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Managing Inclusive Educational Infrastructure for Children with Autism Spectrum Disorder: A Qualitative Case Study in Early Childhood Education

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Abstract

This study examines the management of inclusive educational infrastructure in early childhood education for children with Autism Spectrum Disorder (ASD) at the EDUfa Autism Therapy Center. Using a qualitative case study design, the research investigates how physical learning environments are planned, utilized, and adapted to support children's sensory, social, and learning needs. Data were collected through observations, semi-structured interviews with therapists, parents, and administrators, and document analysis, and were analyzed thematically. The findings reveal that EDUfa integrates educational and therapeutic functions through sensory-responsive classroom design, transition spaces, and life-skills-oriented facilities. Infrastructure management is characterized by adaptability, collaborative decision-making, and continuous evaluation involving multiple stakeholders. However, financial limitations and shortages of specialized personnel remain significant challenges. The study underscores that effective infrastructure management is central to inclusive, child-centered early childhood education and offers practical insights for institutions seeking to develop inclusive learning environments in resource-constrained contexts.

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INTRODUCTION

Early Childhood Education (ECE) constitutes a foundational stage in children's intellectual, social, emotional, and physical development. This period is widely recognized as a critical "golden age," during which learning experiences and environmental stimulation exert a substantial influence on children's long-term developmental trajectories (Blewitt et al., 2020). Consequently, the effectiveness of ECE programs is closely linked to the quality of interrelated supporting components, including the provision and management of appropriate educational infrastructure.

Within the Indonesian policy context, early childhood education has consistently been positioned as a national priority, with inclusive education principles incorporated into various strategic frameworks (Ratna, 2025). Nevertheless, the practical implementation of inclusive education at the ECE level, both in Indonesia and in several other countries, continues to encounter significant challenges, particularly in addressing the needs of children with disabilities, including those with Autism Spectrum Disorder (ASD) (Brodzeller et al., 2018; Fernando et al., 2023; Ratna, 2025; Siller et al., 2021). Children with ASD exhibit distinctive characteristics that affect communication, social interaction, behavioral patterns, and sensory processing (Yang, 2024). These characteristics necessitate specific pedagogical approaches as well as carefully designed physical learning environments that can accommodate heightened sensory sensitivities and support emotional regulation.

Despite growing awareness of the educational needs of children with Autism Spectrum Disorder (ASD), many early childhood education institutions remain insufficiently equipped in terms of infrastructure and system readiness to support inclusive learning environments. National data indicate that nearly 30% of children with disabilities have never accessed formal education, reflecting persistent structural barriers to educational participation from the earliest stages of schooling (WHO, 2025). This issue is particularly pressing given that approximately 3.3% of Indonesian children aged 5–17 years are identified as having disabilities. Learning environments in many schools continue to be designed primarily for neurotypical children, often overlooking the complex sensory and spatial needs associated with autism (Ibrahim & Al-Dabbagh, 2023). This condition highlights a notable gap between inclusive education policy commitments and their realization in everyday educational practice.

Schools play a strategic role in ensuring the effectiveness of learning processes for children with special needs. In this context, inclusive ECE infrastructure should not be understood merely as physical buildings, but rather as comprehensive learning environments that provide safety, comfort, and accessibility for all children, including those with ASD (Dalkilic, 2019). The management of classroom infrastructure is therefore a critical factor in supporting learning engagement, emotional well-being, and adaptive behavior among children with ASD (Jyoti & Kajal, 2025). Given their heightened sensory sensitivities, the physical environment functions not simply as a passive setting but as an active determinant of educational accessibility and participation (Ghazali et al., 2021; Li et al., 2024).

Well-managed inclusive infrastructure enables the implementation of structured and individualized learning approaches that are central to effective education for children with ASD. Clearly defined spatial arrangements, such as designated areas for learning, play, sensory regulation, and rest, support routine formation and facilitate smooth transitions between activities, which can be challenging for children with autism (Mentel & Bujniewicz, 2025). Additionally, the availability of therapy-support spaces within or adjacent to classrooms enhances the integration of educational and therapeutic interventions, ensuring continuity between learning activities and sensory or behavioral support services (Liang et al., 2025; Norouzi et al., 2024).

Conversely, inadequately managed infrastructure may hinder learning processes and negatively affect psychosocial outcomes (Black et al., 2022). Excessive noise, harsh lighting, overcrowded classrooms, and poorly organized spaces can exacerbate anxiety, trigger maladaptive behaviors, and reduce attention and task engagement among children with ASD. Such environmental stressors not only diminish instructional effectiveness but also impede social interaction and meaningful participation in inclusive settings.

