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# Examination of School Adaptation among Preschool Children with Special Needs[1]

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**Abstract**

This mixed-method study examined the school adaptation of preschool children with special needs and interpreted child- and context-related factors through the lens of Bronfenbrenner's Ecological Systems Theory. A convergent parallel design was used. Quantitative data were obtained from preschool children with special needs enrolled in settings affiliated with the Ministry of National Education in Istanbul, while qualitative data were generated through semi-structured interviews with teachers selected by criterion sampling. Quantitative data were analyzed using non-parametric tests, followed by Dunn-Bonferroni post-hoc comparisons where omnibus tests were significant. Interview data were analyzed through thematic analysis using systematic coding, theme development, coder comparison, and an audit trail. The quantitative findings indicated that school adaptation varied according to gender, classroom setting, institution type, and diagnosis, whereas age and prior education were not associated with significant differences. Children in inclusion classes showed higher adaptation ranks than those in special-education classes. Post-hoc comparisons showed that no specific institution-type pair remained significant after multiplicity adjustment. For diagnosis, children with autism spectrum disorder showed lower adaptation ranks than children with physical disabilities, speech-language difficulties, and the other-disabilities group, but did not differ significantly from children with intellectual disabilities after correction. Qualitative findings identified family-school collaboration, individualized teacher support, peer acceptance, and predictable routines as facilitators, whereas insufficient support personnel, sensory overload, limited self-care skills, and inconsistent home practices emerged as barriers. Integration of the two strands indicated that school adaptation is best understood as an ecological process shaped by reciprocal interactions among child characteristics, classroom conditions, peer relationships, and family-school coordination.

**Keywords:** School adaptation, early childhood special education, inclusive education, ecological systems theory, mixed method

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## Introduction

Early childhood education is a major transition context in which children are expected to participate in group routines, establish relationships with adults and peers, regulate their behavior, and develop a sense of belonging. School adaptation refers to the extent to which children become engaged, comfortable, and functionally successful in the school environment; it includes behavioral participation, positive orientation toward school, and the capacity to manage everyday classroom demands (Betts & Rotenberg, 2007; Birch & Ladd, 1997). For children with special needs, this transition may be complicated by communication, sensory, behavioral, motor, or self-care needs and by the responsiveness of the environments in which education takes place.

Inclusive education cannot be reduced to physical placement. In early childhood, meaningful inclusion depends on children's participation, belonging, peer acceptance, and access to responsive supports. Turkish studies illustrate that these conditions are shaped by classroom practice as well as by social relationships. For example, Akın and Sani-Bozkurt (2021) showed that typically developing preschool peers may display both accepting and rejecting responses toward children with special needs, highlighting the importance of intentionally supported peer interaction. Likewise, preschool teachers report that the quality of inclusion is influenced by instructional adaptations, collaboration, professional support, and the practical conditions of classrooms (Kocaoğlu, Acartürk, İskenderoğlu, & Çelenk, 2023). International guidance similarly emphasizes participation and barrier removal rather than placement alone (UNESCO, 2020). These findings suggest that individual and contextual variables should be examined together.

Bronfenbrenner's Ecological Systems Theory provides the conceptual framework for this study (Bronfenbrenner, 1979). From this perspective, adaptation is not a fixed attribute located solely within the child. It develops through reciprocal interactions between the child and immediate microsystems such as the classroom and family, as well as through connections between these settings at the mesosystem level. Teacher practices, peer relationships, classroom routines, family expectations, and family-school communication may therefore operate together to facilitate or constrain school adaptation. The ecological framework is particularly suitable for special education because it shifts attention from deficit-based explanations toward the fit between children's needs and the supports available in their environments. This systemic orientation is consistent with contemporary inclusion literature, which locates educational participation in the interaction between learner characteristics and environmental supports (Buchner et al., 2021; UNESCO, 2020).

## Literature Review

### Conceptualizing School Adaptation

School adaptation in early childhood is a multidimensional construct referring to children's interest in, comfort within, and functional participation in the school environment. It is reflected in engagement with classroom activities, positive orientation toward school, behavioral regulation, relationships with teachers and peers, and the capacity to manage everyday routines. Early work on school adjustment demonstrated that teacher-child relationship quality is closely related to children's classroom engagement and adjustment: closeness and supportive interaction are associated with more adaptive participation, whereas conflict and dependency can signal or intensify adjustment difficulties (Birch & Ladd, 1997). Teacher-rating instruments have therefore been widely used to capture children's day-to-day school functioning from the perspective of adults who observe them across naturally occurring routines (Betts & Rotenberg, 2007). School adjustment is therefore best treated as a relational and contextual construct rather than as a single child-level trait (Betts & Rotenberg, 2007; Birch & Ladd, 1997; Seven, 2020).

### School Adaptation of Children with Special Needs

For children with special needs, adaptation cannot be understood solely as an individual readiness issue. Communication differences, sensory-regulatory needs, motor or self-care limitations, and behavioral support needs interact with classroom demands and available accommodations. In a Turkish preschool sample, Bakkaloğlu and Sucuoğlu (2018) reported lower school-adjustment scores among children with special needs than among peers without special needs and also observed gender-related differences. At

the same time, Turkish inclusion research indicates that participation is strongly affected by peer attitudes, teacher preparedness, and the availability of classroom supports (Akın & Sani-Bozkurt, 2021; Kocaoğlu et al., 2023). These findings indicate that child characteristics matter, but they do not explain adaptation independently of the educational context. Barriers may emerge when routines, teaching methods, peer structures, or environmental conditions are insufficiently responsive to learner diversity (Basham, Blackorby, & Marino, 2020; Buchner et al., 2021; Kargın, 2004).

