

Challenges and Management Strategies for Early Childhood Education in the Digital Era

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ABSTRAK

Era digital membawa perubahan signifikan dalam pengelolaan Pendidikan Anak Usia Dini (PAUD), khususnya pada aspek manajemen pendidikan. Perkembangan teknologi menuntut lembaga PAUD untuk mampu beradaptasi agar tetap relevan dan berkualitas. Namun, dalam praktiknya, manajemen PAUD masih menghadapi berbagai tantangan, seperti keterbatasan kompetensi digital pendidik, minimnya sarana prasarana teknologi, kurikulum yang belum adaptif, rendahnya keterlibatan orang tua, serta kepemimpinan manajerial yang belum sepenuhnya berbasis digital. Penelitian ini bertujuan untuk menganalisis tantangan serta strategi manajemen pendidikan PAUD di era digital. Penelitian menggunakan pendekatan kualitatif dengan metode literature review terhadap berbagai artikel ilmiah, buku, dan jurnal yang relevan. Hasil kajian menunjukkan bahwa strategi manajemen yang efektif meliputi penguatan kompetensi digital pendidik, optimalisasi sarana prasarana teknologi, pengembangan kurikulum PAUD berbasis digital, penguatan kemitraan dengan orang tua dan masyarakat, serta kepemimpinan dan kebijakan manajerial yang visioner. Strategi-strategi tersebut saling berkaitan dan menjadi kunci dalam meningkatkan kualitas layanan PAUD. Penelitian ini diharapkan dapat memberikan kontribusi konseptual bagi pengelola PAUD dalam merumuskan kebijakan manajemen pendidikan yang adaptif dan berkelanjutan di era digital.

ABSTRACT

The digital era has brought significant changes to the management of Early Childhood Education (ECE), particularly in the field of educational management. Rapid technological development requires ECE institutions to adapt in order to maintain relevance and educational quality. However, in practice, ECE management still faces various challenges, including limited digital competencies among educators, inadequate technological infrastructure, curricula that are not fully adaptive, varying levels of parental involvement, and managerial leadership that remains largely conventional. This study aims to analyze the challenges and management strategies of Early Childhood Education in the digital era. The research employed a qualitative approach using a literature review method by analyzing relevant scientific articles, books, and academic journals. The findings indicate that effective management strategies include strengthening educators' digital competencies, optimizing digital infrastructure, developing adaptive digital-based ECE curricula, enhancing partnerships with parents and the community, and reinforcing visionary leadership and digital-oriented managerial policies. These strategies are interrelated and play a crucial role in improving the quality of ECE services. This study is expected to contribute conceptually to ECE administrators in formulating adaptive and sustainable educational management policies in the digital era.

INTRODUCTION

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Early Childhood Education (PAUD) serves as a fundamental foundation in shaping children's character, intelligence, and learning readiness for subsequent levels of education (Mamuladze et al., 2024; Tahlia et al., 2024). During early childhood, children experience rapid development in cognitive, socio-emotional, language, moral, and physical-motor aspects (Chopra, 2025; Suryana et al., 2022). Therefore, the implementation of early childhood education must be designed systematically, holistically, and oriented toward children's developmental needs. PAUD not only functions as a medium for early academic stimulation but also as a platform for character building and the cultivation of basic life values. In this context, the role of educational management becomes critically important in ensuring the quality of early childhood education services (Sims et al., 2018). Effective management supports optimal planning, implementation, and evaluation of learning processes. Thus, the quality of PAUD is largely determined by the institution's ability to manage resources professionally and sustainably.

Along with the rapid development of the times, early childhood education faces significant challenges due to the advancement of digital technology. The digital era has brought substantial changes to various aspects of life, including education (Lesková et al., 2023; Shepherd, 2004). The utilization of digital technology offers great opportunities to enhance learning quality, expand access to information, and support the creativity of educators and learners. In the context of PAUD, digital technology can be used as an interactive learning medium that is engaging and aligned with the characteristics of young children (Lisenbee & Ford, 2018; Undheim, 2022). However, the integration of digital technology into early childhood education requires readiness from multiple stakeholders, particularly educators and institutional managers. Without appropriate management, the use of digital technology may instead generate negative impacts on children's learning processes. Therefore, early childhood education management strategies in the digital era constitute an important issue that requires in-depth examination.