From a managerial perspective, educational infrastructure management involves systematic processes of planning, organizing, implementing, and monitoring the use of facilities. The classical POAC (Planning, Organizing, Actuating, Controlling) management framework proposed by George R. Terry provides a structured foundation for organizing school infrastructure management practices (Husna et al., 2020). In inclusive ECE institutions, the application of these principles becomes increasingly important, as infrastructure management must account for diverse learner needs, limited resources, and contextual sociocultural factors. In this sense, infrastructure management extends beyond technical execution and reflects an institutional commitment to equity, accessibility, and diversity.

Previous studies on inclusive early childhood education have extensively highlighted the importance of educational infrastructure in supporting children with Autism Spectrum Disorder (ASD), particularly in relation to physical learning environments, accessibility, and sensory considerations (Ghazali et al., 2019; Marie-Stéphane et al., 2024). Gaines et al., for example, demonstrated that classrooms designed to accommodate sensory sensitivities can improve attention, reduce anxiety, and promote social interaction among children with ASD (Gaines et al., 2014). While such findings have contributed to global discussions on inclusive education, research in the Indonesian context has largely concentrated on curriculum development, teacher training, and instructional strategies, with relatively limited attention given to infrastructure management as a critical dimension of inclusive education (Azizah et al., 2024).

However, despite this growing body of research, limited attention has been given to how inclusive educational infrastructure is systematically planned, managed, and continuously evaluated within early childhood education institutions serving children with ASD. Empirical studies that integrate educational, therapeutic, and managerial perspectives within early childhood settings, particularly in developing country contexts, remain scarce.

Against this backdrop, EDUfa Autism Therapy Center provides a relevant case for examining inclusive infrastructure management in practice. As an

institution that integrates educational and therapeutic services, EDUfa offers a comprehensive, child-centered environment supported by facilities such as behavioral therapy rooms, sensory integration spaces, adaptive playgrounds, and inclusive rest areas. Importantly, EDUfa adopts a participatory and adaptive approach to infrastructure management, involving collaboration among educators, therapists, parents, and administrators.

This study aims to explore how inclusive educational infrastructure is managed to support early childhood education for children with ASD at EDUfa Autism Therapy Center. Specifically, it seeks to (1) identify the physical and functional characteristics of the infrastructure in use; (2) analyze management strategies employed in the planning, utilization, and continuous improvement of facilities; and (3) examine challenges and adaptive responses in fostering accessible and responsive learning environments. By documenting these practices, the study contributes to the understanding of inclusive infrastructure management as a dynamic and context-sensitive process and offers insights that may inform the development of inclusive ECE institutions in Indonesia and similar contexts.

METHOD

This study employed a qualitative research approach, utilizing a single-case study design, to examine the management of inclusive educational infrastructure at the EDUfa Autism Therapy Center. The choice of methodology was guided by the study's objective to gain an in-depth and contextualized understanding of how educational facilities are planned, utilized, and continuously adapted within an integrated early childhood education (ECE) setting for children with Autism Spectrum Disorder (ASD). A case study approach is particularly appropriate for exploring complex phenomena situated in real-life contexts, as it enables the identification of institutional processes, strategies, and decision-making dynamics as they naturally unfold (Tobita, 2025). Beyond documenting existing practices, this approach allows for an exploration of the underlying mechanisms and rationales that inform infrastructure management within inclusive educational environments (Hwang et al., 2024).

EDUfa Autism Therapy Center was purposively selected as the research site due to its distinctive institutional characteristics and its innovative model of integrated service provision. Unlike conventional early childhood education institutions, EDUfa operates simultaneously as an educational and therapeutic center, serving young children with ASD through a unified framework that closely aligns learning activities with therapeutic interventions. Its physical infrastructure is deliberately designed to support multiple functions, including behavior therapy rooms, sensory integration spaces, adaptive playgrounds, and inclusive rest areas. These facilities are intended not only to facilitate learning but also to support sensory regulation, socio-emotional development, and individualized intervention. Furthermore, EDUfa implements a participatory and adaptive approach to infrastructure management, involving educators, therapists, parents, and administrators in ongoing evaluation and modification processes. Facilities are therefore treated as dynamic systems that evolve in response to children's developmental

needs, positioning EDUfa as a relevant and information-rich case for examining inclusive infrastructure management at the early childhood level.