### Inclusive Contexts, Family-School Relationships, and the Ecological Perspective

Bronfenbrenner's (1979) framework provides a basis for connecting these strands of literature. The classroom and family are immediate microsystems, while communication and consistency between them constitute a mesosystem process. A child's adaptation may be strengthened when teachers and families coordinate expectations, routines, communication, and support strategies, and weakened when children encounter discontinuity across settings. Peer relationships and classroom organization are likewise proximal processes that can support belonging or create barriers. Turkish research has emphasized the relevance of peer experiences, behavioral difficulties, gender, teacher practices, and social acceptance to preschool participation and adjustment (Akın & Sani-Bozkurt, 2021; Bakkaloğlu & Sucuoğlu, 2018; Kocaoğlu et al., 2023; Yoleri, 2015). Recent international work also points to parental involvement and coordinated transition support as important for children with developmental disabilities and autism spectrum disorder (Hou, Yan, & Zhang, 2023). Taken together, the literature suggests that school adaptation is best examined as a child-in-context phenomenon. However, much of the available work relies on either quantitative teacher ratings or qualitative stakeholder accounts. The present study addresses this gap by integrating group-level quantitative patterns with teachers' explanations of the relational and environmental processes that may underlie those patterns.

The aim of this study was to examine the school adaptation levels of preschool children with special needs and to examine how adaptation differed according to gender, age, classroom setting, institution type, prior education, and diagnosis, while also exploring teachers' views of the factors that facilitate or hinder adaptation. The quantitative and qualitative findings were interpreted through Bronfenbrenner's Ecological Systems Theory in order to examine school adaptation as a child-in-context process. The study addressed the following questions: (1) Do school-adaptation scores differ significantly according to gender, age, classroom setting, institution type, prior education, and diagnosis? (2) What factors do teachers identify as facilitating or hindering the school-adaptation process? (3) How do the qualitative findings help explain and contextualize the quantitative patterns within an ecological systems framework?

## Method

### Research Design

A convergent parallel mixed-method design was employed (Creswell & Plano Clark, 2018). Quantitative and qualitative data were collected during the same general phase of the study, analyzed separately, and then brought together during interpretation. The quantitative strand was used to identify statistically significant differences in school adaptation across selected variables, whereas the qualitative strand was used to examine how teachers explained the conditions that supported or constrained adaptation. Integration was achieved by comparing convergence, complementarity, and divergence across the two strands and by presenting a joint interpretation of the findings. Bronfenbrenner's Ecological Systems Theory functioned as the theoretical and interpretive lens for understanding how child characteristics and contextual systems interacted; it was not treated as a separate mixed-method research design.

### Study Group

To ensure methodological rigor, distinct sampling strategies were utilized for the quantitative and qualitative phases.

Quantitative Group: The raw dataset contained 334 responses. One case with incomplete demographic information was excluded before analysis, yielding an analytic sample of 333 children with special needs attending preschool institutions affiliated with the Ministry of National Education in Istanbul. Minor

spelling and spacing inconsistencies in categorical responses were standardized before analysis. The low-frequency diagnosis categories of attention-deficit/hyperactivity disorder, specific learning difficulty, visual impairment, and hearing impairment were combined into an 'Other Disabilities' category for inferential analysis. Participant characteristics are presented in Table 1.

Table 1.
Demographic Characteristics of the Quantitative Study Group

| Variables | Category | n | % |
|---|---|---|---|
| Child's Gender | Male | 213 | 64.0 |
| | Female | 120 | 36.0 |
| Child's Age | 3 Years Old | 15 | 4.5 |
| | 4 Years Old | 53 | 15.9 |
| | 5 Years Old | 118 | 35.4 |
| | 6 Years Old | 147 | 44.1 |
| Type of Disability | Intellectual Disability | 108 | 32.4 |
| | Autism Spectrum Disorder (ASD) | 119 | 35.7 |
| | Language and Speech Difficulty | 49 | 14.7 |
| | Physical Disability | 30 | 9.0 |
| | Other Disabilities | 27 | 8.1 |
| Class Setting | Inclusion Class | 127 | 38.1 |
| | Special Education Class | 206 | 61.9 |
| Institution Type | Special Education Kindergarten | 174 | 52.3 |
| | Primary School (Preschool Class) | 114 | 34.2 |
| | Independent Kindergarten | 41 | 12.3 |
| | Other | 4 | 1.2 |
| Prior Education | 1–2 Years | 161 | 48.3 |
| | 2–3 Years | 75 | 22.5 |
| | Did Not Receive Education | 97 | 29.1 |
| Teacher's Branch | Preschool Teacher | 169 | 50.8 |
| | Special Education Teacher | 138 | 41.4 |
| | Psychological Counselor | 13 | 3.9 |
| | Child Development Teacher | 13 | 3.9 |

Qualitative Group (Criterion Sampling): The qualitative strand included 10 teachers selected through criterion sampling (Patton, 2015). The principal inclusion criterion was direct professional experience with preschool-aged children with special needs in inclusive or special-education contexts, enabling participants to provide experience-based accounts of school adaptation. The sample included professionals from different branches, institution types, classroom settings, and experience levels, as shown in Table 2.

As shown in Table 2, participants represented preschool teachers, special-education teachers, and school counselors working across special-education kindergartens, primary-school preschool classes, and independent kindergartens. Their professional experience ranged from the 1-5-year category to 26+ years. This heterogeneity was retained to capture variation in institutional and professional perspectives while preserving the central criterion of direct experience with children with special needs.

Table 2.

