

Pedagogical Conditions for Developing Social Adaptation Skills in Preschool Children with Autism Spectrum Disorder

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Abstract: Developing social adaptation skills in preschool children with autism spectrum disorder (ASD) requires coordinated attention to individual developmental characteristics, educational practices, family participation, peer interaction, and the organization of the educational environment.

This study aims to theoretically substantiate and systematize the pedagogical conditions that support the development of social adaptation skills in preschool children with ASD.

The study employs theoretical analysis, comparative analysis, systematization, classification, and generalization of psychological, pedagogical, special educational, and contemporary international research. Particular attention was given to research on early intervention, social communication, play-based intervention, family-mediated intervention, inclusive education, evidence-based practices, and educational environments for autistic children.

The analysis resulted in an integrated framework comprising external and internal pedagogical conditions. External conditions were differentiated into macro-, meso-, and micro-levels. The macro level includes the socio-cultural and policy environment; the meso level encompasses preschool institutions, multidisciplinary cooperation, and family–institution interaction; and the micro level concerns the child's immediate relationships and everyday social experiences. Internal conditions include the organization of a structured, safe, flexible, and individualized educational environment and the systematic application of appropriate forms, methods, and educational tools. The analysis also indicates the importance of play, peer interaction, social situation modeling, family participation, predictable routines, and opportunities for transferring learned skills into everyday contexts.

Social adaptation in preschool children with ASD should be understood as a multilevel pedagogical process rather than the result of isolated interventions. The proposed framework integrates environmental, organizational, interpersonal, and instructional conditions into a coherent pedagogical system.

Keywords: Autism spectrum disorder, social adaptation, preschool children, inclusive education, pedagogical conditions.

Introduction: The development of social adaptation skills in preschool children with autism spectrum disorder (ASD) is one of the significant problems of contemporary special education. Preschool age is a particularly important period for the development of communication, social interaction, independent activity, adaptive behavior, and participation in everyday social situations. Therefore, educational

support at this stage should be aimed not only at the acquisition of separate skills but also at their practical application in different social contexts.

Autism spectrum disorder is a neurodevelopmental condition associated with differences in social communication and interaction as well as restricted or repetitive patterns of behavior and interests (American Psychiatric Association, 2022). The developmental

characteristics associated with autism can influence children's participation in everyday interactions, play, communication, educational activities, and social routines. Consequently, preschool education has an important role in creating opportunities for children with ASD to participate in shared activities and gradually develop functional social skills.

The social adaptation of children with ASD is a complex pedagogical process involving communication with adults and peers, participation in joint activities, understanding and following social rules, development of independent actions, and gradual adaptation to the requirements of an educational environment.

Contemporary intervention research indicates that early educational and developmental interventions can influence several developmental domains in young autistic children. Project AIM and subsequent evidence syntheses have demonstrated evidence for changes across communication, social, adaptive, and developmental outcomes, although the magnitude and consistency of effects vary across intervention types and outcome measures (Crank et al., 2021; Sandbank et al., 2023).

Play-based approaches are especially relevant to preschool education because play provides naturally occurring opportunities for communication, joint engagement, imitation, turn-taking, problem solving, and interaction with peers and adults. Reviews of play-based interventions have identified a promising evidence base for supporting social communication while also pointing to methodological and contextual gaps in research conducted in naturalistic educational settings (Gibson et al., 2021; O'Keeffe & McNally, 2023).

Family participation represents another important component. Research on family-mediated social communication interventions has demonstrated that parents and other family members can participate actively in intervention processes, although effects vary between studies and children (Pacia et al., 2022). More recent research on parent-mediated play-based interventions has also emphasized the relevance of involving caregivers in supporting social communication and language development among preschool autistic children (Deniz et al., 2024).

The educational environment itself also requires attention. Research on inclusive educational settings suggests that social participation depends not only on the child's individual abilities but also on the characteristics of peers, teachers, staff practices, and the physical environment. A recent systematic review of school-based interventions found that interventions may improve access to school activities, while

improvements in reciprocity and friendship are less consistent (Tsou et al., 2024).

These findings indicate that the development of social adaptation cannot be adequately explained through a single method or intervention. Rather, it emerges from the interaction of the child with the educational environment, adults, peers, family, and broader social context.

