



Utilization of Infrastructure for Accessibility of Students with Disabilities in Inclusive Junior High Schools

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Abstract: This study aims to analyze the contribution of school infrastructure in supporting accessibility and learning quality for students with physical disabilities at junior high school (SMP Negeri 24 Surakarta). A qualitative descriptive approach was used with data collection through interviews and observations of five key participants, namely teachers, school staff, special assistant teachers, and students with disabilities. The research findings indicate that the school already has some important facilities, such as ramps, accessible toilets, and classrooms that are easily accessible by wheelchair. However, limitations were still identified, particularly regarding access to upper floors and the absence of handrails on ramps. The school is gradually improving its facilities to create a more inclusive learning environment. This study emphasizes that the development of physical infrastructure, accompanied by policy support and teacher training, is an important step in achieving fair and inclusive education for all students.

Keywords: *inclusive education, physical disabilities, school infrastructure, accessibility, quality of education*

I. Introduction

Education is a fundamental right for every individual, including students with physical disabilities. However, in reality, many students with physical disabilities still face difficulties in accessing learning spaces independently due to physical infrastructure limitations. Law No. 8 of 2016 on Persons with Disabilities within Law No. 20 of 2003 on the National Education System emphasizes the importance of providing inclusive education services for all citizens, including students with physical disabilities. This study aims to examine how school facilities support accessibility and improve the quality of learning for students with physical disabilities at SMP Negeri 24 Surakarta. Using a qualitative approach, data was collected through interviews and observations of students and teachers. The results of the study indicate that the school has provided some basic facilities, such as ramps and disability-friendly toilets. However, there are still challenges, particularly in accessing rooms located on upper floors. This poses a serious challenge for students with physical disabilities who have mobility limitations. The school itself continues to strive to improve and develop facilities gradually to create a more inclusive learning environment. This study also emphasizes the importance of collaboration with various parties, such as government agencies and non-governmental organizations, in supporting the realization of education that is accessible to all. In conclusion, the development of school physical facilities is a key aspect in creating a fair and inclusive education system, especially for students with special needs.

Accessibility in education aims to ensure that all individuals, including those with physical limitations, can benefit from the learning process equally and free from discrimination. Ainscow (2020) emphasizes that equal access is key to achieving inclusive education for all. SMP Negeri 24 Surakarta is one of the schools that implements this principle by providing education services that are friendly to students with physical disabilities. This school strives to build an inclusive learning environment where all students have equal opportunities to access educational facilities. In addition to accessibility, improving the quality of education is also a primary concern. A supportive learning environment is expected to respond to individual needs and encourage the development of students' potential, including those with special needs. According to Ugalde et al. (2020), a learning environment that is adaptive to special needs can significantly enhance the effectiveness of learning. By integrating accessibility and quality aspects, an inclusive, fair, and meaningful education system for all students can be realized. Through this approach, it is hoped that every student will have equal opportunities to achieve optimal and empowering learning experiences.

School infrastructure plays an important role in creating a supportive, safe, and inclusive learning environment for all students, including those with special needs such as physical disabilities. According to Debasu & Yitayew (2024), adequate infrastructure can be the main foundation in creating a conducive learning atmosphere for all groups. School infrastructure includes various physical facilities designed to support learning activities and ensure accessibility and comfort for all students (Wilkins et al., 2024). At SMP 24 Surakarta, awareness of the importance of providing appropriate infrastructure for students with physical disabilities has become a key focus in efforts to achieve equitable education. These efforts not only include the construction of physical facilities such as ramps, accessible toilets, and easily accessible classrooms, but also consider psychological and social aspects that support students' comfort and active participation in school activities. Infrastructure designed to be inclusive can increase the sense of security, self-confidence, and learning motivation of students with disabilities. A friendly and easily accessible environment has a positive impact on their involvement in the learning process, as stated by Rusticus et al. (2023). A number of previous studies also show that there are still significant challenges in providing infrastructure for children with special needs (ABK). Ludago (2020) emphasizes that the lack of specialized facilities remains a major obstacle in many schools, particularly in meeting the needs of students with disabilities. A similar point is made by Hanreddy & Östlund (2020), who notes that many inclusive schools lack facilities that meet accessibility standards, thereby limiting the full participation of students with disabilities in learning activities. Meanwhile, Azzahra et al. (2022) suggests the need for a more integrated approach between the development of physical infrastructure and inclusive education policies to minimize learning barriers comprehensively. Thus, the provision of inclusive school infrastructure is not only a technical necessity but also part of a strategic effort to create a fair and sustainable education system for all students.