Demographic Characteristics of the Teachers in the Qualitative Study Group

| Participant | Gender | Age | Education | Branch | Experience | Institution | Classroom Setting |
|---|---|---|---|---|---|---|---|
| T1 | Male | 31–35 | Master's | Preschool T. | 6–10 Years | Special Ed. Kindergarten | Special Ed. Class |
| T2 | Female | 46+ | Bachelor's | Preschool T. | 26+ Years | Primary School (Pre-K) | Inclusive Class |
| T3 | Female | 36–40 | Bachelor's | Preschool T. | 11–15 Years | Independent Kindergarten | Inclusive Class |
| T4 | Female | 46+ | Bachelor's | School Counselor | 26+ Years | Primary School | — |
| T5 | Female | 46+ | Bachelor's | School Counselor | 26+ Years | Primary School | — |
| T6 | Female | 23–25 | Bachelor's | Preschool T. | 1–5 Years | Independent Kindergarten | Inclusive Class |
| T7 | Female | 41–45 | Master's | Special Ed. T. | 1–5 Years | Special Ed. Kindergarten | Special Ed. Class |
| T8 | Female | 41–45 | Bachelor's | Preschool T. | 16–20 Years | Primary School (Pre-K) | Inclusive Class |
| T9 | Female | 31–35 | Master's | Special Ed. T. | 11–15 Years | Primary School (Pre-K) | Inclusive Class |
| T10 | Female | 41–45 | Master's | Preschool T. | 16–20 Years | Independent Kindergarten | Inclusive Class |

**Data Collection Tools**

The study utilized three primary data collection instruments:

Demographic Information Form: Developed by the researchers to collect data on variables including age, gender, diagnosis type, and educational setting.

School Adaptation Teacher Rating Scale-Short Form (TRSSA-SF): The study used a teacher-report short form of the Teacher Rating Scale of School Adjustment to assess children's adaptation in everyday school contexts. Betts and Rotenberg (2007) reported a psychometrically supported short form organized around three related dimensions: on-task classroom involvement, positive orientation toward school, and maturity. In Türkiye, Önder and Gülay (2010) reported validity and reliability evidence for the Turkish version of the full Teacher Rating Scale of School Adjustment for 5-6-year-old children. Because the present study employed the short form, the Turkish full-form adaptation is cited only as related language- and construct-context evidence and is not presented as validation of an identical instrument. In the current analytic sample, the total-score Cronbach's alpha was .92, indicating high internal consistency. Subscale reliability coefficients were not available, and no new factor analysis was conducted. Accordingly, psychometric claims are limited to total-score internal consistency in the present sample and prior short-form development evidence.

Semi-Structured Interview Form: The interview form was developed in three stages. First, questions were drafted from the ecological framework and the study's research questions, with attention to child, classroom, peer, family, and school-level influences. Second, three experts in special education and measurement/evaluation reviewed the questions for relevance, clarity, and coverage; revisions were made in response to their feedback. Third, two pilot interviews were conducted with teachers who were not included in the main qualitative sample. Ambiguous wording and question order were revised before the main interviews. This process was used to strengthen content validity and comprehensibility.

**Data Collection Process and Ethical Considerations**

Prior to data collection, ethical approval was obtained from the Fatih Sultan Mehmet Vakıf University Scientific Research and Publication Ethics Board (29/12/2022, Decision No. 20/10). Permission and informed-consent procedures were completed before participation. For the quantitative strand, teachers completed the demographic form and school-adaptation rating measure on the basis of their observations of participating children in their regular educational settings. For the qualitative strand, semi-structured interviews were conducted face-to-face and lasted approximately 30-45 minutes. The same broad phenomenon-school adaptation-was addressed in both strands, but the forms of evidence were kept methodologically distinct until the integration stage. Participants were informed about voluntariness, confidentiality, anonymized reporting, and their right not to answer any question. No identifying information is presented in the findings; qualitative participants are reported with codes T1-T10.

## Data Analysis

Quantitative Analysis: Data were analyzed using statistical analysis software, and the analyses were independently rechecked against the raw dataset during the revision process. The total school-adaptation score showed a statistically significant departure from normality (Shapiro-Wilk $W = .978$, $p < .001$), although skewness (.21) and kurtosis (-.67) indicated no severe asymmetry. Because the normality assumption was not met and the outcome was based on an ordinal-response scale, non-parametric procedures were retained. Mann-Whitney U tests were used for two-group comparisons (gender and classroom setting), and Kruskal-Wallis H tests were used for comparisons involving three or more groups (age, institution type, prior education, and diagnosis). When a Kruskal-Wallis test was significant, Dunn pairwise comparisons with Bonferroni adjustment were conducted. Statistical significance was evaluated at $p < .05$. Effect sizes were reported alongside *p* values. Effect sizes were interpreted according to Cohen's (1988) guidelines. For Mann-Whitney U tests, r was calculated as $r = |Z|/\sqrt{N}$. For Kruskal-Wallis analyses, an eta-squared-type estimate was calculated as $\eta^2 = (H - k + 1)/(N - k)$, where H is the Kruskal-Wallis statistic, k is the number of groups, and N is the total sample size. Medians and interquartile ranges (IQRs) are reported together with mean ranks.

Qualitative Analysis: Interview transcripts were analyzed using thematic analysis following the six-phase process described by Braun and Clarke (2021): (1) repeated familiarization with the interview material, (2) generation of initial semantic codes close to participants' expressed meanings, (3) grouping related codes into candidate sub-themes and broader themes, (4) reviewing candidate themes against the coded material and the full set of interviews, (5) defining and naming themes, and (6) producing an analytic account linked to the research questions. The analysis was primarily inductive at the coding stage; Bronfenbrenner's ecological framework was applied subsequently as an interpretive lens rather than as a predetermined coding template. Two coders compared coding decisions, discussed disagreements, and reached consensus. Inter-coder agreement was calculated with the Miles and Huberman (1994) formula [agreement/(agreement + disagreement) × 100] and was 92%. An audit trail consisting of code lists, theme revisions, and analytic notes was retained. Reflexively, the researchers treated their familiarity with early childhood and special education as a potential source of sensitization and used inductive coding and analytic memos to reduce premature theory-driven interpretation. Formal member checking and a saturation-based stopping rule were not documented in the archived study records; therefore, the manuscript does not claim that these procedures were used. Trustworthiness was supported through expert review and pilot testing of the interview form, criterion-based recruitment of participants with direct experience of the phenomenon, coder comparison, an audit trail, verbatim quotations, and mixed-method triangulation. The quotations reported in the manuscript were selected as illustrative examples from participants T2, T3, T4, T7, and T9; theme frequencies reflect the full coded dataset rather than only the participants quoted. Table 5 provides an illustrative pathway from participant statement to code, sub-theme, and ecological interpretation.

