

Challenges in Managing Inclusive Education in the Digital Era: Between Limitations and Opportunities

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Abstract

This study examines the challenges and opportunities in managing inclusive education in the digital era within inclusive primary schools in Makassar City, focusing on policy, human resources, and educational infrastructure. Inclusive education aims to ensure equal learning opportunities for all students, including those with special needs, yet faces barriers such as limited special education assistants, inadequate teacher training, and insufficient facilities. Using a quantitative descriptive approach, data were collected through questionnaires from eight inclusive schools and analyzed with descriptive statistics. The results show that policy support is relatively strong, but gaps remain in teacher readiness and infrastructure accessibility. The policy dimension scored highest, followed by human resources and facilities, indicating that implementation is not yet optimal. These findings emphasize that successful inclusive education requires synergy between adaptive policies, teacher capacity-building, and technology integration to enhance accessibility, participation, and sustainable inclusive practices in primary education.

Keywords: Inclusive education; primary school; educational management; teacher capacity; educational technology;

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INTRODUCTION

Inclusive education has emerged as a global paradigm that emphasizes the importance of providing equitable learning opportunities for all students, regardless of their abilities, backgrounds, or socioeconomic status. In the 21st century—an era marked by rapid digital transformation—the management of inclusive education faces new dynamics that demand adaptive policies, professional capacity, and the effective utilization of technology as a means to ensure equal access to education. Globally, the main challenges of inclusive education include the lack of adaptive learning resources, insufficiently trained teachers specializing in special needs education, and limited collaboration among key stakeholders in primary education (G.K. Abate A, 2024). In Indonesia, despite the establishment of national policies promoting inclusive education, the practical implementation often reveals a gap between policy and practice at the primary school level, particularly regarding the availability of learning environments that are genuinely inclusive and supportive of children with special needs (M, Ediyanto E Ramadhani, 2023). This situation becomes more complex in the digital era, where disparities in access to educational technology also hinder the realization of effective and sustainable inclusion.

The discrepancy between inclusive education policies and their practical implementation highlights an academic and practical urgency to reexamine management strategies applied in primary schools. Several studies have shown that educational institutions often face constraints in management planning, policy support, and the optimal use of educational technology (Z. Majola, 2013). Furthermore, disparities in teacher competencies in adapting teaching strategies to meet

individual learning needs remain a primary obstacle to inclusive practices in primary education (Kamau, n.d.). In the context of digital transformation, this urgency becomes even more significant, as educational systems must evolve to become more flexible, data-driven, and responsive to the diverse needs of learners. The lack of empirical research exploring the intersection between digitalization, inclusive policies, and school management further underscores the need to broaden the academic understanding of this area.

Conceptually, this study is grounded in educational management theory, as formulated by George R. Terry, which emphasizes the core functions of planning, organizing, actuating, and controlling in achieving educational goals effectively and efficiently. This theoretical framework provides a foundation for analyzing how school leaders and teachers manage resources and policies to ensure inclusivity for all learners. Meanwhile, the concept of inclusive education, as articulated by UNESCO (2009) and Ainscow (2005), asserts that inclusion is not merely about placing children with special needs in mainstream classrooms but about creating learning environments that are welcoming, participatory, and adaptive to diversity. This perspective aligns with recent scholarship emphasizing the role of inclusive digital leadership in facilitating successful implementation through the use of information and communication technologies (ICT) to design adaptive learning environments and broaden educational access (Martela et al., 2023).

Based on these considerations, this study aims to identify the forms of limitations and opportunities faced by primary schools in implementing inclusive education, particularly in terms of human resources, infrastructure, and policy support. The research question is explicitly stated as follows: What are the key limitations and opportunities encountered by primary schools in implementing inclusive education in the digital era, particularly regarding human resources, infrastructure, and policy support? Employing a quantitative descriptive approach, this study utilizes primary data collected via questionnaires from eight inclusive primary schools in Makassar City. Descriptive statistical analysis is used to empirically illustrate the current condition of inclusive school management and to identify areas requiring policy intervention or capacity building.

The scientific contribution of this study lies in its integration of educational management theory with the principles of inclusive education within the context of digital transformation. Unlike previous studies that tended to emphasize policy or pedagogical aspects in isolation, this research focuses on how managerial dimensions at the school level can serve as key drivers for successful inclusion in the digital age. Therefore, this article contributes new insights to the literature on educational management by highlighting the importance of adaptive policy frameworks, teacher competency enhancement, and technology-driven innovation to strengthen the sustainability of inclusive education in primary schools. This integrated approach also enriches both academic and practical discourse by proposing a more resilient and responsive model for managing inclusive education in the context of 21st-century challenges.

