

THE EARLY CHILDHOOD EDUCATION ADMINISTRATION IN THE DIGITAL ERA

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ABSTRACT

This academic article entitled “Early Childhood Education Administration in the Digital Era” aims to present concepts, roles, challenges, and development approaches related to educational administration for early childhood institutions in the context of rapid digital transformation. The article emphasizes the importance of integrating digital technology, educational innovation, and modern management approaches into educational administration to improve the quality of learning management and organizational effectiveness in the twenty-first century. The article is divided into three major sections. The first section presents the concepts of early childhood education administration in the digital era, focusing on the meaning and importance of educational administration, the characteristics of the digital era in education, and the roles of educational administrators in digital transformation. This section highlights that educational administrators must demonstrate digital leadership, strategic management, and technology integration skills to support effective learning environments and sustainable educational development. The second section discusses digital technology and innovation for early childhood education. It focuses on the use of digital learning media, educational technology, information systems for school administration, and collaboration among teachers, parents, and communities through digital platforms. The article explains that digital innovation helps improve learning experiences, communication systems, academic management, and stakeholder participation in children’s educational development. The third section presents challenges and development approaches for early childhood education administration in the digital era. This section addresses issues related to digital transformation, technological inequality, digital readiness, and the development of digital competencies among educational personnel. It also emphasizes the importance of sustainable educational administration through strategic planning, collaborative leadership, professional development, and effective policy implementation. Overall, this article concludes that successful early childhood education administration in the digital era requires educational institutions to balance technological advancement with child-centered educational practices. Educational administrators, teachers, parents, and communities must collaboratively develop sustainable educational systems that support innovation, digital literacy, and lifelong learning. The integration of technology, leadership, and collaborative management is therefore essential for improving educational quality and preparing young children for future learning and life in the digital society.

Keywords: Early Childhood Education Administration; Digital Era; Educational Technology; Digital Leadership; Educational Innovation

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INTRODUCTION

Early childhood education plays a crucial role in developing children's physical, cognitive, emotional, and social foundations, which significantly influence lifelong learning and future quality of life. In the twenty-first century, rapid technological advancement and digital transformation have changed educational management systems worldwide, requiring educational institutions to adapt their administration and instructional practices to align with the digital era. Educational administrators are expected to integrate digital technologies into organizational management, curriculum implementation, communication systems, and learning environments in order to improve educational quality and operational efficiency (Fullan & Langworthy, 2014). Consequently, early childhood education administration has become an important mechanism for preparing young learners to develop digital literacy, creativity, and essential life skills needed in modern society. The digital era has also created significant challenges and opportunities for educational institutions, particularly in early childhood education where teaching and learning processes must be carefully designed according to children's developmental characteristics. School administrators are required to demonstrate digital leadership, strategic planning, innovation management, and effective use of information technology to support teachers, learners, and parents (Sheninger, 2019). Moreover, the integration of digital technology in early childhood education can enhance learning experiences through interactive media, online communication platforms, and data-driven educational management systems (UNESCO, 2021). However, disparities in technological readiness, teacher competency, and administrative support remain major concerns affecting the effectiveness of digital education management in many schools.

In Thailand, the Ministry of Education has emphasized the importance of digital transformation in educational administration to improve educational quality and equity across all educational levels, including early childhood education. Schools under the Primary Educational Service Area Offices are encouraged to develop innovative administrative models that support digital learning environments and effective organizational management. Therefore, studying early childhood education administration in the digital era is essential for identifying appropriate administrative approaches, promoting digital competencies among educational personnel, and enhancing the overall quality of educational management. The findings of this study are expected to contribute to the development of sustainable educational administration models that are responsive to technological changes and the needs of learners in the digital society (Office of the Education Council, 2020; OECD, 2020). Therefore, early childhood education administration in the digital era has become increasingly important for improving educational quality, promoting digital competencies, and developing sustainable learning environments that respond to rapid technological and social changes. Educational institutions must adopt innovative administrative approaches, strengthen collaboration among educational stakeholders, and effectively integrate digital technology into educational management and instructional practices. The successful implementation of digital transformation in education not only enhances organizational efficiency but also supports children's lifelong learning and future readiness in the digital society (Selwyn, 2021; Darling-Hammond et al., 2020).

Furthermore, effective early childhood education administration in the digital era requires educational institutions to continuously adapt to emerging technologies, educational innovations, and rapidly changing societal expectations. Educational administrators must not only focus on improving technological infrastructure and digital systems but also promote a learning culture that emphasizes creativity, collaboration, critical thinking, and lifelong learning among teachers and learners. In early childhood education, the integration of digital technology should be carefully designed to support children's developmental needs, encourage active learning experiences, and create safe and inclusive learning environments. Administrators therefore play a significant role in guiding teachers, coordinating educational resources, and establishing

policies that support effective digital learning management and sustainable educational development.