# Findings

## Quantitative Findings: Comparison of Adaptation Levels

In the quantitative dimension of the study, differences in school adaptation were examined according to gender, age, classroom setting, institution type, prior education, and diagnosis. Table 3 presents medians, interquartile ranges, mean ranks, omnibus test results, and effect sizes. Dunn-Bonferroni post-hoc comparisons were conducted for significant Kruskal-Wallis tests.

As shown in Table 3, the non-parametric analyses indicated significant differences in school adaptation by gender, classroom setting, institution type, and diagnosis. Differences by age and prior education were not statistically significant. A Mann-Whitney U test showed that female students had higher school-adaptation ranks than male students ($U = 10765.50$, $Z = -2.39$, $p = .017$). The effect size was small ($r = .13$), indicating a modest gender difference. Children in inclusion classes had significantly higher school-adaptation ranks than children in special-education classes ($U = 10062.50$, $Z = -3.54$, $p < .001$, $r = .19$). Although the effect size was small, this finding indicates a consistent group-level advantage for children educated in inclusion classes in the present sample. A Kruskal-Wallis test showed

an overall difference in school adaptation across institution types ($H = 8.74$, $p = .033$, $\eta^2 = .02$). Descriptively, independent kindergartens and primary-school preschool classes had higher mean ranks than special-education kindergartens, while the small 'Other' category had the lowest mean rank. However, Dunn-Bonferroni post-hoc comparisons showed that none of the six pairwise institution-type comparisons remained statistically significant after adjustment (all adjusted p values ≥ .089). Accordingly, the institution-type effect should be interpreted as a modest omnibus pattern rather than evidence of a specific pairwise difference. School-adaptation scores differed significantly across diagnosis groups ($H = 26.67$, $p < .001$, $\eta^2 = .07$).

Table 3.

Comparison of School Adaptation Scores by Gender, Age, Classroom Setting, Institution Type, Prior Education, and Diagnosis

| Variable | Subgroup | n | Median (IQR) | Mean Rank | Test Statistic | p | Effect Size** |
|---|---|---|---|---|---|---|---|
| Gender | Female | 120 | 15.0 (11.25) | 183.79 | U = 10765.50; Z = −2.39 | .017* | r = .13 (Small) |
| | Male | 213 | 11.0 (10.00) | 157.54 | | | |
| Classroom Setting | Inclusion Class | 127 | 15.0 (10.00) | 190.77 | U = 10062.50; Z = −3.54 | < .001* | r = .19 (Small) |
| | Special Education Class | 206 | 11.0 (11.00) | 152.35 | | | |
| Institution Type | Special Education Kindergarten | 174 | 11.0 (10.00) | 154.40 | H = 8.74 | .033* | $\eta^2 = .02$ (Small) |
| | Primary School (Preschool Class) | 114 | 14.0 (10.75) | 182.62 | | | |
| | Independent Kindergarten | 41 | 15.0 (8.00) | 183.01 | | | |
| | Other | 4 | 6.0 (8.50) | 105.88 | | | |
| Diagnosis Type | Intellectual Disability | 108 | 12.0 (10.00) | 167.33 | H = 26.67 | < .001* | $\eta^2$ = .07 (Medium) |
| | ASD | 119 | 10.0 (11.00) | 135.67 | | | |
| | Physical Disability | 30 | 16.0 (7.00) | 206.15 | | | |
| | Speech–Language Difficulty | 49 | 15.0 (10.00) | 198.30 | | | |
| | Other Disabilities | 27 | 16.0 (8.00) | 203.48 | | | |
| Age | 3 Years Old | 15 | 11.0 (7.00) | 161.20 | H = 6.44 | .092 | $\eta^2 = .01$ Small) |
| | 4 Years Old | 53 | 11.0 (9.00) | 163.29 | | | |
| | 5 Years Old | 118 | 11.0 (11.00) | 151.55 | | | |
| | 6 Years Old | 147 | 14.0 (12.00) | 181.33 | | | |
| Prior Education | 1–2 Years | 161 | 13.0 (10.00) | 166.52 | H = 0.34 | .842 | $\eta^2 \approx .00$ |
| | Did Not Receive Education | 97 | 13.0 (10.00) | 171.19 | | | |
| | 2–3 Years | 75 | 11.0 (11.50) | 162.61 | | | |

Note. *p < .05. IQR = interquartile range. Other Disabilities includes attention-deficit/hyperactivity disorder, specific learning difficulty, visual impairment, and hearing impairment. Effect size interpretation: r: .10 = small, .30 = medium, .50 = large; $\eta^2$: .01 = small, .06 = medium, .14 = large.

Dunn-Bonferroni comparisons showed that children with ASD had significantly lower adaptation ranks than children with physical disabilities (adjusted p = .003), speech-language difficulties (adjusted p = .001), and other disabilities (adjusted p = .009). The difference between ASD and intellectual disability was not significant after adjustment (adjusted p = .133). No other diagnostic pair differed significantly (adjusted p values ≥ .505). Thus, the post-hoc results refine the omnibus finding by showing that the lower ASD rank was not uniform relative to every diagnostic category. No statistically significant differences in school adaptation were found across age groups ($H = 6.44$, $p = .092$, $\eta^2 = .01$) or prior-education groups ($H = 0.34$, $p = .842$, $\eta^2 \approx .00$). Therefore, no post-hoc comparisons were conducted for these variables. Dunn tests with Bonferroni correction were used following significant Kruskal-Wallis tests. For institution type, no pairwise comparison remained significant after correction. For diagnosis, ASD differed significantly from physical disability, speech-language difficulty, and the other-disabilities group, but not from intellectual disability. These corrected pairwise results were used in the subsequent mixed-method integration and discussion rather than relying solely on descriptive mean-rank ordering.