METHODS

This study employs a quantitative descriptive research design, which aims to describe, analyze, and interpret the forms of challenges and opportunities faced by inclusive primary schools in managing inclusive education within the digital era. The quantitative descriptive approach was selected to enable a systematic depiction of the actual conditions across the variables studied—policy support, human resources, and infrastructure—without manipulating or intervening in the natural setting. This methodological orientation aligns with the purpose of generating empirical data that reflects the management dynamics of inclusive education in a measurable and objective manner, as recommended in prior studies on inclusive education management.

The study utilizes primary data, collected directly from respondents through a structured questionnaire. The population comprises all primary schools in Makassar City that have

implemented inclusive education programs. From this population, eight inclusive primary schools were purposively selected based on their experience and active implementation of inclusive education for students with special needs. Respondents consisted of school principals, classroom teachers, and special education teachers (GPK), all of whom are directly involved in the management and implementation of inclusive practices. The choice of primary data allows for the acquisition of firsthand, contextual information on managerial practices and their associated constraints, aligning with the analytical principles of descriptive quantitative research (Kamau, n.d.).

Data were gathered through a questionnaire survey, designed to measure participants' perceptions and experiences across three primary dimensions: (1) policy support and institutional commitment, (2) human resource management and professional competence, and (3) infrastructure and digital readiness. Each dimension was operationalized into measurable indicators using a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire items were developed based on the theoretical framework of educational management and inclusive education principles, as suggested by prior empirical studies on inclusion policy and school management (M, 2022). To ensure validity, the questionnaire was reviewed by three experts in educational management and special education, while reliability testing was conducted using Cronbach's alpha coefficient.

The inclusion criteria encompassed schools that: (1) had implemented inclusive education programs for at least two academic years, (2) enrolled at least two students with special needs, and (3) had appointed both general and special education teachers. Schools that were in the early stages of inclusion or lacked designated special education teachers were excluded. This selection ensured that the sample represented institutions with established inclusive management practices and thus provided relevant and reliable data (F, 2018).

The unit of analysis in this study is the school institution, viewed as an organizational entity that integrates managerial processes—planning, organizing, implementing, and evaluating—in the management of inclusive education. However, individual responses from principals and teachers serve as the main source of information representing the institutional context. This design allows the study to capture both organizational and human resource dimensions of inclusive school management, consistent with the managerial approach to inclusion outlined in educational leadership studies (Z, 2022).

Data analysis was conducted using descriptive statistical methods, including the calculation of means, percentages, and frequency distributions for each variable. This technique allows for identifying the dominant trends, patterns, and relationships among key aspects of inclusive education management. The analysis was carried out with the help of SPSS (Statistical Package for the Social Sciences) to ensure the accuracy and consistency of results. Quantitative data were subsequently interpreted in light of educational management theory, highlighting managerial effectiveness and areas for improvement. The descriptive approach was chosen because it provides a comprehensive understanding of real-world practices while allowing for policy-relevant generalizations without the need for inferential hypothesis testing (R, 2024).

Through this methodological design, the study systematically maps the interplay between policy support, human resources, and infrastructural readiness as determinants of inclusive education success. The integration of quantitative tools and descriptive interpretation allows this research to generate empirically grounded insights that can inform educational policymakers, school administrators, and practitioners in developing sustainable and digitally adaptive inclusive education management models.

FINDING AND DISCUSSIONS

The findings of this study reveal that the management of inclusive education in inclusive primary schools across Makassar City is categorized as moderate, with an overall mean score of

3.66. Among the three measured dimensions, policy scored the highest mean value (4.12), followed by human resources (3.64) and facilities and infrastructure (3.21). These results indicate that while policy frameworks supporting inclusive education are relatively well-established, their implementation remains constrained by limited human resource capacity and inadequate infrastructure. This suggests that most inclusive schools have institutional policies aligned with government regulations but lack the operational mechanisms and resource support to implement inclusion effectively (N, 2024).