In practice, various problems are still encountered in managing PAUD in the digital era. Many early childhood education institutions lack well-structured management planning for the utilization of digital technology. Limited digital competence among educators remains one of the main obstacles to optimizing technology-based learning. In addition, technological facilities and infrastructure in some PAUD institutions are still inadequate. The lack of training and professional development opportunities for educators further exacerbates this condition. On the other hand, some parents continue to express concerns regarding the potential negative effects of digital technology on early childhood development. These conditions demand management strategies capable of bridging modern learning needs with child development principles. Without appropriate strategies, the quality of PAUD in the digital era is at risk of declining.

The research conducted by Loka, Novita, and Rizky Thania Sabila shows that the use of digital tools can effectively enhance early childhood cognitive skills when implemented in a balanced and developmentally appropriate manner. The study found that digital learning tools contribute positively to children's cognitive development, particularly in areas such as problem-solving, memory, and early literacy, while emphasizing the importance of adult guidance to prevent negative impacts of excessive screen exposure (Loka & Sabila, 2024). The research conducted by Cahyati, Sri Supiah, et al. indicates that the quality of early childhood learning can be improved through effective educational management practices aligned with the demands of the Industrial Revolution 4.0. The study highlights that the integration of technology, strong leadership, teacher competency development, and systematic management planning play a significant role in enhancing learning quality in early childhood education institutions (Cahyati et al., 2022).

The research conducted by Risnawati, Atin, and Muhammad Permadi reveals that Early Childhood Education in the Society 5.0 era faces complex challenges related to rapid technological advancement and changing social dynamics. The study emphasizes that teachers play a crucial role in addressing these challenges by strengthening pedagogical competence, digital literacy, and character education to ensure holistic development in early childhood learners (Risnawati & Permadi, 2025). The research conducted by Budiman, Agus, et al. highlights that the future of Early Childhood Education in the digital age depends on the balanced integration of technology with pedagogical and ethical values. The study concludes that digital innovation, when guided by strong educational management and teacher professionalism, can enhance learning effectiveness while preserving children's moral and social development (Budiman et al., 2022).

Based on the discussion above, it can be concluded that a research gap still exists in studies on early childhood education management in the digital era. Most previous research has focused on general educational management or on primary and secondary education levels. Studies that specifically address the challenges and management strategies of PAUD in the context of digitalization remain relatively limited. In addition, few studies have integrated managerial aspects, educator competencies, and the utilization of digital technology within a comprehensive analytical framework. The novelty of this study lies in its effort to examine in depth the actual challenges faced by PAUD institutions in the digital era. This study also offers contextual and applicable management strategies aligned with the characteristics of early childhood education. Thus, this research is expected to provide both theoretical and practical contributions to the development of PAUD management.

The objective of this study is to analyze the management challenges of early childhood education in the digital era. Specifically, this study aims to identify various obstacles encountered by PAUD institutions in managing technology-based learning. In addition, the study seeks to

examine management strategies implemented to address these challenges. This research is expected to provide a comprehensive overview of PAUD management practices in the digital era. The findings are anticipated to serve as an evaluative reference for PAUD administrators. Moreover, this study is expected to become a valuable reference for educators and policymakers. Ultimately, this research contributes to improving management quality and educational standards in early childhood education within the digital era.

METHOD

This study employs a qualitative approach using a literature review method to examine in depth the challenges and management strategies of Early Childhood Education (PAUD) in the digital era (Mustofa, 2023). This method was chosen because it allows researchers to systematically and comprehensively collect, analyze, and synthesize findings from relevant previous studies (Setiawan, 2018). The research data were obtained from scholarly articles, accredited national and international journals, conference proceedings, and academic books that discuss educational management, early childhood education, and the digitalization of education. The literature reviewed was published within the last ten years to ensure data relevance and currency. The literature search was conducted through academic databases such as Google Scholar, DOAJ, and national journal portals. Keywords used in the search included "PAUD management," "early childhood education," "educational management," and "digital era." The selected literature was further screened based on topic relevance and academic quality.