The non-parametric analyses indicated significant differences in school adaptation by gender, classroom setting, institution type, and diagnosis. Differences by age and prior education were not statistically significant. A Mann-Whitney U test showed that female students had higher school-adaptation ranks than male students ($U = 10765.50$, $Z = -2.39$, $p = .017$). The effect size was small ($r = .13$), indicating a modest gender difference. Children in inclusion classes had significantly higher school-adaptation ranks than children in special-education classes ($U = 10062.50$, $Z = -3.54$, $p < .001$, $r = .19$). Although the effect size was small, this finding indicates a consistent group-level advantage for children educated in inclusion classes in the present sample. A Kruskal-Wallis test showed an overall difference in school adaptation across institution types ($H = 8.74$, $p = .033$, $\eta^2 = .02$). Descriptively, independent kindergartens and primary-school preschool classes had higher mean ranks than special-education kindergartens, while the small 'Other' category had the lowest mean rank. However, Dunn-Bonferroni post-hoc comparisons showed that none of the six pairwise institution-type comparisons remained statistically significant after adjustment (all adjusted p values ≥ .089). Accordingly, the institution-type effect should be interpreted as a modest omnibus pattern rather than evidence of a specific pairwise difference. School-adaptation scores differed significantly across diagnosis groups ($H = 26.67$, $p < .001$, $\eta^2 = .07$). Dunn-Bonferroni comparisons showed that children with ASD had significantly lower adaptation ranks than children with physical disabilities (adjusted p = .003), speech-language difficulties (adjusted p = .001), and other disabilities (adjusted p = .009). The difference between ASD and intellectual disability was not significant after adjustment (adjusted p = .133). No other diagnostic pair differed significantly (adjusted p values ≥ .505). Thus, the post-hoc results refine the omnibus finding by showing that the lower ASD rank was not uniform relative to every diagnostic category. No statistically significant differences in school adaptation were found across age groups ($H = 6.44$, $p = .092$, $\eta^2 = .01$) or prior-education groups ($H = 0.34$, $p = .842$, $\eta^2 \approx .00$). Therefore, no post-hoc comparisons were conducted for these variables. Dunn tests with Bonferroni correction were used following significant Kruskal-Wallis tests. For institution type, no pairwise comparison remained significant after correction. For diagnosis, ASD differed significantly from physical disability, speech-language difficulty, and the other-disabilities group, but not from intellectual disability. These corrected pairwise results were used in the subsequent mixed-method integration and discussion rather than relying solely on descriptive mean-rank ordering.

**Qualitative Findings: Teachers' Perspectives**

The thematic analysis generated two overarching themes-Facilitators of Adaptation and Barriers to Adaptation-each containing four sub-themes. Frequencies indicate the number of coded references and are used only to show relative emphasis within the qualitative material; they are not treated as inferential statistics. The analysis below moves beyond frequency reporting by explaining how the sub-themes relate to one another and to the ecological framework.

Table 4.
Distribution of Themes, Sub-themes, and Codes Regarding the School Adaptation Process

| Main Themes | Sub-themes / Codes | Frequency (f) |
|---|---|---|
| 1. Facilitators of Adaptation | Family–School Collaboration and Effective Communication | 20 |
| | Supportive Teacher Attitudes and Individualized Strategies | 14 |
| | Peer Acceptance, Positive Modeling, and Cooperative Play | 11 |
| | Structured Routines and Predictable Daily Transitions | 7 |
| | Total | 52 |
| 2. Barriers to Adaptation | Insufficient Support Personnel (Assistant/Shadow Teacher Need) | 16 |
| | Sensory Overload: Noise, Crowding, and Environmental Stressors | 12 |
| | Limited Self-Care and Independence Skills | 10 |
| | Parental Overprotectiveness and Inconsistent Home Practices | 9 |
| | Total | 47 |

Table 5.
Illustrative Coding Pathway From Verbatim Statement to Ecological Interpretation

| Verbatim Evidence | Initial Code | Sub-theme | Ecological Interpretation |
|---|---|---|---|
| “When the family and I follow the same routine at home and school, the child becomes much calmer and more confident throughout the day.” (T7) | Consistency across settings | Family–school collaboration | Mesosystem continuity between home and school |
| “When classmates model appropriate behavior or invite a child to join play, adaptation happens naturally.” (T4) | Peer modeling and invitation | Peer acceptance and cooperative play | Peer microsystem supports participation and belonging |
| “Visual schedules work wonders—children know what comes next, which reduces anxiety significantly.” (T9) | Predictability through visual support | Structured routines and transitions | Classroom microsystem reduces uncertainty |
| “I often feel torn—one child clearly needs one-on-one support, but I have 20 others who also need me.” (T3) | Insufficient individualized adult attention | Insufficient support personnel | Institutional resources shape proximal support |
| “Some parents do everything for the child at home. Then at school, the child expects the same and gets frustrated.” (T2) | Discontinuity in independence expectations | Inconsistent home practices / overprotection | Mesosystem inconsistency may complicate adaptation |

As shown in Table 4, the first main theme, Facilitators of Adaptation, comprised four interrelated sub-themes. Family-school collaboration and effective communication was the most frequent code (f = 20). Teachers described adaptation as easier when home and school used consistent routines, expectations, and communication. T7 summarized this continuity: "When the family and I follow the same routine at home and school, the child becomes much calmer and more confident throughout the day." Supportive teacher attitudes and individualized strategies (f = 14) included adapting instructions, using visual supports, allowing additional processing time, and providing emotional reassurance. Peer acceptance, positive modeling, and cooperative play (f = 11) reflected the role of classmates in modeling routines and creating participation opportunities. As T4 explained, "When classmates model appropriate behavior or invite a child to join play, adaptation happens naturally." This finding is consistent with Turkish evidence showing that peer acceptance and rejection can shape the social experience of children with special needs in preschool inclusion settings (Akın & Sani-Bozkurt, 2021). Structured routines and predictable transitions (f = 7) reduced uncertainty. T9 noted, "Visual schedules work wonders—children know what comes next, which reduces anxiety significantly." Analytically, these facilitators indicate that adaptation is supported through linked microsystem and mesosystem processes: teacher practices

and peer relations operate in the classroom, while family-school consistency connects the child's major daily settings.

