and Peer Acceptance of Children with Disabilities. *Australasian Journal of Early Childhood*, *30*(4), 10-18. (Original work published 2005). https://doi.org/10.1177/183693910503000403

Berk, L. E., & Winsler, A. (1995). Scaffolding children's learning: Vygotsky and early childhood education. *NAEYC Research into Practice Series, 7*.

Booth, A., Sutton, A., Clowes, M., & Martyn-St James, M. (2021). Systematic approaches to a successful literature review (Third edition). Sage.

Brussoni, M., Olsen, L. L., Pike, I., & Sleet, D. A. (2012). Risky play and children's safety: Balancing priorities for optimal child development. *International Journal of Environmental Research and Public Health, 9*(9), 3134–3148. https://doi.org/10.3390/ijerph9093134

CAST. (2024). *Universal Design for Learning Guidelines version 3.0*. http://udlguidelines.cast.org

Cross, L., Salazar, M. J., Dopson-Campuzano, N., & Batchelder, H. W. (2017). Best Practices and Considerations: Including Young Children with Disabilities in Early Childhood Settings. *Focus on Exceptional Children*, *41*(8). https://doi.org/10.17161/foec.v41i8.6840

Czakon, W. (2011). Metodyka systematycznego przeglądu literatury. Methodology of systematic literature review]. *Przegląd Organizacji*, *3*, 57–61. https://doi.org/10.33141/po.2011.03.13

Danniels, E., & Pyle, A. (2023). Inclusive Play-Based Learning: Approaches from Enacting Kindergarten Teachers. *Early Childhood Education Journal, 51*, 1169–1179. https://doi.org/10.1007/s10643-022-01369-4

Filipiak, E (2012). *Rozwijanie zdolności uczenia się. Z Wygotskim i Brunerem w tle [Developing learning abilities. With Vygotsky and Bruner in the background…]*. Gdańskie Wydawnictwo Psychologiczne.

Ganz, J. B., & Flores, M. M. (2009). Supporting the Play of Preschoolers with Autism Spectrum Disorders: Implementation of Visual Scripts. *Young Exceptional Children*, *13*(2), 58-70. https://doi.org/10.1177/1096250609351795

Gretschel, P., Campodonico, K., Jacobs, M., Mabasa, N., Masinyana, A., Nassen, H., & Nghulele, T. (2022). Promoting the play of children with autism spectrum disorders: Contributions of teachers and caregivers (N. Munambah, Trans.). *South African Journal of Occupational Therapy*, *52*(3), 44-51. https://doi.org/10.17159/2310-3833/2022/vol52n3a6

Hamm, E.M. (2006). Playfulness and the Environmental Support of Play in Children with and without Developmental Disabilities. *Occupational Therapy Journal of Research, 26*(3), 88-96. https://doi.org/10.1177/153944920602600302

Hanline, M. F., & Fox, L. (1993). Learning within the Context of Play: Providing Typical Early Childhood Experiences for Children with Severe Disabilities. *Journal of the Association for Persons with Severe Handicaps*, *18*(2), 121-129. https://doi.org/10.1177/154079699301800205

Hestenes, L. L., Cassidy, D. J., & Niemeyer, J. (2004). A Microanalysis of Teachers' Verbalizations in Inclusive Classrooms. *Early Education and Development*, *15*(1), 23–38. https://doi.org/10.1207/s15566935eed1501_2

Hestenes, L. L, & Carroll, D. E. (2000). The Play Interactions of Young Children with and Without Disabilities: Individual and Environmental Influences. *Early Childhood Research Quarterly, 15*(2), 229–246. https://doi.org/10.1016/S0885-2006(00)00052-1

Hillesøy, S. (2016). The Contribution of Support Teachers in Facilitating Children's Peer Interactions. *International Journal of Early Childhood, 48*, 95–109. https://doi.org/10.1007/s13158-016-0157-1

Hilton, M. (2024). JBI Critical appraisal checklist for systematic reviews and research syntheses. *The Journal of the Canadian Health Libraries Association*, *45*(3), 180–183. https://doi.org/10.29173/jchla29801