Data analysis was carried out using content analysis techniques on the collected literature. Each source was examined to identify key themes related to the challenges and management strategies of early childhood education in the digital era (Muhammad Mustofa, 2023). The results of the analysis were then classified and compared to identify patterns, similarities, and differences across studies. Subsequently, data synthesis was conducted to formulate conceptual and contextual conclusions. Data validity was ensured through source triangulation by comparing findings from various references. Through this methodological approach, the study is expected to provide a comprehensive overview of PAUD management practices and offer strategic recommendations that can be applied to address educational challenges in the digital era.

RESULT AND DISCUSSION

Early Childhood Education in the Digital Era

Early Childhood Education in the digital era has undergone significant transformation alongside rapid technological advancement. Digital technology has become an integral part of everyday life, influencing how children interact, learn, and perceive their environment from an early age (Ihmeideh & Alkhawaldeh, 2017). In this context, early childhood education institutions

are required to adapt to changing learning landscapes by integrating technology in ways that support children's holistic development. The digital era offers new opportunities for enriching learning experiences through interactive media, educational applications, and multimedia resources. However, technology in early childhood education must be positioned as a supportive tool rather than a dominant element, ensuring that learning remains developmentally appropriate and centered on children's needs.

The integration of digital technology in early childhood education also reshapes teaching and learning approaches. Educators are no longer solely providers of knowledge but facilitators who guide children in exploring information creatively and safely. Digital tools can support play-based learning, stimulate curiosity, and enhance children's cognitive, language, and social skills when used thoughtfully. Nevertheless, excessive or inappropriate use of technology may reduce direct interaction, which is crucial for young children's emotional and social development. Therefore, educators must carefully balance digital and non-digital learning activities. This balance requires pedagogical competence and a deep understanding of child development principles.

From a management perspective, early childhood education in the digital era demands strategic planning and strong institutional support. Educational institutions must ensure the availability of appropriate digital infrastructure, provide continuous professional development for educators, and develop policies that regulate the use of technology in learning. Effective management plays a vital role in aligning digital initiatives with educational goals and institutional values. Without clear planning and guidance, digital integration may become fragmented and ineffective. Thus, leadership and organizational readiness are essential components in fostering meaningful digital transformation in early childhood education settings.

Furthermore, the digital era highlights the importance of collaboration among educational institutions, families, and the wider community. Parents play a crucial role in supporting children's digital learning, particularly in guiding responsible and safe technology use at home. Strong communication and partnership between schools and families help ensure consistency in children's learning experiences. Community involvement can also contribute resources and support for digital education initiatives. Through collaborative efforts and responsible technology integration, early childhood education in the digital era can promote positive learning experiences while safeguarding children's well-being and developmental needs.

Challenges of Early Childhood Education Management in the Digital Era

The rapid development of digital technology has brought fundamental changes to the management of early childhood education institutions. Digitalization not only affects learning methods but also influences planning, organizing, implementing, and evaluating educational programs in early childhood settings (Timotheou et al., 2023). Early Childhood Education (ECE)

institutions are required to adapt their management systems to remain relevant and responsive to the demands of the digital era. However, this transformation is not without challenges, as differences in institutional readiness, human resource capacity, infrastructure, and stakeholder support often hinder effective implementation. Therefore, understanding the management challenges faced by early childhood education in the digital era is essential to ensure that digital transformation contributes positively to the quality of educational services rather than undermining core developmental principles.

1. Limited Digital Competence of Early Childhood Educators

One of the main challenges in early childhood education management in the digital era is the limited digital competence of early childhood educators. Many PAUD educators come from conventional educational backgrounds and are not fully prepared to face the demands of digitalized learning. Their ability to operate technological devices, utilize digital media, and manage technology-based learning remains relatively low. As a result, the use of technology in PAUD institutions has not been optimized. In fact, the digital era requires educators to continuously and rapidly adapt to developments in information technology. Educators' lack of readiness directly affects the effectiveness of digital learning for young children. Therefore, digital competence has become a crucial aspect of human resource management in early childhood education.