Data were collected from multiple key informants, including institutional managers, therapists, and parents of children enrolled at EDUfa. The inclusion of diverse participant groups was intended to capture a comprehensive range of perspectives and to enrich the analytical depth of the study (Pahwa et al., 2023). Three primary data collection techniques were employed: direct observation, in-depth semi-structured interviews, and document analysis. Observations were conducted across various physical environments central to EDUfa's educational philosophy, including classrooms, therapy rooms, sensory spaces, and educational playgrounds. These observations focused on patterns of spatial use, children's interactions with the physical environment, and the alignment between spatial design and pedagogical or therapeutic objectives.

Semi-structured interviews were conducted using open-ended questions to enable participants to articulate their experiences, perceptions, and professional judgments regarding infrastructure management practices. The interviews explored not only participants' views but also concrete strategies and decision-making processes related to the planning, utilization, and evaluation of educational facilities. Additionally, relevant institutional documents, including spatial plans, standard operating procedures (SOPs), activity reports, and visual documentation, were collected to support a comprehensive understanding of the infrastructure's structural and functional dimensions.

The collected data were analyzed using a thematic analysis approach to identify recurring patterns and meanings emerging from the interaction between participants and the research context (Buser et al., 2023). The analysis began with a verbatim transcription of interview data, followed by systematic coding to identify meaningful units of analysis. These codes were subsequently organized into broader themes reflecting the core dimensions of the study, including inclusive spatial design, infrastructure management practices, the integration of educational and therapeutic functions, and constraints in infrastructure implementation. The analytical process was iterative, with emerging interpretations continuously refined through reflection and comparison with field observations, enabling the development of nuanced and context-sensitive findings (Srivastava & Hopwood, 2009). Thematic categories were interpreted in relation to core management functions, including planning, organizing, implementation, and monitoring of educational infrastructure.

To enhance the credibility and trustworthiness of the findings, this study employed source and methodological triangulation by comparing data derived from observations, interviews, and document analysis. This triangulation strategy contributed to minimizing interpretive bias and strengthening the robustness of the conclusions (Puentes Borges et al., 2018). Member checking was also conducted by sharing preliminary findings with selected informants to ensure that the interpretations accurately reflected their experiences and intended meanings. Throughout the research process, reflective journals and detailed field notes were maintained to document analytical decisions and ensure transparency and academic traceability.

Through this methodological framework, the study aims to provide a comprehensive and contextualized account of inclusive educational infrastructure management in early childhood settings. By examining EDUfa Autism Therapy Center as a case study, the research demonstrates how educational facilities can be managed in a creative, adaptive, and needs-based manner, contributing to the development of meaningful learning environments for young children with ASD.

RESULT

1. Characteristics of Inclusive Infrastructure at EDUfa

The physical infrastructure at EDUfa Autism Therapy Center is deliberately designed to accommodate the developmental, sensory, and emotional profiles of young children with Autism Spectrum Disorder (ASD). Field observations and interview data indicate that spatial design at EDUfa prioritizes functionality over aesthetics, with each room serving both educational and therapeutic purposes. This design indicates that inclusive learning environments for children with ASD must integrate sensory, cognitive, and emotional considerations within spatial planning.

Observational findings reveal that nearly all rooms at EDUfa are structured to minimize sensory overload while supporting engagement and emotional comfort. Individual therapy rooms, for example, utilize soft pastel wall colors, natural lighting, and sound-minimizing materials to foster calmness and sustained attention. Furniture is designed with safety and ergonomics in mind, featuring rounded edges and dimensions suitable for children. One therapist explained:

"We try to create a calming environment. These children are sensitive to sound, light, and color, so the room must be soothing, not overly stimulating." (Therapist A)

Small-group learning rooms further illustrate the institution's emphasis on spatial flexibility. These rooms are equipped with movable furniture and adjustable layouts that allow educators and therapists to adapt the environment according to children's learning rhythms, mobility needs, and sensory tolerance. Such adaptability supports individualized learning practices rather than imposing rigid spatial arrangements on children. As noted by another therapist:

"Each child has their own learning rhythm. Some need to move frequently, others can only focus briefly. The space must adapt to the child, not the other way around." (Therapist B)

In addition to classrooms and therapy rooms, EDUfa provides transitional and support spaces that are integral to the learning process. Sensory transition areas are strategically positioned between classrooms and therapy spaces to help children regulate their emotions before transitioning to new activities. Educational toilets are also designed with visual instructions, color-coded fixtures, and child-height facilities to support independence in daily routines, aligning spatial design with life skills development.