The second main theme, Barriers to Adaptation, also contained four sub-themes. Insufficient support personnel (f = 16) was the most frequently coded barrier and was linked to difficulty providing sustained individualized attention in group settings. T3 captured this tension: "I often feel torn—one child clearly needs one-on-one support, but I have 20 others who also need me." This concern parallels recent Turkish preschool teachers' reports that effective inclusion is constrained when professional support, instructional adaptations, and practical classroom resources are insufficient (Kocaoğlu et al., 2023). Sensory overload related to noise, crowding, and environmental stressors (f = 12) was described as disruptive for children who had difficulty regulating sensory input. Limited self-care and independence skills (f = 10) increased dependence on adults during daily routines. Parental overprotectiveness and inconsistent home practices (f = 9) created discontinuity between home and school expectations. T2 stated, "Some parents do everything for the child at home. Then at school, the child expects the same and gets frustrated." Together, these barriers show that adaptation difficulties reflect person-environment fit, staffing capacity, environmental demands, independence opportunities, and cross-setting continuity rather than child characteristics alone.

**Mixed-Method Integration of Quantitative and Qualitative Findings**

Table 6.
Joint Display Integrating Quantitative and Qualitative Findings

| Quantitative Result | Qualitative Evidence | Relationship Between Strands | Integrated Inference |
|---|---|---|---|
| Gender: Girls had higher mean rank; $p = .017$, $r = .13$ (small). | No distinct gender-related theme emerged. | Non-convergence / limited qualitative explanation | Gender appears to represent a modest group-level association rather than a central explanatory mechanism. |
| Classroom setting: Inclusion classes had higher mean rank; $p < .001$, $r = .19$ (small). | Peer acceptance, positive modeling, individualized teacher support, and participation opportunities were emphasized. | Convergence / complementarity | Inclusive classroom participation may support adaptation through peer and teacher microsystem processes, although causal inference is not warranted. |
| Institution type: Significant omnibus difference; $p = .033$, $\eta^2 = .02$; no pairwise comparison remained significant after Bonferroni correction. | Routines, staffing, individualized support, and environmental conditions were emphasized. | Complementarity with statistical caution | Institutional context may matter, but the data do not identify a specific institution-type pair as significantly different after correction. |
| Diagnosis: Significant omnibus difference; $p < .001$, $\eta^2 = .07$. ASD was lower than physical disability, speech–language difficulty, and other disabilities, but not intellectual disability after correction. | Sensory overload, predictability, individualized strategies, and support personnel were prominent themes. | Convergence / explanatory complementarity | The ASD-related pattern is best understood through person–environment fit and support demands rather than diagnosis alone. |
| Family–school coordination: The quantitative strand did not directly test family–school coordination. | Family–school collaboration was the most frequent facilitator; inconsistent home practices were identified as a barrier. | Expansion | The mesosystem adds an explanatory layer not captured by demographic group comparisons and represents a key target for practice. |

As shown in Table 6, Integration of the two strands showed convergence, complementarity, and non-convergence across different quantitative results. Classroom-setting findings converged with teachers' emphasis on peer acceptance, individualized support, and participation opportunities: children in inclusion classes had higher adaptation ranks, while qualitative accounts described peers and responsive classroom practices as important facilitators. Diagnosis-related evidence showed explanatory complementarity. Post-hoc tests indicated that the ASD group had lower ranks than the physical-disability, speech-language, and other-disabilities groups, but not the intellectual-disability group; teachers' accounts of sensory overload, predictability, individualized strategies, and support personnel

offer plausible contextual mechanisms without implying that diagnosis alone determines adaptation. Institution type showed an omnibus difference, but no pairwise comparison survived Bonferroni adjustment, so qualitative evidence about routines, staffing, and support is interpreted as contextual rather than as proof that one institution type is superior. Gender showed a statistically significant but small difference favoring girls, whereas no distinct gender-related qualitative theme emerged. Age and prior education showed no significant quantitative differences. Across both strands, the strongest higher-order inference remains ecological: adaptation reflects the fit between children's needs and the supports, relationships, routines, and cross-setting coordination surrounding them.

## Discussion

The present study examined the school adaptation of preschool children with special needs by combining quantitative group comparisons with teachers' contextual accounts. Its main contribution is not simply the presence of statistical group differences. Rather, the qualitative strand clarifies how relational, organizational, and environmental conditions may shape the meaning of those differences. Viewed through Bronfenbrenner's Ecological Systems Theory, the integrated findings suggest that school adaptation emerges through reciprocal transactions between child characteristics and the microsystem and mesosystem conditions of children's everyday settings (Bronfenbrenner, 1979). This position is also consistent with contemporary inclusion scholarship emphasizing the quality of participation, responsiveness of educational environments, and availability of supports (Basham et al., 2020; Buchner et al., 2021; Kocaoğlu et al., 2023).

Gender and School Adaptation: Girls showed higher school-adaptation ranks than boys, but the effect size was small ($r = .13$). The direction of the finding is consistent with Bakkaloğlu and Sucuoğlu (2018) and with Yoleri (2015), who linked preschool adjustment to gender alongside behavioral and peer experiences. However, the small effect means that gender provided only limited practical differentiation in this sample. It should not be interpreted as a fixed developmental advantage or as a basis for gender-specific assumptions. The absence of a corresponding gender theme in the qualitative data is equally important: teachers focused much more strongly on family-school coordination, classroom support, sensory conditions, and independence. The mixed-method conclusion is therefore deliberately cautious. Gender may co-vary with adaptation, but the present data provide stronger explanatory support for modifiable relational and contextual processes.