CONCEPTS OF EARLY CHILDHOOD EDUCATION ADMINISTRATION IN THE DIGITAL ERA

Early childhood education administration in the digital era has become an essential component of educational development in modern society. Rapid advancements in digital technology, communication systems, and educational innovation have significantly transformed the ways educational institutions manage learning processes, organizational systems, and educational services. Educational administration is no longer limited to traditional management practices but now involves the integration of digital tools, information systems, and innovative leadership approaches to improve educational quality and institutional effectiveness. Particularly in early childhood education, administrators play a vital role in creating supportive learning environments that promote children's holistic development while responding to the changing demands of the digital society. Moreover, the digital era has changed the expectations and responsibilities of educational administrators, teachers, parents, and communities. Educational institutions are increasingly required to develop flexible management systems, promote digital competencies among educational personnel, and establish collaborative networks that support effective learning experiences for young children. As a result, understanding the concepts of early childhood education administration in the digital era is important for developing sustainable educational systems that can effectively adapt to technological changes and support the educational needs of learners in the twenty-first century.

1.1 Meaning and Importance of Early Childhood Education Administration

Early Childhood Education Administration refers to the process of planning, organizing, directing, and evaluating educational activities designed to support the holistic development of young children. Effective administration in early childhood education plays a significant role in promoting children's cognitive, emotional, social, and physical development while ensuring that educational institutions operate efficiently and achieve educational goals. Educational administrators are responsible for creating supportive learning environments, developing educational policies, managing resources, and encouraging collaboration among teachers, parents, and communities.

In the context of modern education, early childhood education administration has become increasingly important because the quality of educational management directly influences the quality of learning experiences provided to children during their formative years. Furthermore, sustainable pedagogical leadership is considered an essential component of effective early childhood education administration. Administrators must demonstrate leadership that supports continuous professional development, collaborative learning, and child-centered educational practices. According to Fonsén and Soukainen (2020), sustainable pedagogical leadership helps educational institutions maintain high-quality educational standards by promoting shared values, professional cooperation, and long-term educational improvement. Therefore, effective early childhood education administration not only enhances institutional management but also contributes to the development of sustainable educational systems that support children's lifelong learning and future success.

1.2 Characteristics of the Digital Era in Education

The digital era has transformed educational systems worldwide through the rapid development of information technology, digital communication, and innovative learning platforms. Educational institutions are increasingly integrating digital tools and online resources into teaching, learning, and administrative processes to improve educational quality and accessibility. The characteristics of the digital era in education include the widespread use of digital media, internet-based learning environments, cloud technology, artificial intelligence, and interactive communication systems.

These technologies have changed the traditional roles of teachers and learners by promoting collaborative learning, self-directed learning, and flexible educational management.

In addition, digital transformation has significantly influenced educational administration and learning environments by enabling faster communication, efficient data management, and innovative instructional approaches. Bond et al. (2018) explained that digital transformation in education encourages both teachers and students to adapt to new forms of learning and technology usage, which enhances educational engagement and academic performance. Educational institutions in the digital era are therefore required to develop technological infrastructure, improve digital competencies among educational personnel, and establish effective digital management systems to support sustainable educational development and lifelong learning opportunities.

1.3 Roles of Educational Administrators in the Digital Age

Educational administrators in the digital age play a critical role in leading schools and educational institutions toward successful digital transformation. Their responsibilities extend beyond traditional administrative duties to include digital leadership, innovation management, strategic planning, and technology integration. Administrators are expected to create visions and policies that support the effective use of technology in educational management and instructional practices. They must also encourage teachers and staff to develop digital competencies, utilize digital resources effectively, and adopt innovative teaching approaches that meet the needs of learners in the twenty-first century. Moreover, educational administrators must establish organizational systems that support communication, collaboration, and data-driven decision-making. Effective digital leadership requires administrators to manage technological resources, maintain cybersecurity and information systems, and promote positive digital cultures within educational institutions. Dexter (2018) emphasized that leadership for information technology in education involves systems of practices that integrate technology into educational administration and school improvement processes. Therefore, educational administrators in the digital age must possess leadership skills, technological knowledge, and strategic management abilities to ensure that educational institutions can effectively adapt to rapid technological changes and provide high-quality educational services.