Table 1.
EDUfa Infrastructure Features by Room Function and Purpose

Room Type	Special Features	Educational Purpose	Therapeutic Purpose
Individual Therapy Room	Soft pastel colors, natural lighting, sound-minimizing design	Supports individual focus and concentration	Reduces sensory overload
Small-Group Learning Room	Flexible layout, ergonomic chairs, movable furniture	Enables interactive and adaptive learning	Adjusts to mobility and sensory needs
Sensory Transition Area	Calm lighting, a ventilated space between the main rooms	Prepares students for upcoming activities	Supports emotional regulation and calming
Educational Toilet	Visual guides, color-coded fixtures, and child-height sinks	Promotes independent daily living skills	Trains routine hygiene and autonomy

These findings suggest that EDUfa's infrastructure characteristics are intentionally designed to align with children's sensory and developmental needs, thereby forming the foundation for inclusive educational practices.

2. Infrastructure Management Principles and Strategies

Infrastructure management at EDUfa is guided by the principle that learning spaces must respond to children's needs rather than conform to standardized institutional norms. This principle is operationalized through flexible, adaptive, and collaborative management strategies. Adjustments to lighting, sound, textures, and spatial organization are routinely implemented to accommodate children's sensory sensitivities, consistent with inclusive and sensory-responsive environment practices.

Classrooms utilize warm-toned, non-flickering LED lighting and sound-absorbing materials to reduce auditory and visual overstimulation. According to the institutional manager:

"Many of our children are frightened by loud sounds or reflected light. If the room is not adjusted, they cannot focus at all." (Manager)

Management practices at EDUfa are also characterized by cross-functional collaboration. Teachers, therapists, parents, and administrators participate in semester-based evaluation forums to review spatial use, identify challenges, and propose improvements. Infrastructure management at EDUfa involves shared participation among rather than a top-down administrative function. One parent stated:

"I feel valued because I can give input about my child's classroom. EDUfa is very open to suggestions." (Parent)

Daily implementation further reflects this collaborative model. Teachers and therapists submit routine reports on classroom and facility conditions, enabling management to respond promptly to emerging needs and maintain adaptive learning environments.

Table 2.
Inclusive Infrastructure Management Strategies at EDUfa

Management Principle	EDUfa's Practices	Stakeholder
Responsive to children's needs	Adjustments in lighting, sound, and spatial textures	Therapists, Parents
Collaborative	Semester-based evaluation forums	Therapists, Parents, Management
Adaptive and Flexible	Dynamic classroom layouts, regular facility condition reports	Management, Therapist

3. Innovations in Inclusive Educational Infrastructure

EDUfa demonstrates several context-sensitive innovations that integrate educational and therapeutic functions within cohesive spatial arrangements. These innovations emphasize practicality and adaptability over reliance on advanced technology, reflecting resource-conscious and inclusive practices.

One notable innovation is the development of sensory transition areas—compact spaces designed to support emotional regulation during transitions between activities. Therapists reported that these spaces help reduce anxiety and behavioral disruption, particularly during schedule changes. As one therapist explained:

"Children with ASD often struggle with transitions. This space helps them calm down before entering the next session." (Therapist C)

Another innovation is the educational toilet concept, which integrates hygiene routines with life skills training. Visual instructions and color-coded fixtures guide children step-by-step, fostering independence from an early age. In addition, EDUfa utilizes a simple form-based reporting system to monitor classroom and facility conditions, facilitating preventive maintenance and prompt responses to minor infrastructure issues.

4. Challenges and Constraints in Infrastructure Management

Despite its inclusive practices, EDUfa faces significant challenges related to financial sustainability and human resource capacity. Delivering comprehensive therapy services requires substantial investment in specialized spaces, equipment, and qualified personnel, which places ongoing pressure on institutional resources.

Institutional leaders described the tension between maintaining service quality and ensuring affordability for families. One manager explained:

"We want our services to remain affordable, but therapy operations are expensive. Cutting costs often means compromising quality." (Manager)

Parents similarly reported financial strain associated with long-term therapy commitments. Although EDUfa has explored alternative funding strategies such as cross-subsidization and partnerships, these efforts have not fully addressed existing funding gaps.

In parallel, the institution faces challenges in recruiting and retaining professionally trained therapists. The limited availability of qualified personnel necessitates intensive in-house training, thereby increasing

operational demands. Staff turnover further disrupts service continuity, which is particularly problematic for children with ASD who rely on stable routines and consistent relationships. These findings indicate that inclusive infrastructure management involves interconnected challenges related to financing, staffing, and institutional capacity, extending beyond physical space considerations alone.