Institutional Context and the Quality of Educational Support: The omnibus institution-type comparison was statistically significant, but Dunn-Bonferroni post-hoc tests showed that no specific pairwise comparison remained significant after adjustment. This result substantially qualifies the descriptive rank ordering and indicates that institution type, by itself, should not be treated as a robust explanation of adaptation differences. The qualitative evidence is therefore especially useful: individualized support, predictable routines, manageable environmental demands, and teacher access to practical support can vary within the same institutional category. Turkish preschool teachers similarly identify instructional adaptation, collaboration, and support conditions as central to the quality of inclusion (Kocaoğlu et al., 2023). Thus, the institutional finding should direct attention toward modifiable conditions within settings rather than toward categorical claims that one institution type is inherently superior.

Classroom Setting and Inclusive Participation

Children educated in inclusion classes had significantly higher school-adaptation ranks than those in special-education classes, although the effect size was small. This finding is more directly relevant to the study's inclusive-education focus than institution type because it reflects the child's immediate classroom placement. The qualitative themes provide a plausible ecological interpretation: peer modeling, cooperative play, individualized teacher strategies, and opportunities for participation may strengthen the classroom microsystem. Nevertheless, the cross-sectional design does not establish that inclusion placement itself caused higher adaptation. Children may differ in support needs or placement decisions before entering these settings. The finding therefore supports attention to the quality of inclusive participation rather than a simple placement-based conclusion.

Autism Spectrum Disorder, Sensory Demands, and Support Needs: The diagnosis effect was clarified by Dunn-Bonferroni post-hoc comparisons. Children with ASD had lower adaptation ranks than children with physical disabilities, speech-language difficulties, and the other-disabilities group, but

they did not differ significantly from children with intellectual disabilities after multiplicity adjustment. This more differentiated result cautions against treating the descriptive lowest rank of the ASD group as evidence of universal disadvantage relative to every diagnosis. At the same time, the significant contrasts gain interpretive depth from qualitative themes of sensory overload, predictable routines, individualized strategies, and insufficient adult support. The integrated evidence suggests a possible person-environment mismatch: classrooms characterized by high noise, crowding, rapid transitions, and limited individualized support may place greater demands on children with sensory-regulatory or communication differences. This ecological interpretation shifts attention from diagnosis as destiny toward environmental conditions that increase or reduce barriers to participation (Basham et al., 2020; Guldberg, 2020).

Age and Prior Education

Neither age nor prior education was associated with a statistically significant difference in school-adaptation scores. These null findings suggest that, within the present sample, adaptation was more closely differentiated by immediate classroom context and some diagnostic groupings than by chronological age or the broad duration of prior education. Because prior education was measured in coarse categories and the design was cross-sectional, the absence of statistical significance should not be interpreted as evidence that previous educational experience is unimportant; rather, its quality, continuity, and fit with the child's needs may be more consequential than duration alone.

Family-School Coordination as a Mesosystem Process: Family-school collaboration was the most frequent facilitator ($f = 20$), while parental overprotectiveness and inconsistent home practices also appeared among the barriers. These two findings are analytically related rather than separate observations. Both concern the degree of continuity between the child's home and school microsystems. Within Bronfenbrenner's (1979) model, the mesosystem is strengthened when adults across settings communicate and coordinate expectations; conversely, contradictory routines or sharply different expectations for independence may make transitions more demanding. The teachers' accounts therefore extend the quantitative strand by identifying an important process that was not directly represented among the statistical predictors. This also helps explain why interventions focused only on the child may have limited impact when home-school communication and classroom conditions remain unchanged. This interpretation is supported by recent evidence linking parental involvement to children's psychological adjustment during the transition from kindergarten to primary school, particularly for children with ASD (Hou et al., 2023).

## Limitations

Several limitations should be considered. First, school adaptation was measured through teacher ratings. Although teachers observe children in authentic classroom routines, common-method, rater, and teacher/classroom clustering effects remain possible, and the available data structure did not support multilevel modeling. Second, the cross-sectional design identifies associations and group differences but cannot establish causal mechanisms or developmental trajectories. Third, one response with incomplete demographic information was excluded, and several raw categorical entries required standardization for spelling and spacing. Fourth, the 'Other Disabilities' category combined several low-frequency diagnoses, which improved analytic stability but reduced diagnostic specificity. Fifth, the 'Other' institution category was very small, limiting power in institution-level post-hoc comparisons and contributing to cautious interpretation of the significant omnibus result. Sixth, the short form's Turkish-specific structural validity was not re-established in this sample, and subscale reliability coefficients were not available; measurement claims therefore rely on total-score internal consistency and prior development evidence. Seventh, the qualitative sample was small and purposively selected. Formal member checking and a saturation-based stopping rule were not documented, and only selected participants are quoted for illustration, although theme frequencies represent the full coded dataset. Finally, thematic interpretation remains context-dependent despite coder comparison, a 92% agreement rate, analytic memos, and an audit trail. These limitations delimit the claims while identifying priorities for replication and extension.

## Conclusion and Recommendations

This study indicates that the school adaptation of preschool children with special needs is an ecological and relational process rather than an outcome explained solely by diagnosis or individual competence. Quantitative analyses showed modest differences by gender and classroom setting, an omnibus institution-type difference that did not yield significant corrected pairwise contrasts, and diagnosis-related differences that were concentrated in specific comparisons involving the ASD group. Age and prior education were not associated with significant differences. These quantitative patterns were complemented by qualitative evidence showing the importance of family-school collaboration, teacher responsiveness, peer participation, predictable routines, sensory conditions, self-care demands, and support personnel. The integrated findings therefore support efforts to improve the fit between children's needs and their everyday educational environments, particularly by strengthening the quality of participation and support within inclusive classrooms.