Over the past decade, the discourse on inclusive education has gained increasing attention in various countries, including Indonesia. Inclusive education is an approach that emphasizes the acceptance and accommodation of all learners, including those with special needs, within the same education system (Messiou & Ainscow, 2021). Its core principle is to provide equal learning opportunities without discrimination, supported by facilities, policies, and adaptive teaching approaches. Various studies emphasize that the success of inclusive education heavily depends on the readiness of the physical and social environment within schools. Amoah et al. (2023) revealed that supportive infrastructure, such as accessible classrooms and disability-friendly hygiene facilities, plays a significant role in enhancing the learning experience of students with special needs. Additionally, teacher training and cross-sector collaboration are also crucial elements in creating an inclusive and responsive learning environment that accommodates student diversity (Beaton, 2021).

In Indonesia, the implementation of inclusive education faces challenges, particularly related to disparities in quality and availability of supporting facilities between schools. Ross (2020) emphasizes that many schools still lack the minimum facilities for students with mobility impairments, thereby limiting their full participation in the learning process. Therefore, the development of physical facilities and the involvement of various parties are strategic aspects in strengthening a sustainable inclusive education system.

II. Method

This qualitative study aims to gain an in-depth understanding of the role of school infrastructure in improving accessibility and the quality of education for students with physical disabilities at SMP Negeri 24 Surakarta, an inclusive school. The research was conducted over two days, on April 23 and 24, 2025. A qualitative approach was chosen to explore the meaning of experiences, interactions, and dynamics within the context of inclusive education.

The study focuses on individuals directly involved in implementing inclusive education at the school: school staff, guidance counselors (BK), and special education teachers. Data was collected through in-depth interviews and direct observation. Five main participants served as data sources: one school staff member, one guidance counselor (BK), one special education teacher, and two students with physical disabilities attending SMP Negeri 24 Surakarta. The involvement of students with physical disabilities was crucial for gaining direct insights into their experiences accessing facilities and participating in the learning process.

The research tools included semi-structured interview guidelines and observation sheets. The research indicators covered several important aspects: (1) the availability and condition of access routes (ramps) to classrooms and public facilities; (2) the accessibility of disability-friendly toilets; (3) the presence of handrails on slopes or stairs; (4) the width of classroom doors and ease of mobility for wheelchair users; (5) the comfort and safety of learning areas; and (6) students' perceptions of social acceptance and support from teachers and peers. Interviews were used to explore the experiences, perceptions, and challenges faced by teachers and students, while observations focused on documenting the physical condition of facilities and infrastructure, particularly those related to physical accessibility for students with disabilities. The collected data were then analyzed using qualitative analysis techniques, involving systematic organization, review, and interpretation.

III. Results and Discussion

A. Result

An analysis has been conducted on various facilities and infrastructure. Table 1 below details the types of facilities available, shows their specific numbers and locations, describes the current physical condition of each facility, and outlines how students with physical disabilities actively utilize these facilities in their daily activities at school.

Table 1. List of Facilities and Infrastructure Supporting Students with Physical Disabilities

No	Type of Infrastructure	Number	Location	Physical Condition	Student Utilization
1	Ramp	1	On the round floor	Fairly good, moderate slope	Regularly used for access to classrooms
2	Handrails on stairs	3	In the main staircase area	Sturdy, easy to reach	Helps with going up and down stairs
3	Disability-friendly accessible toilets	1	Located next to the library	Suitable, safety handrails available	Used with assistance
4	Wide classroom doors	6	In the classrooms	Suitable for wheelchairs	Used daily
5	Wheelchair-friendly public areas	2	Cafeteria and hall	Some tracks require leveling	Used for general activities
6	Inclusion markers or symbols	Not yet available	Not yet available	-	Not yet used

In addition to quantitative data on facilities and infrastructure, the interview results showed that students with physical disabilities felt socially accepted and received support from teachers and peers. However, limited access to the second floor and suboptimal ramps were obstacles to full mobility in the school environment.

B. Discussion

Research findings indicate that the availability of basic infrastructure at SMP Negeri 24 Surakarta has helped improve accessibility for students with physical disabilities, particularly in the ground floor area and main classrooms. Sloped pathways, wide classroom doors, and disability-friendly restrooms are key elements in supporting independence and daily learning activities. This aligns with the findings of Das (2024), who emphasize that physical infrastructure forms the foundation for creating an inclusive and safe learning environment.

The limited number of ramps and the absence of handrails on sloping paths indicate that accessibility is not yet fully optimized. These limitations impact students' ability to access learning spaces on upper floors or other areas that are not equipped with supporting facilities. This situation aligns with Atika (2024) findings, which state that most inclusive schools in Indonesia still face infrastructure barriers in meeting the needs of students with special needs.