DISCUSSION

This study provides empirical insight into how inclusive educational infrastructure management is enacted within an early childhood education (ECE) setting serving children with Autism Spectrum Disorder (ASD). Building on the qualitative case study of EDUfa Autism Therapy Center, the discussion interprets the findings through established management and inclusion frameworks, while situating them within broader debates on inclusive ECE infrastructure.

Interpreting Infrastructure Management through Educational and Management Theories

The findings indicate that infrastructure management at EDUfa extends beyond technical compliance or facility provision. Instead, it represents an integrated managerial practice that combines physical design, pedagogical intent, and psychosocial sensitivity to meet the complex needs of children with ASD. This aligns with contemporary views that educational infrastructure should be understood as a multidimensional system that supports learning, well-being, and development rather than as a neutral physical backdrop (Khougar et al., 2023). These findings are also consistent with prior research emphasizing that sensory-sensitive spatial planning plays a critical role in supporting the cognitive and emotional regulation of children with ASD (Canlı, 2025).

From an educational management perspective, EDUfa's practices reflect the classical management functions of planning, organizing, directing, and controlling (POAC) (Terry, 1977). These management practices, as observed in EDUfa's planning and evaluation routines, demonstrate how inclusive infrastructure is operationalized at the institutional level. Planning is evident in the collaborative involvement of therapists, teachers, parents, and administrators in determining spatial needs; organizing is reflected in the arrangement of rooms based on sensory and developmental considerations; directing occurs through a shared professional culture emphasizing child-centered care; and controlling is enacted through routine monitoring and participatory evaluation of facilities (Purwadhi, 2019). Importantly, these functions are not implemented sequentially but operate simultaneously and adaptively in response to children's evolving needs, reinforcing the dynamic nature of inclusive infrastructure management. The observed flexibility in spatial arrangements aligns with broader discussions on adaptive organizational design, which emphasize responsiveness and contextual adjustment over rigid standardization (Birkhead & Hand, 2024).

Alignment with Universal Design for Learning and Human-Centered Management

When viewed through the lens of Universal Design for Learning (UDL), EDUfa's infrastructure reflects a proactive commitment to accommodating learner variability from the outset. UDL emphasizes that learning environments should be designed to include diverse learners rather than retrofitted to address special needs after the fact (Connor & Wheat, 2023). The presence of sensory rooms, transition areas, inclusive play zones, educational gardens, and life-skills-oriented toilets demonstrates how EDUfa has operationalized UDL principles in physical form, effectively bridging educational and therapeutic functions. EDUfa's use of visual contrast, lighting control, and sound absorption reflects established principles of inclusive environmental design aimed at reducing sensory overload (Bright & Egger, 2008).

This approach also resonates with Peter Drucker's human-centered management philosophy, which emphasizes that organizational effectiveness is grounded in responsiveness to human needs. In this context, space is viewed not as a static asset, but as an active component of a broader intervention system that supports holistic child development (Siemsen & Reschke, 2012). The findings suggest that EDUfa's infrastructure management embodies an implicit "ethics of care," where decisions about space are guided by sensitivity to children's emotional regulation, sensory comfort, and dignity, an aspect often underexplored in infrastructure-focused studies of inclusive education (Santi et al., 2025).

Practical Implications for Inclusive Early Childhood Education

The study offers practical relevance for inclusive ECE, particularly within resource-constrained contexts such as Indonesia. EDUfa demonstrates that inclusive infrastructure does not depend on luxurious or technologically advanced facilities, but on purposeful design, child-centered orientation, and sustainable maintenance practices. This supports arguments that inclusion is not merely about physical access to schooling, but about the system's capacity to adapt meaningfully to learner diversity (Squires, 2023). Such low-technology, context-sensitive innovations support prior arguments that inclusive environments can be achieved through thoughtful design rather than technological sophistication (Nurazelina et al., 2024).

Moreover, the findings highlight the importance of cross-professional collaboration and parental involvement in infrastructure planning and management. EDUfa's participatory approach—through regular evaluation forums, internal capacity building, and engagement with external stakeholders—illustrates how inclusive environments are strengthened through shared ownership and collective responsibility. Such ecosystems of collaboration are increasingly recognized as critical to sustaining inclusive educational practices (Černiševs et al., 2024), particularly in early childhood settings where learning, care, and therapy intersect. This participatory approach echoes earlier findings highlighting the importance of shared responsibility and parental involvement in educational management practices (Carbines et al., 2017).