Jalongo, M. R., Fennimore, B. S., Pattnaik, J., Laverick, D. M., Brewster, J., & Mutuku, M. (2004). Blended perspectives: A global vision for high-quality early childhood education. *Early Childhood Education Journal, 32*(3), 143–155. https://doi.org/10.1023/B:ECEJ.0000048966.13626.be

Kellermeyer, L., Harnke, B., & Knight, S. (2018). Covidence and Rayyan. *Journal of the Medical Library Association*, *106*(4). https://doi.org/10.5195/jmla.2018.513

Kesäläinen, J., Suhonen, E., Alijoki, A., & Sajaniemi, N. (2022). The interrelation between children's play behaviour, temperament, and special educational needs (SEN) in early childhood special education (ECSE). *Early Child Development and Care*, *193*(2), 247–261. https://doi.org/10.1080/03004430.2022.2080202

King-Sears, M. E., Johnson, T. M., Berkeley, S., Weiss, M. P., Peters-Burton, E. E., Evmenova, A. S., Menditto, A., & Hursh, J. C. (2015). An Exploratory Study of Universal Design for Teaching Chemistry to Students With and Without Disabilities. *Learning Disability Quarterly*, *38*(2), 84-96. (Original work published 2015). https://doi.org/10.1177/0731948714564575

Kobylak, K., & Kalyn, B. (2017). Play and Exploration in Grade One: Extending the Principles of Early Learning. *Journal of Childhood Studies*, *42*(1), 32-44. https://doi.org/10.18357/jcs.v42i1.16885

Koegel, L. K., Vernon, T. W., Koegel, R. L., Koegel, B. L., & Paullin, A. W. (2012). Improving Social Engagement and Initiations Between Children With Autism Spectrum Disorder and Their Peers in Inclusive Settings. *Journal of Positive Behavior Interventions, 14*(4), 220-227. https://doi.org/10.1177/1098300712437042

Mazur, Z., & Orłowska, A. (2018). Jak zaplanować i przeprowadzić systematyczny przegląd literatury. *Polskie Forum Psychologiczne*, *23*, 235–251. https://doi.org/10.14656/PFP20180202

Mitchell, D. (2014). *What Really Works in Special and Inclusive Education: Using evidence-based teaching strategies* (2nd ed.). Routledge. https://doi.org/10.4324/9780203105313

Piccolo, A. Lo, & Pasqualetto, D. (2025). Play literacy for motor development in children with special educational needs. *Italian Journal of Health Education, Sports and Inclusive Didactics, 8*(4). https://doi.org/10.32043/gsd.v8i4.1234

Petticrew, M., & Roberts, H. (2006). *Systematic Reviews in the Social Sciences: A Practical Guide*. Blackwell. https://doi.org/10.1002/9780470754887

Recchia, S. L., & Soucacou, E. P. (2006). Pielęgnowanie doświadczenia społecznego w trzech klasach edukacji specjalnej dla najmłodszych dzieci [Nurturing Social Experience in Three Early Childhood Special Education Classrooms]. *Early Childhood Research and Practice, 8*(2).

Rofiah, K., Kossewska, J., Herviani, V. K., & Sheehy, K. (2023). Postawy nauczycieli wobec edukacji włączającej. Przegląd systematyczny [A Systematic Review of Teachers' Attitudes Toward Inclusive Education]. *Niepełnosprawność i Rehabilitacja*, *90*(2), 69–91. https://dx.doi.org/10.5604/01.3001.0053.8783

Rüdisüli, C., Duss, I., Lannen, P., & Wustmann Seiler, C. (2024). Relations between teacher–child interaction quality and children's playfulness. *Early Child Development and Care, 194*(7–8), 883–897. https://doi.org/10.1080/03004430.2024.2356242

Sanches-Ferreira, M., Gonçalves, J. L., Araújo, S. B., Alves, S., & Barros, S. (2022). Building inclusive preschool classrooms: How desirable and feasible is a set of strategies that facilitate teacher-child relationships? *Frontiers in Education, 7,* 944822. https://doi.org/10.3389/feduc.2022.944822

Sanderson, R. C. (2011). *Towards a New Measure of Playfulness: The Capacity to Fully and Freely Engage in Play*. Proquest, Umi Dissertation Publishing.