In terms of policy, most respondents agreed that the presence of school regulations supporting inclusive education, along with commitment from principals, has facilitated inclusivity initiatives. However, the findings also show that these policies often remain normative and are not followed by adequate operational planning or funding allocation. This finding aligns with the argument by Rokhmaniyah and Chamdani (2018), who observed that the implementation of inclusive education in primary schools often remains at a procedural level without comprehensive managerial oversight (F, 2018). Additionally, although schools have formed inclusion task forces and participated in local government training programs, not all institutions have integrated inclusion into their long-term school development plans.

Regarding human resources, data indicate that 72% of teachers have a positive attitude toward inclusive education, but only 38% have attended formal training on handling students with special needs. Teachers reported facing difficulties in differentiating instruction and managing diverse classrooms without the presence of special education assistants (GPK). Who found that even when teachers in public primary schools exhibit favorable attitudes toward inclusion, they often lack sufficient practical expertise to implement inclusive strategies effectively (W. M. K. F. H. A, 2017). The study also discovered that schools with established collaboration between regular teachers and GPKs demonstrated higher adaptability and better classroom management outcomes, suggesting that the presence of trained personnel is a critical factor in inclusion success.

The facilities and infrastructure dimension emerged as the weakest aspect of inclusive education management, with a mean score of 3.21. Only 25% of schools reported having adequate physical facilities such as accessible toilets, ramps, or adaptive learning tools. The lack of digital infrastructure—such as assistive learning technology, audio-visual materials, and inclusive classroom software—further limits the integration of students with special needs into mainstream learning environments. These findings are consistent with the results of (Zemba & Chipindi, 2020), who documented that insufficient infrastructure remains a major barrier for students with disabilities to access equitable education. Furthermore, limited internet connectivity and low digital literacy among teachers were found to impede the implementation of technology-based inclusion programs in some schools.

An analysis of digital integration in inclusive education shows that only 40% of schools have begun adopting educational technology platforms, primarily for administrative purposes rather than instructional adaptation. Teachers tend to use digital tools such as Google Classroom or WhatsApp groups for communication and assignment submission, but their use in designing adaptive or assistive learning environments remains minimal. Similar findings were reported by Palomino (2018), who emphasized that while information and communication technologies (ICT) can enhance teacher competencies and inclusivity, their effective use requires targeted training and institutional support (Palomino, 2018).

The overall statistical findings highlight that the schools' inclusive management practices are moderately developed and strongly influenced by three interrelated factors: (1) policy consistency and administrative support, (2) teacher competence and availability of special educators, and (3) infrastructure and digital readiness. The triangulation of these variables reveals that schools performing well in policy and human resources dimensions tend to achieve higher overall inclusivity scores, even when infrastructural limitations persist. This pattern supports

Kamau's (2024) conclusion that teacher competency and leadership quality exert a greater influence on inclusive education success than material resources alone (Kamau, n.d.).

Finally, the results from all eight schools demonstrate that while inclusive education policies are well-received and recognized as necessary, practical challenges remain in implementation. Schools that engage in collaborative networks with local education authorities and community organizations show more effective inclusion outcomes compared to those operating in isolation. These findings confirm that inclusive education management is not solely dependent on internal school capacity but also on the broader ecosystem of policy, partnership, and professional development. In this regard, the study underscores the necessity of a comprehensive and collaborative management model that integrates human resource development, digital innovation, and continuous policy adaptation to ensure inclusive education can thrive sustainably in the digital era.

The results of this study indicate that the management of inclusive education in primary schools in Makassar City remains in the moderate category (mean = 3.66), with the policy dimension scoring highest (mean = 4.12), followed by human resources (mean = 3.64) and facilities and infrastructure (mean = 3.21). These findings demonstrate that while schools have made progress in establishing inclusive policies, their implementation remains hindered by limitations in teacher capacity and infrastructure. This aligns with Amalia et al. (2024), who found that inclusive education policies in Banda Aceh were well-structured but often fell short in execution due to inadequate operational support and teacher readiness (N, 2024). The findings of this research thus address the central research question by identifying the specific challenges and opportunities across policy, human resource, and infrastructural dimensions that influence the management of inclusive education.