Research Gap

Despite the growing international literature on early autism intervention, several conceptual gaps remain. First, much of the literature examines particular intervention approaches—such as play-based intervention, parent-mediated intervention, naturalistic developmental behavioral intervention, or peer-mediated intervention—rather than developing an integrated pedagogical framework that connects these approaches with the broader conditions of educational organization.

Second, existing research frequently focuses on specific outcomes such as social communication, joint attention, language, play, or school readiness. These outcomes are important, but they do not always provide a comprehensive pedagogical interpretation of social adaptation as a process involving communication, participation, independence, socially appropriate behavior, and transfer of skills across contexts.

Third, the educational environment is increasingly recognized as relevant to autistic children's participation, but environmental conditions, institutional cooperation, family involvement, peer interaction, and instructional methods are not always conceptualized within one multilevel system.

Fourth, there is a need to connect individual-level pedagogical support with meso-level institutional conditions and macro-level social and policy factors. Accordingly, the present study addresses the following research problem: How can the pedagogical conditions for developing social adaptation skills in preschool children with ASD be theoretically systematized as an interconnected multilevel educational system?

Purpose of the Study

The purpose of this study is to theoretically substantiate and systematize the pedagogical conditions for developing social adaptation skills in preschool children with autism spectrum disorder.

Scientific Novelty

The scientific novelty of the study lies in the development of an integrated conceptual framework that systematizes pedagogical conditions for social adaptation into external macro-, meso-, and micro-

level conditions and internal educational conditions. The framework connects the broader socio-cultural and educational context, institutional organization and multidisciplinary cooperation, the child's immediate social environment, the developmental educational environment, individualized pedagogical support, forms and methods of instruction, peer interaction, family participation, and transfer of acquired skills into everyday social situations. The contribution is primarily conceptual and methodological: it provides a pedagogical structure through which different evidence-based practices can be integrated into an organized system of social adaptation support.

METHODS

The study is theoretical and methodological in nature. It does not report an empirical experiment, participant sample, or statistical analysis. The research was designed to identify, compare, systematize, and conceptually integrate pedagogical conditions relevant to the development of social adaptation skills in preschool children with ASD.

The analysis was based on psychological, pedagogical, special educational, and international peer-reviewed literature addressing early intervention, social communication development, social skills interventions, play-based interventions, family-mediated interventions, naturalistic developmental behavioral interventions, peer-mediated interventions, inclusive educational environments, evidence-based educational practices, and structured educational supports.

Priority was given to recent international literature, particularly studies published during 2020–2026, while foundational studies were retained where they were directly relevant to the conceptual framework. The study does not claim to be a systematic review or meta-analysis. The literature was used for theoretical comparison and conceptual synthesis.

The following methods were applied: theoretical analysis, comparative analysis, systematization, classification, and theoretical generalization. The analytical focus was placed on the relationship between individual developmental characteristics, educational organization, pedagogical interaction, family participation, peer interaction, multidisciplinary cooperation, and social participation.

RESULTS

Pedagogical conditions should be understood as interconnected circumstances and organizational factors that enable the purposeful implementation of educational objectives. For preschool children with ASD, these conditions should create opportunities for

communication, interaction, participation, independence, socially appropriate behavior, and practical application of acquired skills.

The analysis indicates that pedagogical conditions should not be considered as isolated variables. Their effectiveness depends on the degree to which objectives, educational content, methods, environment, participants, and expected outcomes are coordinated.

Accordingly, pedagogical conditions for developing social adaptation skills may be defined as an interconnected system of external and internal educational, social, organizational, environmental, and instructional factors that enables preschool children with ASD to develop communication, interaction, independence, socially appropriate behavior, and participation in everyday social contexts.

Conceptual Framework of the Study

The conceptual framework developed through the theoretical synthesis can be represented as: Pedagogical Conditions → External Conditions (Macro, Meso, Micro) + Internal Conditions (Developmental Educational Environment; Forms, Methods and Educational Tools) → Pedagogical Processes (Individualization, Multidisciplinary Cooperation, Family Participation, Peer Interaction, Practical Social Participation) → Social Adaptation Outcomes (Communication, Social Interaction, Participation, Independence, Social Behavior, Generalization of Skills).