Innovative spatial practices identified in this study, such as sensory transition areas and educational toilets, further illustrate how infrastructure can actively support cognitive, motor, and social development in everyday routines. These findings reinforce the view that educational infrastructure

should be conceptualized as an active pedagogical agent rather than a passive support system (Parker et al., 2022). This integration of daily routines with life-skills development also supports earlier findings that spatially embedded hygiene practices can foster autonomy and functional independence in young children (Adenya, 2009).

Contributions to Policy and System Development

Beyond institutional practice, the findings expose broader policy gaps related to inclusive educational infrastructure in Indonesia. The absence of clear national technical guidelines for inclusive ECE spaces leaves many institutions without direction in designing environments responsive to children with special needs. This study supports calls for the development of national standards that address spatial dimensions, lighting, acoustics, visual supports, and therapeutic zones, grounded in universal design principles while remaining sensitive to local sociocultural contexts (Bartolo et al., 2021; Parker et al., 2022).

Furthermore, the study highlights the importance of developing targeted funding mechanisms to support inclusive infrastructure. Reliance on parental contributions or market-based models alone is insufficient to sustain high-quality inclusive services. Direct government support, infrastructure subsidies, and expanded CSR-based partnerships are essential to ensuring equity and long-term viability (Kapesa, 2024; Siller et al., 2021). These constraints mirror broader challenges in managing specialized human resources within public and semi-public service institutions, particularly in contexts with limited financial capacity (Matjošaityte, 2024). These findings align with research emphasizing that inclusive education challenges extend beyond spatial design to encompass staffing stability and professional continuity, particularly for children with ASD (Harkin & Efron, 2022).

Ultimately, the findings underscore the significance of professional development in inclusive facility management. Certification and training programs for school leaders, teachers, and therapists could strengthen institutional capacity to design, manage, and evaluate inclusive learning environments more systematically. Tiina Kivirand et al. (2021) emphasized that collaborative, team-based training helps schools systematically develop inclusive practices (Kivirand et al., 2021). Integrating such competencies into teacher education pathways and national initiatives would further institutionalize inclusive infrastructure management as a core component of quality ECE.

CONCLUSION

This study concludes that inclusive educational infrastructure management in early childhood education for children with Autism Spectrum Disorder (ASD) cannot be understood merely as the provision of physical facilities. Based on an in-depth qualitative case study of EDUfa Autism Therapy Center, the findings demonstrate that infrastructure functions as a dynamic, managed system that actively mediates learning, therapeutic processes, emotional regulation, and the development of daily living skills.

The study shows that effective inclusive infrastructure emerges from the integration of educational and therapeutic functions, supported by adaptive

spatial design and participatory management practices. At EDUfa, classrooms, therapy rooms, sensory transition areas, and educational toilets operate as interconnected spaces that respond to children's sensory and developmental needs. This integration is sustained through continuous planning, monitoring, and adjustment, involving teachers, therapists, parents, and administrators. Such practices demonstrate that inclusive infrastructure is not static, but rather evolves in tandem with children's developmental trajectories.

A key contribution of this research lies in its conceptualization of infrastructure management as a process-oriented and stakeholder-driven practice. Rather than focusing solely on architectural features, this study highlights how managerial strategies—such as collaborative decision-making, routine evaluation, and flexible use of space—determine the effectiveness and sustainability of inclusive environments. This perspective advances existing literature by shifting attention from design outcomes to management processes within inclusive early childhood settings.

The findings also underscore that meaningful innovation in inclusive infrastructure does not necessarily depend on high-cost or high-technology solutions. Context-sensitive, low-technology innovations—when grounded in children's needs and supported by consistent management—can significantly enhance inclusivity and functionality. However, the study also reveals persistent structural challenges, particularly related to financing and the availability of qualified human resources, which threaten the long-term sustainability of inclusive practices.

Overall, this research affirms that managing inclusive educational infrastructure is a foundational component of quality early childhood education for children with ASD. The case of EDUfa offers a transferable model for other inclusive ECE institutions, particularly in resource-constrained contexts, by demonstrating that adaptive management, stakeholder collaboration, and child-centered orientation are central to creating meaningful and equitable learning environments. Future research is encouraged to explore comparative cases across different institutional and policy contexts to further strengthen evidence-based frameworks for inclusive infrastructure governance.

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