Siljehag, E., & Westling Allodi, M. (2022). Introducing a program supporting social interactions and play in inclusive preschools in Sweden: reflections on a stepwise collaborative implementation process. *European Early Childhood Education Research Journal*, *31*(1), 124–142. https://doi.org/10.1080/1350293X.2022.2157460

Suri, H. (2020). Ethical Considerations of Conducting Systematic Reviews in Educational Research. In O. Zawacki-Richter, M. Kerres, S. Bedenlier, M. Bond , & K. Buntins (Eds.), *Systematic Reviews in Educational Research* (pp. 41–54). Springer VS, Wiesbaden. https://doi.org/10.1007/978-3-658-27602-7_3

Tan, R., & Perren, S. (2021). Promoting peer interactions in an inclusive preschool in China: what are teachers' strategies? *International Journal of Inclusive Education*, *27*(9), 987–1003. https://doi.org/10.1080/13603116.2021.1879955

Taylor, M. E. & Boyer, W. (2020). Play-Based Learning: Evidence-Based Research to Improve Children's Learning Experiences in the Kindergarten Classroom. *Early Childhood Education Journal, 48*, 127–133. https://doi.org/10.1007/s10643-019-00989-7

Tharp, R. G., & Gallimore, R. (1988). *Rousing minds to life: Teaching, learning, and schooling in social context*. Cambridge University Press.

Tomlinson, C. A., & Imbeau, M. B. (2010). *Leading and managing a differentiated classroom*. ASCD.

Tomlinson, C. A. (2017). *How to differentiate instruction in academically diverse classrooms*. ASCD.

Van de Pol, J., Volman, M., & Beishuizen, J. (2010). Scaffolding in Teacher–Student Interaction: A Decade of Research. *Educational Psychology Review*, *22*(3), 271–296. https://doi.org/10.1007/s10648-010-9127-6

van Kuyk, J. J. (2011). Scaffolding – how to increase development? *European Early Childhood Education Research Journal, 19*(1), 133–146. https://doi.org/10.1080/1350293X.2011.548965

Vygotsky, L. S. (1978). The Role of Play in Development. In M. Cole, V. Jolm-Steiner, S. Scribner, & E. Souberman (Eds.), *Mind in Society: Development of Higher Psychological Processes* (pp. 92–104). Harvard University Press. https://doi.org/10.2307/j.ctvjf9vz4.12

Weisberg, D. S., Hirsh-Pasek, K., & Golinkoff, R. M. (2013). Guided play: Where curricular goals meet a playful pedagogy. *Mind Brain & Education, 7*(2), 104–112. https://doi.org/10.1111/mbe.12015

Wood, D., Bruner, J. S., & Ross, G. (1976). The Role of Tutoring in Problem Solving. *Journal of Child Psychology and Psychiatry*, *17*(2), 89–100. https://doi.org/10.1111/j.1469-7610.1976.tb00381.x

Wood, E., & Bennett, N. (1998). Teachers' Theories of Play: Constructivist or Social Constructivist? *Early Child Development and Care*, *140*(1), 17–30. https://doi.org/10.1080/0300443981400103

Zamkowska, A., & Koczańska, M. (2024). Zastosowanie strategii „budowania rusztowania" w edukacji dzieci ze specjalnymi potrzebami edukacyjnymi w inkluzyjnym oddziale przedszkolnym – systematyczny przegląd badań [Use of the „Scaffolding" Strategy in the Education of Children with Special Educational Needs in an Inclusive Preschool Unit - a Systematic Review]. *Edukacja Elementarna w Teorii i Praktyce*, *19,* 4(75), 87-102. https://doi.org/10.35765/eetp.2024.1975.06