Regarding physical aspects, students' use of facilities is relatively good. This is reflected in their active participation in learning activities and inclusive social interactions. According to Messiou & Ainscow (2021), the success of inclusive education is not only determined by the availability of facilities but also by social acceptance, pedagogical approaches, and emotional support provided by the school. This study highlights the importance of strengthening physical facilities comprehensively and developing policies that support the optimal use of inclusive facilities. Improvements to access routes to upper floors, the addition of handrails, and the provision of inclusive symbols or markers are the main recommendations to ensure accessibility is equitable across all areas of the school.

In the latest approach to technology theory by Ainscow & Messiou (2021), the school system is viewed as an ecosystem. Various elements such as policy, physical, social, and emotional interact within this ecosystem to support inclusive education. School infrastructure forms part of a microsystem that directly influences students' learning experiences. The comfort and safety of the physical environment also support the learning process of students. The floor surfaces in the school are monitored to ensure they are not slippery, classroom and hallway lighting is sufficiently bright, and indoor air circulation feels cool and comfortable. Unfortunately, the school has not yet provided handrails along sloped pathways or stairs. Additionally, there are no inclusive symbols or markers, such as murals or information boards, indicating that the school is open to all students without discrimination. The school administration has stated they plan to add these elements in the near future.

An inclusive atmosphere has been realized in the school's social environment, where students with physical disabilities study alongside other students in the same classroom, signifying acceptance and equal treatment of all students. The learning comfort of students with special needs is supported by adjustable desks and chairs in the classroom. Public areas such as the cafeteria and auditorium have been designed to be accessible to all students, although some pathways still need improvement to be more level and wheelchair-friendly. The quality of education for students with physical disabilities at SMP 24 Surakarta shows positive progress. This can be seen from the students' regular participation in learning, their activeness in discussions, and their overall involvement in various school activities, both academic and non-academic, including competitions and extracurricular activities. Their high enthusiasm for learning is also evident from their involvement in class assignments.

The learning outcomes of students with physical disabilities have been adapted to the national curriculum. Jardinez & Natividad (2022), revealed that the success of inclusive education depends on the integration of technology, physical facilities, and social interaction. In this model, physical facilities such as adjustable classrooms and disability-friendly toilets are key components in creating a comprehensive learning experience with additional support when needed and the freedom to develop their potential according to their interests and abilities. Although academic progress is still uneven among all students, progress in non-academic areas such as social skills and self-confidence is more prominent. Satisfaction and comfort while at school are also important indicators in measuring educational quality. Interview results show that students feel accepted by their teachers and classmates and feel comfortable in the school environment. Good interpersonal relationships with teachers and peers are the main drivers of learning motivation for students with disabilities.

Teacher support is a crucial aspect in the learning process of students with physical disabilities. Teachers provide special attention through flexible teaching methods, understanding the individual characteristics of each student, and actively fostering their self-confidence. In addition, teachers also act as communication facilitators who bridge interactions between students, families, and the school. In line with the views of Carballo et al. (2021), continuous professional training is essential in improving teachers' readiness to manage inclusive classrooms. Trained teachers are better able to provide emotional, social, and academic support, thereby encouraging students with disabilities to become more confident and active in learning activities.

Although the quality of teacher support and the inclusive atmosphere are generally good, this study noted several obstacles that need to be addressed. Some facilities are still not fully optimized, such as access to toilets that require assistance for wheelchair users, the absence of handrails on ramps or stairs, and paths that are not completely flat or even slippery when it rains. These notes are important considerations for the school to make comprehensive infrastructure improvements. Overall, school infrastructure plays a significant role in supporting the creation of an inclusive, safe, and comfortable learning environment for students with disabilities. The availability of appropriate physical facilities can strengthen students' active participation, self-confidence, and independence in learning. Therefore, the sustainability and improvement of inclusive facilities need to be a primary concern in the development of an equitable and fair education system for all.

Based on these findings, researchers recommend that schools regularly evaluate the physical and social facilities available, improve inadequate infrastructure, and consistently improve teacher training in handling the needs of students with special needs. Local governments and related agencies are also expected to provide support, both in terms of budget and policy, so that inclusive education does not remain merely a discourse, but is realized as a sustainable practice Dewantoro et al. (2021).