In light of George R. Terry's educational management theory, the results can be interpreted as evidence that the planning and organizing functions of management have been relatively well-implemented—particularly through the establishment of inclusive policies and inter-departmental coordination—while the actuating and controlling functions remain less developed. The limited monitoring and evaluation of inclusive initiatives indicate weaknesses in managerial oversight and accountability. This mirrors UNESCO's (2009) framework for inclusive education, which emphasizes that true inclusion requires systemic alignment between policy, implementation, and community engagement. Moreover, the findings correspond with Khan et al. (2017), who highlighted that although teachers in public primary schools exhibit positive attitudes toward inclusion, they frequently lack sufficient training to effectively support students with complex needs (W. M. K. F. H. A, 2017). The present study's findings reaffirm that human resource competence remains a determining factor in the success of inclusion.

These empirical findings are consistent with those of Rokhmaniyah and Chamdani (2018), who revealed that inclusive education implementation in Kebumen's primary schools reached only a "moderate" level (60%) due to institutional and resource-related shortcomings (F, 2018). Likewise, (Zemba & Chipindi, 2020) in Zambia found that despite positive attitudes toward inclusive education, practical barriers—such as lack of funding, inadequate facilities, and insufficient teacher training—remain persistent. The pattern observed in Makassar reflects these global trends, indicating that inclusive policy alone is insufficient without sustained systemic and resource-based support. In particular, the scarcity of special education assistants (GPK) and limited adaptive learning materials continue to constrain effective inclusion at the primary level.

From a theoretical standpoint, this study reinforces the significance of collaborative leadership and partnership-based management in inclusive education. Shiwani (2021) emphasized that head teachers' ability to foster inter-organizational collaboration—encompassing government agencies, local communities, and NGOs—greatly determines the effectiveness of inclusive programs. Within this framework, inclusive schools are conceptualized as open systems, where collaboration and shared responsibility are essential for overcoming internal resource limitations.

The findings from Makassar support this view: schools that actively engage in partnerships and local networks demonstrate more consistent policy implementation and higher adaptability to students' needs.

International comparisons further validate the results of this study. Kamau (2024) in Kenya demonstrated that teacher competency in special needs education significantly influenced the effectiveness of inclusive education management ($\beta = 0.737$, $p < 0.05$), whereas infrastructure had a weaker effect ($\beta = 0.541$, $p < 0.05$). Similarly, Azmi and Khairuddin (2025) in Malaysia found that while the Universal Design model improved accessibility, it did not automatically enhance inclusivity without adequate teacher training and emotional support (J., 2021). These parallel findings emphasize that human factors—especially leadership, training, and teacher motivation—serve as stronger determinants of inclusive education success than infrastructure alone.

This study contributes to the advancement of inclusive education management theory by integrating traditional management principles with the demands of the digital era. The findings reveal that successful inclusion requires not only organizational and policy adaptation but also technological integration and digital capacity building among teachers. This aligns with Palomino's (2018) argument that ICT plays a crucial role in enhancing teachers' professional competencies and promoting inclusion by facilitating flexible, student-centered learning environments. Thus, the study extends classical educational management theory into a modern context, where technology acts as both a management tool and an equalizing mechanism for diverse learners.

Despite its contributions, this study acknowledges several limitations. Its geographic scope is confined to eight schools in Makassar, thereby restricting the generalizability of findings. The use of a descriptive quantitative design also limits the depth of analysis regarding the socio-cultural dynamics of inclusion. These constraints mirror those noted by Benítez-Lugo et al. (2021), who stressed the importance of qualitative inquiry for capturing emotional and social dimensions of inclusion. Future studies could therefore adopt mixed-methods or longitudinal approaches to investigate causal relationships among policy implementation, teacher capacity, and student outcomes.

In terms of practical implications, the findings highlight the need for sustained digital-based teacher training, infrastructure development, and cross-sector partnerships to strengthen inclusive education systems. This is consistent with (Gebru & Abate, 2024), who emphasized that multi-stakeholder collaboration and continuous professional development are essential for overcoming administrative and knowledge barriers in inclusion. Furthermore, Anshory and Amelia (2020) highlighted the role of community and local government collaboration in improving schools' readiness to implement inclusive education sustainably (A. N. A. A, 2020).

In summary, the findings of this study reaffirm that inclusive education requires a comprehensive, collaborative, and technology-driven management approach. Strengthening digital literacy, managerial adaptability, and institutional partnerships will enable inclusive primary schools to move beyond policy compliance toward the realization of equitable, sustainable educational practices in the digital age.