The framework demonstrates that social adaptation should be developed through simultaneous attention to the child and the contexts in which the child participates.

External Pedagogical Conditions

External pedagogical conditions influence the child's social adaptation through different levels of the social environment.

Macro-Level Conditions

Macro-level conditions refer to the broad social, cultural, educational, and policy environment surrounding children with ASD. They include social attitudes toward autism and disability, recognition of children's educational rights, inclusive education policy, public awareness, accessibility of educational and social services, opportunities for social participation, cultural acceptance of diversity, and institutional support for families.

The importance of macro-level conditions follows from the understanding that educational inclusion does not occur in isolation. Policies and social attitudes influence the availability of services, institutional expectations,

professional preparation, and opportunities for children to participate in community life.

Meso-Level Conditions

Meso-level conditions are formed within preschool institutions, local educational systems, and relationships among professionals and families. They include coordinated work of specialists, adaptation of educational programs, individualized educational planning, cooperation between preschool teachers and special educators, psychological and speech-language support, family–institution cooperation, peer interaction, methodological support, organization of joint activities, and continuity among different forms of intervention.

Multidisciplinary cooperation is especially important because social adaptation is multidimensional. Communication, behavior, independence, play, emotional regulation, and participation may require contributions from different professionals. Evidence-based practice research demonstrates that autism intervention includes a broad range of approaches rather than a single universally applicable method (Hume et al., 2021).

Micro-Level Conditions

Micro-level conditions concern the child's immediate social environment, including parents, preschool teachers, peers, siblings, other family members, and significant adults.

At this level, social adaptation is developed through everyday experiences rather than only through specially organized intervention sessions. Examples include greeting and saying goodbye, requesting assistance, participating in shared play, waiting for a turn, following simple social rules, choosing between activities, completing daily routines, sharing materials, responding to communication partners, asking questions, participating in group activities, and solving simple social problems.

Family-mediated research is particularly relevant here. Pacia et al. (2022) reviewed 54 studies involving social communication interventions delivered by parents and siblings to children under six years of age and found considerable variation across intervention approaches and outcomes. The findings support the importance of family participation while also demonstrating that family involvement requires appropriate guidance and individualized implementation.

Internal Pedagogical Conditions

The analysis identified two major internal conditions: (1) organization of an appropriate developmental educational environment; and (2) systematic application of suitable forms, methods, and

educational tools. These conditions are interconnected. The environment creates opportunities for activity and interaction, whereas pedagogical methods determine how these opportunities are used.

Organization of the Developmental Educational Environment

The educational environment for preschool children with ASD should be structured, safe, predictable, flexible, individualized, functionally organized, emotionally supportive, and responsive to sensory and communication needs.

The environment can be organized into functional areas such as play, educational activity, communication, individual activity, practical activity, and relaxation. Functional organization can help children understand what activities occur in particular spaces and can support gradual development of independence.

Predictability is also important. Consistent routines may reduce uncertainty and make participation easier. However, predictability should not be confused with rigidity. The environment should remain sufficiently flexible to accommodate individual developmental needs and changes in activities.

Educational materials may include photographs, pictograms, symbols, communication cards, behavioral cards, schedules, and other structured forms of information. Their purpose is to support children's understanding of activities, expectations, and social situations.

Principles of Organizing the Educational Environment

Principle of Adaptability: The environment should change according to the child's developmental progress and current educational needs.

Principle of Active Participation: The child should not remain a passive recipient of support. Educational activities should create opportunities for choice, interaction, communication, and independent action.

Principle of Functional Organization: Different areas and materials should have clear educational purposes and support the child's understanding of activities and expectations.

Principle of Individual Comfort: The organization of the environment should consider communication abilities, developmental level, sensory characteristics, and emotional well-being.

Principle of Developmental Accessibility: The environment should provide opportunities for participation without unnecessarily excluding the child from common educational experiences.

Forms, Methods, and Educational Tools

Individual activities provide opportunities to adapt tasks to the child's developmental level. Small-group activities facilitate communication and cooperation. Structured games and role-playing allow children to practice social behavior in predictable situations.

Modeling social situations is particularly important for transferring skills into everyday activities. Repetition and consolidation contribute to strengthening acquired behaviors. Cooperation with parents makes it possible to continue the development of social adaptation skills beyond the preschool institution.