Conclusion of Concepts of Early Childhood Education Administration in the Digital Era, the concepts of early childhood education administration in the digital era emphasize the importance of integrating digital technology, innovative leadership, and effective management systems into educational administration. Educational administrators play a significant role in promoting quality learning environments, supporting children's holistic development, and ensuring effective school management. In the digital era, educational institutions must adapt to technological changes by utilizing digital tools, information systems, and modern communication methods to improve educational quality and organizational efficiency. Furthermore, educational administrators are expected to demonstrate digital leadership, strategic planning, and collaborative management skills to support teachers, students, parents, and communities. Effective early childhood education administration requires continuous professional development, technology integration, and sustainable educational practices that align with the needs of learners in the twenty-first century. Therefore, understanding the concepts and importance of educational administration in the digital era is essential for developing educational institutions that can effectively respond to social, technological, and educational changes.

DIGITAL TECHNOLOGY AND INNOVATION FOR EARLY CHILDHOOD EDUCATION

Digital technology and innovation have become important driving forces in transforming early childhood education in the twenty-first century. The rapid growth of information technology, digital communication, and online learning systems has changed the ways educational institutions

manage teaching and learning processes for young children. Educational technology provides opportunities to create interactive, flexible, and engaging learning environments that support children's cognitive, emotional, social, and creative development. As a result, schools and educational administrators increasingly integrate digital media, online platforms, and innovative instructional tools into educational management and classroom practices to enhance the quality of early childhood education. Furthermore, innovation in educational technology not only supports children's learning experiences but also improves communication, collaboration, and administrative efficiency within educational institutions. Teachers, administrators, and parents can utilize digital platforms to exchange information, monitor children's development, and participate in educational activities more effectively. The integration of digital technology into early childhood education therefore plays a significant role in preparing young learners for future learning and life in a technology-driven society while promoting sustainable educational development in the digital era.

2.1 Digital Learning Media and Educational Technology

Digital learning media and educational technology have become important tools for supporting early childhood education in the digital era. Educational institutions increasingly use multimedia, interactive applications, animations, videos, online games, and digital learning platforms to enhance children's learning experiences and encourage active participation in the learning process. Young children are naturally attracted to visual and interactive learning activities, making digital media an effective approach for improving attention, creativity, communication skills, and cognitive development. Educational technology also allows teachers to design flexible and individualized learning activities that are appropriate for children's developmental needs and learning styles.

Furthermore, digital learning media can support collaborative learning and improve children's problem-solving abilities through interactive educational experiences. The integration of technology into early childhood classrooms enables children to develop digital literacy skills at an early age while promoting motivation and engagement in learning activities. However, effective use of educational technology requires careful planning, age-appropriate content, and guidance from teachers and parents to ensure balanced and meaningful learning experiences. Hsin, Li, and Tsai (2019) explained that technology usage among young children can positively influence learning outcomes when digital tools are appropriately integrated into educational activities and supported by effective instructional strategies.

2.2 Information Systems for School Administration

Information systems for school administration play a significant role in improving the efficiency and effectiveness of educational management in the digital era. Educational institutions increasingly rely on digital systems for academic administration, student information management, communication, financial management, and organizational decision-making. These systems help administrators collect, store, analyze, and manage educational data accurately and efficiently. Through the use of digital information systems, schools can improve communication among administrators, teachers, students, and parents while reducing paperwork and administrative complexity.

In addition, information systems support strategic planning and data-driven decision-making processes within educational institutions. Administrators can monitor educational performance, evaluate institutional progress, and identify areas requiring improvement through real-time data analysis. During the COVID-19 pandemic, the importance of online systems and digital educational management became more evident as schools shifted to online learning and remote administration. Almaiah, Al-Khasawneh, and Althunibat (2020) stated that effective implementation of e-learning and digital management systems depends on technological infrastructure, user readiness, technical support, and institutional policies. Therefore, educational

institutions must continuously develop digital systems and strengthen technological competencies among educational personnel to ensure sustainable educational administration.

2.3 Teacher and Parent Collaboration through Digital Platforms

Teacher and parent collaboration is an essential factor in supporting children's educational development, particularly in early childhood education where family involvement significantly influences children's learning and behavior. In the digital era, communication and collaboration between schools and families are increasingly facilitated through digital platforms such as social media applications, online communication systems, video conferencing tools, and learning management systems. These digital communication channels enable teachers and parents to exchange information more quickly, conveniently, and continuously, regardless of time and location constraints.