Annex 1. Summary table

Database	Search strings	Field tags	Years covered	Date of retrieval
Scopus	scaffolding AND inclusive preschool	Article title, abstract, key words/Published from 2000 to present	2005-2024	23 Mar 2024
Web of Science	scaffolding AND inclusive preschool	title, abstract, author keywords	2000-2024	23 Mar 2024
EBSCO	scaffolding strategies AND TX (preschool or kindergarten or early childhood education) AND TX inclusive	Publication Date Custom range:1 Jan 2000- 23 March 2024/ Databases: Education Source Ultimate, ERIC, Academic Search Ultimate/ Language: English, Polish	2000-2024	23 Mar 2024
ScienceDirect	scaffolding inclusive preschool	Find articles with these terms/ Year(s)/ Article type: Research articles	2000-2024	23 Mar 2024
Google Scholar	scaffolding inclusive preschool	książki, artykuły w innym języku	2000-2024	23 Mar 2024
Scopus	scaffolding AND inclusive preschool	Article title, abstract, key words/Published from 2024 to present	2024	1 Jan 2025
Web of Science	scaffolding AND inclusive preschool	title, abstract, author keywords	2024	1 Jan 2025
EBSCO	scaffolding strategies AND TX (preschool or kindergarten or early childhood education) AND TX inclusive	Publication Date Custom range:24 March 2024-1 Jan 2025/ Databases: Education Source Ultimate, ERIC, Academic Search Ultimate/ Language: English, Polish	2024	1 Jan 2025
Google Scholar	scaffolding inclusive preschool	książki, artykuły w innym języku	2024	1 Jan 2025
ScienceDirect	scaffolding play inclusive preschool	Find articles with these terms/ Year(s)/ Article type: Research articles	2024	1 Jan 2025
Scopus	scaffolding AND inclusive preschool	Article title, abstract, key words/Published from 2025 to present	2025	July 2025
Web of Science	scaffolding AND inclusive preschool	title, abstract, author keywords	2025	July 2025
EBSCO	scaffolding strategies AND TX (preschool or kindergarten or early childhood education) AND TX inclusive	Publication Date Custom range: 2 Jan 2025-31 Jul 2025/ Databases: Education Source Ultimate, ERIC, Academic Search Ultimate/ Language: English, Polish	2025	July 2025
Google Scholar	scaffolding inclusive preschool	książki, artykuły w innym języku	2025	July 2025
ScienceDirect	scaffolding play inclusive preschool	Find articles with these terms/ Year(s)	2025	July 2025

Annex 2. Scaffolding techniques in play – practical application

Scaffolding techniques	How to apply them in kindergarten	Example from kindergarten classes
Providing feedback	The teachers provides feedback. They praise the child's effort by giving brief, positive feedback. They focus on the process rather than the result. Feedback can also take the form of corrective information.	While playing with blocks: "I like how you worked with your friends today to build the tower – it made it easier for everyone." "Your tower is stable because you chose a wide base, which is a great idea!" While doing a puzzle: "Great! You found a piece that fits in the corner – you're paying attention to colors and shapes." "I noticed that you asked Kate if she wanted to do the puzzle with you, which is very nice behavior in a group."
Prompting	When a child experiences challenges, the teacher provides guidance or encouragement to try a different approach.	While doing a puzzle, the teacher says: "You might try fitting this piece with the blue sky into this corner." While playing with blocks: "Look, why don't you try doing something underneath to make the bridge more stable?"
Instruction	The teachers explain the tasks clearly and concisely, using examples. They make sure that the children know what to do.	Before the physical activity, the teacher says: "First, we run to the cone, then we jump like frogs and return to our place." While playing with blocks: "First, place the large blocks at the bottom, then the smaller ones on top, and finally check that the tower does not fall over."
Explaining	The teacher explains concepts in a simple way using comparisons and examples from the child's everyday life.	"We share our toys so that everyone can play and no one is sad." "We wait for our turn so that others can try too—it's fair." "We say 'please' and 'thank you' because then others understand us better and enjoy playing with us."
Modeling	The teacher shows the child how to do something through joint activity or demonstration.	The teacher shows how to ask a friend to play together or how to apologize when you accidentally hit someone. The teacher sits down next to the child and starts building their own tower, commenting aloud: "First, I make a wide base, then the tower will be stable."
Asking questions	The teacher asks open-ended questions that stimulate the child's thinking and imagination.	"What can we do so that everyone can play together?" "How can we ask for a toy without arguing?"