From a management perspective, limited digital competence reflects weaknesses in human resource planning and development. Many PAUD institutions do not yet have systematic and sustainable technology training programs. Existing training initiatives are often incidental and do not adequately address the practical needs of educators in the field. Consequently, educators tend to use technology in a very basic manner, such as merely playing videos without proper pedagogical integration. This condition highlights a gap between management policies and the actual needs of educators. PAUD management is therefore required to accurately map digital competency needs so that educator development strategies can be formulated in a more focused and effective manner.

Furthermore, limited digital competence also affects the overall quality of early childhood education services. Learning activities that should be creative and interactive often become passive and monotonous. Children who should receive optimal stimulation through educational digital media are not adequately facilitated. This condition may lead to low achievement of developmental objectives. Therefore, this challenge is not only technical in nature but also strategic in educational management. Strengthening educators' digital competence must become a top priority in PAUD management in the

digital era, as without it, digital transformation in early childhood education will be difficult to achieve optimally.

2. Limited Technological Facilities and Infrastructure

Another challenge in early childhood education management in the digital era is the limitation of technological facilities and infrastructure. Many PAUD institutions do not yet have adequate technological resources, such as computers, projectors, or stable internet access. These limitations are generally caused by restricted operational budgets. As a result, the implementation of digital-based learning cannot be carried out optimally. This condition indicates that infrastructure readiness remains a fundamental issue in the digitalization of PAUD. Without sufficient facilities, technology-based management strategies are difficult to implement. This becomes a serious obstacle to improving the quality of early childhood education.

From a management standpoint, limited facilities and infrastructure reflect weaknesses in institutional resource planning and management. Many PAUD institutions have not yet prioritized technological development in their strategic planning. The procurement of technological facilities is often viewed as a secondary need. However, in the digital era, technology has become an integral part of both learning processes and educational management. The lack of long-term planning causes PAUD institutions to lag behind in utilizing technology. Management must therefore adopt needs-based and future-oriented planning approaches so that technological facilities can be developed gradually and sustainably.

Limited technological infrastructure also directly contributes to disparities in quality among PAUD institutions. Institutions with adequate facilities are better positioned to develop innovative digital learning practices, while those with limited resources tend to fall behind and become less competitive. This situation has the potential to widen educational inequality in early childhood education. Therefore, this challenge requires serious attention from both institutional managers and policymakers. PAUD management needs to explore alternative solutions, such as partnerships with external parties or the use of simple and accessible technologies. These efforts are essential to ensure equity in PAUD education quality in the digital era.

3. Lack of Parental Support and Participation

The lack of parental support and participation represents a significant challenge in early childhood education management in the digital era. In digital-based learning, parents play a crucial role, particularly in assisting children at home. However, not all parents have sufficient understanding of the use of technology in early childhood education. Some parents even perceive technology as a threat to children's development.

Such perceptions lead to resistance toward digital learning programs implemented by PAUD institutions. As a result, digital-based education management strategies are not implemented optimally. This condition indicates a communication gap between PAUD institutions and parents.

From a management perspective, limited parental participation reflects weak communication and partnership strategies. Many PAUD institutions do not yet have effective communication systems to inform parents about digital learning programs. Socialization efforts are often limited and lack depth, causing parents to misunderstand the objectives and benefits of technology use in PAUD. Institutional management must therefore establish open and continuous communication patterns. Involving parents in the planning and evaluation of programs can enhance their sense of ownership toward the institution. Consequently, parental support for digital learning initiatives can be strengthened.

The lack of parental support also affects the consistency of children's learning experiences. Young children require intensive guidance when using technology for educational purposes. Without parental involvement, digital learning may become uncontrolled and ineffective. This condition can hinder the achievement of optimal developmental outcomes. Therefore, this challenge cannot be overlooked in PAUD management. Institutions must design specific strategies to enhance parents' digital literacy so that digital learning can be implemented synergistically between educational institutions and families.