Based on these conclusions, the following recommendations are proposed:

For Policymakers: Support Personnel and Staffing: Education authorities should develop clear, equitable mechanisms for providing additional trained support personnel when children's assessed needs and classroom conditions require sustained individualized assistance. Such support should be embedded in educational planning rather than depend solely on family resources. This recommendation is consistent with inclusive-education frameworks emphasizing the provision of appropriate supports as a condition for meaningful participation (Buchner et al., 2021).

Classroom Conditions: Schools should review class size, noise, crowding, transition routines, and sensory demands in classrooms that include children with special needs. Environmental adjustments should be based on individual needs and participation goals. Such environmental responsiveness is consistent with barrier-removal and learner-variability principles in inclusive education and UDL (Basham et al., 2020).

For Practitioners (Teachers): Predictability and Individualization: Teachers should use individualized strategies such as visual schedules, clear transition cues, differentiated instructions, and additional processing time when these supports match children's needs. These practices are also compatible with UDL-oriented approaches that encourage proactive flexibility in representation, engagement, and participation (Basham et al., 2020).

Peer Participation: Teachers should structure cooperative play and peer-supported participation in ways that promote belonging without placing inappropriate responsibility on peers.

For Families: Home-School Consistency and Autonomy: Families and educators should coordinate expectations for daily routines and gradually support age- and ability-appropriate independence in self-care and participation. Coordinated home-school practices are particularly relevant during school transitions, when parental involvement and consistent support can contribute to children's adjustment (Hou et al., 2023).

For Future Research: Future studies should employ longitudinal designs to track adaptation trajectories across the transition into school; combine teacher ratings with structured direct observation and family reports; report version-specific psychometric evidence for the school-adaptation measure; examine classroom setting and institution type as distinct contextual variables; account for the clustering of children within teachers and classrooms when the data structure permits; and retain sufficiently large diagnostic groups to avoid heterogeneous residual categories. Non-parametric analyses should report medians and IQRs and use multiplicity-adjusted post-hoc procedures after significant omnibus tests. Mixed-method studies should also use joint displays prospectively so that quantitative differences and qualitative mechanisms can be compared systematically.

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## References


Akın, G., & Sani-Bozkurt, S. (2021). Okul öncesi dönem tipik gelişim gösteren çocukların özel gereksinimli çocukların bireysel farklılıklarına ve sosyal kabulüne yönelik görüşleri. *Anadolu Journal of Educational Sciences International, 11(*1), 226–249. https://doi.org/10.18039/ajesi.737698

Bakkaloğlu, H., & Sucuoğlu, B. (2018). School adjustment of children with and without special needs in preschool classrooms. *Elementary Education Online*, 17(2), 580–595. https://doi.org/10.17051/ilkonline.2018.418906

Basham, J. D., Blackorby, J., & Marino, M. T. (2020). Opportunity in crisis: The role of universal design for learning in educational redesign. *Learning Disabilities: A Contemporary Journal*, 18(1), 71–91.

Betts, L. R., & Rotenberg, K. J. (2007). A short form of the Teacher Rating Scale of School Adjustment. *Journal of Psychoeducational Assessment*, 25(2), 150–164. https://doi.org/10.1177/0734282906296406

Birch, S. H., & Ladd, G. W. (1997). The teacher-child relationship and children's early school adjustment. *Journal of School Psychology*, 35(1), 61–79. https://doi.org/10.1016/S0022-4405(96)00029-5

Braun, V., & Clarke, V. (2021). *Thematic analysis: A practical guide*. Los Angeles, CA: SAGE Publications.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.

Buchner, T., Shevlin, M., Donovan, M. A., Gercke, M., Goll, H., Šiška, J., Janyšková, K., Smogorzewska, J., Szumski, G., Vlachou, A., Demo, H., Feyerer, E., & Corby, D. (2021). Same progress for all? Inclusive education, the United Nations Convention on the Rights of Persons with Disabilities and students with intellectual disability in European countries. *Journal of Policy and Practice in Intellectual Disabilities*, 18(1), 7–22. https://doi.org/10.1111/jppi.12368

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.Lawrence Erlbaum Associates.

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). Los Angeles, CA: SAGE Publications.

Guldberg, K. (2020). *Developing excellence in autism practice: Making a difference in education*. Abingdon, Oxon: Routledge. doi:10.4324/9780429276286

Hou, Y., Yan, T., & Zhang, J. (2023). The relationship between parental involvement and psychological adjustment among Chinese children with autism spectrum disorder in the transition from kindergarten to primary school: A chain-mediating model. *Frontiers in Psychology*, 14, 1087729. https://doi.org/10.3389/fpsyg.2023.1087729

Kargın, T. (2004). Kaynaştırma: Tanımı, gelişimi ve ilkeleri. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Özel Eğitim Dergisi*, 5(2), 1–13.

Kocaoğlu, A., Acartürk, H. T., İskenderoğlu, A., & Çelenk, H. B. (2023). Okul öncesi öğretmenlerinin kaynaştırma/bütünleştirme uygulamalarına ilişkin görüş ve önerileri. *Sakarya Üniversitesi Eğitim Fakültesi Dergisi,* 23(1), 47–69. **h**ttps://doi.org/10.53629/sakaefd.1166194

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). Thousand Oaks, CA: SAGE Publications.

Önder, A., & Gülay, H. (2010). Reliability and validity of the Teacher Rating Scale of School Adjustment for 5–6 years of children. *International Online Journal of Educational Sciences,* 2(1), 204–224.

Patton, M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice* (4th ed.). Thousand Oaks, CA: SAGE Publications.

Seven, S. (2020). *Okul öncesi eğitimde okula uyum*. Ankara: Pegem Akademi.

UNESCO. (2020). *Global education monitoring report 2020: Inclusion and education: All means all.* UNESCO.

Yoleri, S. (2015). Preschool children's school adjustment: Indicators of behaviour problems, gender, and peer victimisation. *Education 3–13*, 43(6), 630–640. https://doi.org/10.1080/03004279.2013.848915