Play should not simply be treated as recreational activity. When pedagogically organized, it can become a context for communication, cooperation, imitation, turn-taking, problem solving, and social participation (Gibson et al., 2021; O'Keeffe & McNally, 2023).

Individualization of Educational Support

Preschool children with ASD differ substantially in communication, social interaction, independence, play, sensory processing, and adaptive behavior. Therefore, the same pedagogical strategy cannot be expected to produce identical outcomes for all children.

Individualization requires assessment of current abilities, identification of educational needs, identification of participation barriers, adaptation of tasks, selection of appropriate methods, adjustment of task complexity, individualized assistance, continuous observation of progress, and transfer of skills to everyday contexts.

Importantly, individualization should not result in social isolation. A child may require an individualized task while simultaneously participating in a common group activity.

Multidisciplinary Cooperation

Multidisciplinary cooperation is another central pedagogical condition. The team may include special educators, preschool teachers, psychologists, speech-language specialists, physical education specialists, music specialists, medical professionals when appropriate, and parents or legal representatives.

Effective cooperation requires common educational objectives, regular information exchange, coordinated planning, consistency in intervention strategies, joint monitoring, and continuity across educational and home environments.

Naturalistic developmental behavioral interventions may involve professionals and parents in everyday contexts rather than relying exclusively on highly structured clinical settings. Evidence reviews suggest promising effects but also emphasize variability across

children and the need for high-quality implementation (Crank et al., 2021; van Noorden et al., 2026).

DISCUSSION

The findings of the present theoretical analysis indicate that social adaptation in preschool children with ASD should be conceptualized as a multilevel pedagogical process.

The first important finding is the need to move beyond a narrow intervention-centered interpretation. Contemporary evidence confirms the value of particular intervention approaches, but no single approach explains all dimensions of social participation. NDBI research demonstrates potential benefits across developmental domains, but effects vary across outcomes and intervention characteristics (Crank et al., 2021). Similarly, the updated evidence base on autism interventions indicates that intervention effects differ according to developmental domain and methodological characteristics (Sandbank et al., 2023). This supports the conceptual position of the present study that social adaptation should be developed through a system of mutually coordinated pedagogical conditions.

The second important finding concerns the role of play. Research identifies play as a relevant context for social and communication development. Gibson et al. (2021) demonstrated the breadth and heterogeneity of the play-based intervention literature, whereas O'Keeffe and McNally (2023) emphasized the potential of play within educational settings. Dijkstra-de Neijs et al. (2023) also found that many play-based randomized controlled trials reported improvements in social interaction, communication, everyday functioning, or play behavior, while highlighting methodological limitations in a substantial proportion of the evidence. Therefore, the present framework does not treat play as an isolated technique. Instead, play is positioned as one component of a broader system that includes peer interaction, adult mediation, communication opportunities, and transfer into daily routines.

The third finding concerns family participation. The inclusion of parents within the micro-level of the framework is supported by family-mediated intervention research. Pacia et al. (2022) found substantial variation across family-mediated interventions, suggesting that parent participation is valuable but requires appropriate structure and support. Deniz et al. (2024) similarly focused on parent-mediated play-based interventions and their potential contribution to social communication and language development.

The fourth finding concerns the educational environment. Tsou et al. (2024) reviewed school-based

interventions aimed at increasing social inclusion and found that interventions may improve access to activities, while reciprocal relationships and friendships do not necessarily improve to the same degree. This has direct relevance to the proposed framework: if the goal is social adaptation, it is insufficient to teach a child how to initiate interaction without also creating meaningful opportunities for peers to respond.

The fifth finding concerns structured educational supports. Research on visual supports suggests that predictable and accessible forms of information may facilitate participation and communication (Rutherford et al., 2020). In the present framework, such tools are not considered universal solutions. Their value depends on individual needs, appropriate design, and consistent implementation.

The sixth finding concerns professional cooperation. Hume et al. (2021) identified a broad range of evidence-based practices in autism intervention. The breadth of this evidence base indicates that educational professionals need to understand different intervention principles and make context-sensitive decisions. A multidisciplinary team therefore provides a mechanism for integrating different areas of expertise.

The proposed macro–meso–micro structure adds a broader pedagogical dimension to this evidence. Macro-level factors explain the social and policy context; meso-level factors explain institutional organization; and micro-level factors explain everyday interaction.