4. Difficulties in Maintaining Learning Quality for Young Children

Maintaining the quality of early childhood learning in the digital era presents a major challenge in educational management. PAUD learning has unique characteristics that emphasize play, direct interaction, and multisensory stimulation. Inappropriate use of technology may reduce the quality of interaction between educators and children. Moreover, excessive digital learning can cause children to become passive learners. This condition contradicts the fundamental principles of early childhood education. Therefore, PAUD management is required to balance the use of technology with developmentally appropriate pedagogical approaches. This challenge demands careful and contextual managerial policies.

From a learning management perspective, difficulties in maintaining quality arise from the absence of clear standards for technology use in PAUD. Many institutions utilize technology without adequate pedagogical guidelines. As a result, technology functions merely as an entertainment tool rather than a meaningful learning medium. Institutional

management needs to formulate policies and guidelines that align technology use with early childhood characteristics. In addition, systematic evaluation of digital-based learning is still rarely conducted, making it difficult to measure and improve learning quality. This challenge highlights the critical role of management in ensuring educational quality.

Difficulties in maintaining learning quality also affect public trust in PAUD institutions. When digital learning is perceived as ineffective, parents tend to reject innovations offered by the institution. This condition can hinder the digital transformation of early childhood education. Therefore, management must ensure that technology is used appropriately and proportionally. Age-appropriate blended learning approaches may serve as an alternative solution. With effective management, the quality of PAUD learning in the digital era can be maintained. This challenge thus represents both an obstacle and an opportunity for early childhood education management.

5. Weak Policies and Managerial Support

The final challenge in early childhood education management in the digital era is weak policies and managerial support. Many PAUD institutions do not yet have written policies related to digital transformation. Digitalization is often implemented spontaneously without comprehensive strategic planning. As a result, digital programs tend to be unsustainable and dependent on specific individuals. When leadership or staff changes occur, digital initiatives often cease. This condition indicates weaknesses in the educational management system. Without clear policies, the implementation of digital transformation in PAUD cannot be carried out consistently.

From a strategic management perspective, weak policies reflect the absence of a long-term vision within PAUD institutions. Many administrators do not yet perceive digitalization as a strategic necessity. Consequently, budget allocation and resource support for technological development remain very limited. Management is also often less responsive to changes in the educational environment, even though the digital era demands adaptability and innovation from educational institutions. Weak managerial policies lead to low institutional readiness in addressing digital challenges. Therefore, strengthening leadership and policy frameworks is an urgent need.

Weak managerial support also affects the motivation of educators and staff. Without clear policy support, educators tend to hesitate in innovating. Initiatives to integrate technology often receive insufficient appreciation or support. This condition may reduce educators' enthusiasm and creativity. Consequently, PAUD management must establish policies that support digital innovation. Strong managerial support will foster an

adaptive organizational culture. In this way, management challenges in PAUD institutions in the digital era can be addressed more effectively and sustainably.

Early Childhood Education Management Strategies in the Digital Era

Effective management strategies in Early Childhood Education (ECE) play a crucial role in ensuring that educational institutions are able to adapt to the rapid changes brought about by the digital era. The integration of digital technology into early childhood education requires careful planning and systematic management to support meaningful and developmentally appropriate learning experiences (Salim et al., 2022). Management strategies are needed to align digital innovation with the fundamental principles of early childhood development, such as play-based learning, social interaction, and holistic growth. In this context, educational leaders are expected to design policies that guide the appropriate use of digital tools in teaching and learning processes. Furthermore, effective management helps strengthen the capacity of educators through continuous professional development and digital competence enhancement. Strategic management also ensures the availability and optimal use of technological infrastructure to support learning activities. In addition, collaboration with parents and stakeholders becomes an essential component of managing digital-based early childhood education. Therefore, well-structured management strategies are fundamental to maintaining and improving the quality of early childhood education in the digital era.