IV. Conclusion and Suggestion

Based on observations and interviews conducted at SMP Negeri 24 Surakarta, it can be concluded that school infrastructure plays a very important role in supporting accessibility and quality of education for students with physical disabilities. The school has provided various physical facilities such as ramps, disabled toilets, and easily accessible classrooms. However, there are still some obstacles, such as limited access to the upper floor and the absence of handrails on the ramp. In addition to physical aspects, social support and inclusive pedagogical approaches from teachers also encourage active participation and learning comfort for students with disabilities. The school demonstrates positive efforts in creating an inclusive environment; however, comprehensive development and improvement of infrastructure are still needed to achieve optimal educational inclusion. Therefore, improvements to school facilities and infrastructure need to be carried out on an ongoing basis, including through teacher training and policy support from local governments, as well as cooperation with non-governmental organizations. This step is important to ensure that every student, without exception, has the same rights and opportunities to obtain a quality education.

References

- Ainscow, M. (2020). Promoting Inclusion and Equity in Education: Lessons from International Experiences. *Nordic Journal of Studies in Educational Policy*, 6(1), 7-16.
- Amoah, C., Bamfo-Agyei, E., & Simpeh, F. (2023). Disable Access Compliance to University Infrastructure: Built Environment Students' Perceptions. *Property Management*, 41(5), 681-697.
- Atika, A. (2024). Praktik pendidikan inklusif untuk anak berkebutuhan khusus di sekolah dasar. *Harakat An-Nisa: Jurnal Studi Gender Dan Anak*, 9(1), 45-54.
- Azzahra, I. M., Diana, R. R., Nirwana, E. S., Wiranata, R. R. S., & Andriani, K. M. (2022). Learning Facilities and Infrastructure Based on the Characteristics of Children with Special Needs in Inclusive Education. *Al-Athfaal: Jurnal Ilmiah Pendidikan Anak Usia Dini*, 5(2), 169-190.
- Beaton, M. C., Thomson, S., Cornelius, S., Lofthouse, R., Kools, Q., & Huber, S. (2021). Conceptualising Teacher Education for Inclusion: Lessons for the Professional Learning of Educators from Transnational and Cross-Sector Perspectives. *Sustainability*, 13(4), 2167.
- Carballo, R., Morgado, B., & Cortés-Vega, M. D. (2021). Transforming Faculty Conceptions of Disability and Inclusive Education Through a Training Programme. *International Journal of Inclusive Education*, 25(7), 843-859.

- Das, D. K. (2024). Exploring the Symbiotic Relationship Between Digital Transformation, Infrastructure, Service Delivery, and Governance for Smart Sustainable Cities. *Smart Cities*, 7(2), 806-835.
- Debasu, H., & Yitayew, A. (2024). Examining Elements of Designing and Managing of Creating Inclusive Learning Environment: Systematic Literature Review. *International Journal of Special Education*, 39(1), 33-43.
- Dewantoro, D. A., Pradipta, R. F., Efendi, M., Huda, A., & Yasin, M. H. M. (2021). Availability and Utilization Analysis Learning Media at Inclusive Schools in Malang City. In *International Conference on Information Technology and Education (ICITE 2021)* (pp. 12-21). Atlantis Press.
- Hanreddy, A., & Östlund, D. (2020). Alternate Curricula as a Barrier to Inclusive Education for Students with Intellectual Disabilities. *International Electronic Journal of Elementary Education*, 12(3), 235-247.
- Jardinez, M. J., & Natividad, L. R. (2024). The Advantages and Challenges of Inclusive Education: Striving for Equity in the Classroom. *Shanlax International Journal of Education*, 12(2), 57-65.
- Ludago, T. B. (2020). Practices, Challenges and Opportunities of Inclusive Education Implementation in Kambata Tambaro Zone, Ethiopia. *Open Access Library Journal*, 7(2), 1-23.
- Messiou, K., & Ainscow, M. (2021). Inclusive Inquiry: An Innovative Approach for Promoting Inclusion in Schools. *Revista Latinoamericana de Educación Inclusiva*, 15(2), 23-37.
- Ross, T., Bilas, P., Buliung, R., & El-Generidy, A. (2020). A Scoping Review of Accessible Student Transport Services for Children with Disabilities. *Transport Policy*, 95, 57-67.
- Rusticus, S. A., Pashootan, T., & Mah, A. (2023). What are the Key Elements of a Positive Learning Environment? Perspectives from Students and Faculty. *Learning Environments Research*, 26(1), 161-175.
- Ugalde, L., Santiago-Garabieta, M., Villarejo-Carballido, B., & Puigvert, L. (2021). Impact of Interactive Learning Environments on Learning and Cognitive Development of Children with Special Educational Needs: A Literature Review. *Frontiers in Psychology*, 12, 674033.
- Wilkins, S., Hazzam, J., & Ireland, J. J. (2024). Servicescape in Transnational Higher Education: The Effects of Campus Design, Physical Environment and Facilities on Student Experience and Satisfaction. *Journal of Marketing for Higher Education*, 34(2), 992-1011.