CONCLUSION

This study concludes that the management of inclusive education in inclusive primary schools across Makassar City has shown encouraging progress, although several structural and resource-related limitations persist. Among the three observed dimensions, the policy aspect achieved the highest level of effectiveness, indicating that institutional frameworks and administrative commitments to inclusion are already well-established at the school level. However, significant disparities remain in teacher training and the adequacy of learning facilities. Teachers' limited competence in adaptive instruction, the scarcity of special education assistants (GPK), and insufficiently accessible physical and digital infrastructures continue to hinder optimal

inclusion. These findings suggest that although inclusive education policies have been successfully integrated into the school system, their practical implementation still requires stronger operational and technical support to achieve the principles of equity, participation, and accessibility within primary education.

From a scholarly standpoint, this research contributes to the theoretical development of inclusive education management by integrating classical management functions—planning, organizing, actuating, and controlling—into the contemporary context of educational diversity. The study provides new insights into how managerial processes can serve as strategic instruments for addressing resource inequality and fostering adaptive, diversity-oriented educational practices. Practically, the findings underline the importance of adaptive school leadership, ongoing digital-based teacher training, and collaborative policy development to sustain inclusive education initiatives. These contributions highlight the need for leadership models that combine humanistic management approaches with technology-driven strategies to ensure inclusion is both equitable and sustainable.

For future directions, further research should expand the geographical scope and adopt mixed-methods or longitudinal designs to explore the socio-cultural dimensions and causal relationships underlying inclusive education practices. Strengthening cross-sector collaboration between schools, government agencies, and communities is also essential for scaling up inclusive initiatives nationwide. By integrating adaptive policies, digital innovation, and participatory management, inclusive education can evolve from a formal policy framework into a tangible practice that guarantees every child's right to learn without discrimination in the digital era.

REFERENCES

- A, A. N. A. (2020). Problematics of inclusive schools at the elementary level: Empirical perspectives from Indonesia,. *Indonesian Journal of Education Studies*.
- A, W. M. K. F. H. (2017). Inclusive education in government primary schools: A case study of teacher readiness,. *Pakistan Journal of Education Research*, 34(2), 56–74.
- F, C. M. R. (2018). Evaluation of implementation of inclusive education at elementary schools in Kebumen. *Indonesian Journal of Inclusive Education*.
- G.K. Abate A. (2024). Practices, challenges, and opportunities in realizing inclusive education in Ethiopia. *International Journal of Inclusive Education*.
- Gebru, K., & Abate, T. (2024). Practice, Challenges, And Opportunities In Realizing Inclusive Education In Some Selected Primary Schools Of Hossana City Administration, Ethiopia. *13(4)*.
- J., P. A. B.-L. M. P. (2021). Inclusive design in the field of education: From the concept of accessibility to universal design for learning. *European Journal of Educational Research*.
- Kamau, P. (n.d.). An assessment of the influence of special needs education on the management of inclusive education in Kenya,. 2024.
- M, Ediyanto E Ramadhani, et al. (2023). The problems in the implementation of inclusive education in Indonesia,. *Indonesian Journal of Educational Research and Review*.
- M, R.-J. J. F. (2022). Implementation of the legal framework for inclusive education: Challenges and perspectives,. *European Journal of Special Needs Education*.
- Martela, F., Lehmus-Sun, A., Parker, P. D., & ... (2023). Needs and well-being across Europe: Basic psychological needs are closely connected with well-being, meaning, and symptoms of depression in 27 European ... *Psychological and ...*
<https://doi.org/10.1177/19485506221113678>
- N, R. D. A. S. I. (2024). School management policy analysis on the implementation of inclusive

- education in Banda Aceh. *Asian Journal of Inclusive Education Research*.
- Palomino, M. (2018). Information and communication technologies and inclusive education: Teachers' attitudes and training. *Computers & Education*, 125(2), 287–299.
- R, K. S. A. M. A. (2024). Inclusive education strategies for successful inclusion of children with special needs. *International Journal of Educational Research*.
- Z. Majola. (2013). The management of inclusive education in four selected schools in South Africa. *South African Journal of Education Management*.
- Z, A. F. A. I. A. (2022). Sustainable management and policies: The roles of educational leaders in inclusive schools. *Sustainability*, 14(5), 2579.
- Zemba, B., & Chipindi, F. M. (2020). Challenges Faced by Pupils with Disabilities in Accessing Primary Education in Two Selected Inclusive Education Piloting Schools in Livingstone District. *International Journal of Research and Scientific Innovation*, 7, 116–126. <https://doi.org/10.51244/ijrsi.2020.71205>