1. Strengthening Digital Competence of Early Childhood Educators

One of the main strategies in early childhood education (ECE) management in the digital era is strengthening the digital competence of educators. Early childhood educators play a central role in implementing technology-based learning that aligns with the characteristics and developmental needs of young children. Therefore, institutional management must design structured and sustainable digital competency development programs. Training should not only focus on technical skills in operating digital devices but also emphasize digital pedagogy. Educators need to be equipped with the ability to select and utilize digital media that are safe, educational, and developmentally appropriate. With adequate digital competence, educators can creatively integrate technology into learning activities. This strategy serves as a fundamental pillar for the successful digital transformation of early childhood education.

From a managerial implementation perspective, strengthening digital competence can be achieved through both internal and external training programs. Early childhood education institutions may collaborate with education authorities, higher education institutions, or professional training providers. In addition, management can encourage educators to participate in relevant online training programs tailored to early childhood

learning needs. Peer mentoring among educators can also serve as an effective strategy for sharing knowledge and practical experiences. Through this approach, digital competence development becomes not only an individual effort but also a collective process. Institutional management must ensure that training programs are practical, contextual, and applicable in real classroom settings. Regular evaluation of training outcomes is essential to ensure the effectiveness of these programs.

Strengthening educators' digital competence has a direct impact on the quality of early childhood learning. Digitally competent educators are able to design learning experiences that are more engaging, interactive, and meaningful. Young children can benefit from guided digital learning experiences that support their cognitive, social, and emotional development. Furthermore, educators become more confident in addressing the challenges of teaching in the digital era. This strategy also fosters a culture of lifelong learning within early childhood education institutions. With strong managerial support, educators' digital competence can continue to grow sustainably. Ultimately, this strategy contributes significantly to improving the overall quality of early childhood education.

2. Provision and Optimization of Digital Infrastructure

The second strategy in early childhood education management in the digital era is the provision and optimization of digital infrastructure. Digital facilities such as computers, tablets, projectors, and reliable internet access are essential supports for technology-based learning (Jannah et al., 2020). Institutional management must include the development of digital infrastructure as part of its strategic planning. The provision of facilities does not need to be immediate but can be implemented gradually according to institutional capacity. The most important aspect is ensuring that the facilities align with the learning needs of young children. Without adequate infrastructure, the implementation of digital learning will be difficult to optimize. Therefore, this strategy represents a crucial aspect of early childhood education management.

Optimizing infrastructure also requires managerial competence in managing and utilizing available facilities. Many institutions already possess technological devices, yet these resources are often underutilized. This situation is commonly caused by a lack of planning regarding usage and maintenance. Management must establish clear policies governing the use of digital facilities. In addition, routine maintenance is necessary to ensure the long-term functionality of technological resources. Proper infrastructure management enhances the effectiveness of digital learning implementation. Consequently, investments in technology can yield maximum educational impact.

The provision of digital infrastructure also contributes to strengthening the competitiveness of early childhood education institutions. Institutions with adequate

facilities are more attractive to parents and the wider community. Parents tend to prefer institutions that offer educational services aligned with contemporary developments. Furthermore, optimized digital infrastructure supports continuous innovation in learning practices. This strategy also opens opportunities for collaboration with external partners. With effective management, digital infrastructure becomes a strategic asset for early childhood education institutions. This highlights the crucial role of management in developing educational infrastructure.

3. Development of an Adaptive Digital-Based Early Childhood Curriculum

Developing an adaptive digital-based early childhood curriculum is a vital strategy in education management in the digital era. The curriculum serves as the primary guideline for organizing learning activities for young children (Shi & Nicolas, 2023). Therefore, institutional management must align the curriculum with technological developments while preserving the fundamental principles of early childhood education. The integration of technology into the curriculum should be selective and proportional. Technology should function as a learning support tool rather than the main objective of instruction. With an adaptive curriculum, digital learning can be harmonized with children's developmental needs. This strategy requires active managerial involvement in curriculum planning.

In practice, developing a digital-based curriculum requires collaboration among administrators, educators, and other stakeholders. Management must facilitate discussions and collaborative curriculum design processes that are contextually relevant. Educators should be actively involved to ensure that the curriculum can be effectively implemented in classrooms. In addition, the curriculum should be complemented with clear guidelines for the safe and educational use of digital media. Periodic curriculum evaluation is necessary to adjust to technological advancements and evolving learner needs. Through this approach, the early childhood curriculum becomes more dynamic and responsive. This strategy strengthens the managerial role in maintaining learning quality.