This multilevel interpretation also helps explain why apparently effective intervention techniques may not produce meaningful changes in everyday participation. A skill acquired in a structured session may remain context-dependent if the child is not given opportunities to use it with different people, in different activities, and across different environments. Therefore, generalization and transfer should be treated as central criteria of social adaptation.

The proposed framework does not prescribe one method for every child. Instead, it establishes a structure for selecting and coordinating methods according to individual developmental characteristics. This is particularly important because the contemporary literature demonstrates heterogeneity in intervention effects. Fang et al. (2023), for example, reported promising evidence concerning socio-communicational outcomes in educational interventions while also noting heterogeneity. Van Noorden et al. (2026) similarly found promising but inconsistent effects across parent-mediated NDBI research.

Thus, the scientific implication of the present study is not that a specific intervention should be universally adopted. Rather, effective pedagogical organization should involve individualization, contextual adaptation, systematic cooperation, and continuous monitoring.

PRACTICAL PEDAGOGICAL MODEL

1. Initial assessment – identify the child's communication, social interaction, play, independence, and adaptive abilities.
2. Individual educational objectives – determine priority social adaptation objectives.
3. Environmental organization – prepare predictable routines, functional activity areas, accessible materials, and appropriate communication supports.
4. Structured teaching – use modeling, imitation, demonstration, step-by-step instruction, reinforcement, and repeated practice.
5. Social participation – create opportunities for interaction with adults and peers through play, group activities, routines, and practical tasks.
6. Family participation – provide parents with consistent strategies and opportunities to practice relevant skills at home and in community settings.
7. Generalization – practice the same skill with different people, materials, locations, and activities.
8. Monitoring – observe changes in communication, participation, independence, social behavior, and transfer of skills.

LIMITATIONS OF THE STUDY

The present study has several limitations. First, it is theoretical and methodological and therefore does not provide empirical evidence of the effectiveness of the proposed framework. Second, the study does not report a systematic review with formal database screening, risk-of-bias assessment, or quantitative synthesis. Third, the international literature on autism intervention is heterogeneous in terms of participant characteristics, intervention intensity, outcome measures, educational settings, and research designs. Fourth, additional research is required to examine the applicability of the proposed framework in different preschool settings and cultural contexts, including low- and middle-income countries.

CONCLUSION

The theoretical analysis demonstrates that the development of social adaptation skills in preschool children with autism spectrum disorder requires an interconnected system of pedagogical conditions.

The proposed framework differentiates external conditions into three levels. The macro level includes

the broader socio-cultural, educational, and policy environment. The meso level includes preschool institutions, multidisciplinary cooperation, educational organization, family–institution interaction, and peer environments. The micro level includes the child's immediate interaction with parents, teachers, peers, and other significant adults.

Internal pedagogical conditions include the organization of an appropriately structured educational environment and the systematic selection and application of forms, methods, and educational tools.

The theoretical synthesis demonstrates that social adaptation should be supported through structured and predictable educational environments, individualized pedagogical assistance, play-based and practical activities, peer interaction, family

participation, multidisciplinary cooperation, and opportunities for generalizing skills across everyday contexts.

The principal scientific contribution of the study is the integration of these conditions into a multilevel conceptual framework. This framework emphasizes that social adaptation is not solely a characteristic that must be developed within the child. It is also a product of the interaction between the child and the educational, family, peer, institutional, and social environments.

Future empirical studies should test the proposed framework in preschool educational settings, develop measurable indicators of social adaptation, examine changes in communication and participation, and determine the effectiveness of different combinations of pedagogical conditions.

FORMS, METHODS, AND EDUCATIONAL TOOLS

Forms of work	Methods	Educational tools
Individual activities	Observation	Visual schedules
Small-group activities	Demonstration and modeling	Pictograms and pictures
Structured play	Step-by-step instruction	“First–then” cards
Role-play	Imitation	Social scenarios
Modeling of social situations	Reinforcement	Communication cards
Daily routine activities	Situational exercises	Visual instructions
Joint activities with peers	Repetition and consolidation	Social behavior cards
Cooperation with parents	Problem-solving activities	Didactic games
Outdoor and community activities	Role-playing	Practical materials

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