The development of a digital-based curriculum also creates opportunities for learning innovation. Young children can experience more varied and engaging learning activities. Digital media can support play-based learning, exploration, and creativity. With an adaptive curriculum, technology does not replace direct interaction but enriches children's learning experiences. This strategy helps early childhood education institutions respond more effectively to digital challenges. Visionary management can transform the curriculum into an instrument of positive change. Thus, a digital curriculum becomes an essential component of early childhood education management strategies.

4. Strengthening Partnerships with Parents and the Community

The fourth strategy in early childhood education management in the digital era is strengthening partnerships with parents and the community. In digital learning, parents play a critical role, particularly in supporting children's learning activities at home. Institutional management must establish effective and continuous communication with parents. Socialization of digital learning programs should be conducted clearly and transparently. Parents need to understand the objectives, benefits, and implementation methods of digital learning. With strong parental support, digital strategies can be implemented more effectively. Therefore, partnerships represent a key element in early childhood education management.

Strengthening partnerships can be achieved through various programs and activities. Institutions may organize digital literacy training for parents to enhance their understanding of safe and appropriate technology use for children. Additionally, digital communication platforms can be utilized to monitor children's development and learning progress. With active parental involvement, learning continuity between home and school can be achieved. Management may also involve the community in supporting digital education initiatives. Such collaboration strengthens the early childhood education ecosystem.

Strong partnerships among early childhood institutions, parents, and the community positively influence educational quality. Parents become active partners in their children's learning processes. The community contributes to supporting digital-based education programs. This strategy creates a conducive and sustainable learning environment. Management must view partnerships as a long-term investment. Through effective synergy, educational challenges in the digital era can be addressed collaboratively. This underscores the importance of collaborative strategies in early childhood education management.

5. Strengthening Leadership and Digital-Based Managerial Policies

The final strategy in early childhood education management in the digital era is strengthening leadership and managerial policies. Visionary leadership is a key factor in the success of digital transformation in education. Leaders of early childhood education institutions must possess a strong understanding of the importance of digitalization. Managerial policies should be systematically formulated with a long-term orientation. Digital transformation cannot be implemented partially or temporarily. Therefore, this strategy requires strong commitment from institutional leaders. Without leadership support, digital strategies are unlikely to be implemented effectively.

Strengthening managerial policies involves planning, implementation, and evaluation of digital programs. Management must establish internal regulations governing the use of technology in learning activities. These policies serve as guidelines for educators and staff in carrying out their roles. In addition, management must allocate specific budgets for technological development. Periodic evaluation of digital programs is essential to ensure sustainability. With clear policies, all institutional elements share common goals and direction. This strategy reinforces effective governance within early childhood education institutions.

Strong leadership also fosters a culture of innovation within early childhood education institutions. Educators and staff feel supported in experimenting with new learning approaches. Digital innovation is no longer perceived as a burden but as an opportunity to enhance educational quality. This strategy enables institutions to adapt to changing times. With appropriate leadership and policies, digital transformation can be sustained over time. Ultimately, effective management emerges as the key determinant of success in early childhood education in the digital era.

CONCLUSION

the management of Early Childhood Education (ECE) in the digital era faces various challenges that require strategic and well-planned responses from all elements of educational institutions. These challenges include limited digital competence among educators, inadequate technological infrastructure, curricula that are not yet fully adaptive, varying levels of parental involvement, and managerial leadership that remains largely conventional. Therefore, the implementation of comprehensive management strategies becomes a fundamental necessity to maintain the quality of ECE services. Strengthening educators' digital competencies, providing adequate technological facilities, developing digitally adaptive curricula, fostering partnerships with parents and communities, and promoting visionary leadership are interrelated strategic efforts. These strategies are not solely focused on the utilization of technology but also on safeguarding and fulfilling the developmental needs of young children. With effective and adaptive management, digitalization can serve as a supportive tool for meaningful learning. Thus, ECE institutions are able to improve educational quality sustainably and remain relevant in response to the demands of an evolving era.

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