Moreover, digital platforms help strengthen partnerships between schools, parents, and communities by encouraging greater parental participation in educational activities and children's learning processes. Teachers can share learning materials, classroom activities, progress reports, and educational guidance with parents through online systems, allowing parents to better support their children's learning at home. Effective digital communication also promotes transparency, trust, and cooperation among educational stakeholders. According to Goodall (2021), digital communication plays an important role in strengthening home-school partnerships and increasing parental engagement in children's education. Therefore, educational institutions should develop effective digital communication strategies and encourage collaborative relationships among teachers, parents, and communities to enhance the quality of early childhood education in the digital age.

Conclusion of Digital Technology and Innovation for Early Childhood Education, digital technology and innovation play an important role in improving the quality and effectiveness of early childhood education in the digital era. The integration of digital learning media, educational technology, and online platforms helps create interactive and engaging learning environments that support children's cognitive, social, emotional, and creative development. Educational technology also enables teachers to design flexible and child-centered learning activities that meet the diverse needs of young learners while promoting digital literacy and lifelong learning skills. In addition, digital innovation supports effective school administration through the use of information systems for communication, academic management, data storage, and decision-making processes. Collaboration among teachers, parents, and communities has also been strengthened through digital communication platforms, allowing educational stakeholders to participate more actively in children's educational development. Therefore, the effective integration of digital technology and innovation is essential for enhancing educational management, improving learning experiences, and supporting sustainable early childhood education in the digital age.

Challenges and Development Approaches for Early Childhood Education Administration

Early childhood education administration in the digital era faces numerous challenges resulting from rapid technological advancement, changing educational expectations, and increasing demands for educational quality. Educational institutions are required to adapt their administrative systems, teaching practices, and organizational management to align with digital transformation and the needs of learners in the twenty-first century. However, many schools continue to encounter difficulties related to technological infrastructure, unequal access to digital resources, limited digital competencies among educational personnel, and differences in organizational readiness. These challenges can affect the effectiveness of educational administration and create disparities in learning opportunities among children from different social and economic backgrounds. In addition, educational administrators must develop

appropriate strategies and innovative approaches to overcome these challenges and support sustainable educational development. Effective educational administration in the digital era requires strong leadership, continuous professional development, collaborative management systems, and the integration of technology into both instructional and administrative practices. Schools must also establish partnerships among teachers, parents, communities, and external organizations to strengthen educational support systems and promote effective learning environments for young children. Therefore, understanding the challenges and development approaches for early childhood education administration is essential for improving educational quality and ensuring that educational institutions can successfully adapt to technological and societal changes in the digital age.

3.1 Challenges in Digital Transformation

Digital transformation in early childhood education administration presents both opportunities and significant challenges for educational institutions. One of the major challenges is unequal access to technology and digital resources among schools, teachers, students, and families. Many educational institutions, particularly in rural or economically disadvantaged areas, face limitations in internet connectivity, technological infrastructure, and digital devices necessary for effective educational management and online learning. These inequalities create gaps in educational opportunities and reduce the effectiveness of digital learning implementation. In addition, some teachers and parents may lack digital literacy skills, making it difficult to fully utilize digital platforms and educational technologies in supporting children's learning and school administration.

Furthermore, digital readiness among educational institutions varies depending on organizational support, financial resources, leadership capability, and technological preparedness. Educational administrators are often challenged by the need to adapt traditional administrative systems to digital environments while ensuring cybersecurity, data privacy, and effective communication. The rapid pace of technological change also requires continuous adaptation and innovation within educational organizations. According to UNICEF (2021), the digital divide and unequal access to technology remain major barriers affecting educational equity and learning continuity worldwide. Therefore, educational institutions must develop inclusive digital strategies and improve technological accessibility to reduce educational inequality and support effective digital transformation in early childhood education.

3.2 Development of Digital Competencies among Educational Personnel

The development of digital competencies among educational personnel is an essential component of effective educational administration in the digital era. Educational administrators and teachers are expected to possess knowledge and skills related to digital technology, information management, online communication, and innovative instructional methods. Digital competencies enable educators to effectively integrate technology into teaching, learning, and administrative processes while adapting to rapidly changing educational environments. In early childhood education, teachers must be able to use digital tools appropriately to design engaging, child-centered learning experiences that promote creativity, communication, and critical thinking among young learners.

Moreover, continuous professional development and training programs are necessary to strengthen the digital skills of educational personnel and encourage lifelong learning. Educational institutions should provide opportunities for teachers and administrators to participate in workshops, online training, collaborative learning communities, and technology-based professional development activities. Effective leadership and institutional support are also important factors in promoting digital competency development within schools. Redecker (2018) emphasized that educators need comprehensive digital competence frameworks that include technological, pedagogical, and professional skills to effectively support digital learning environments. Therefore, educational institutions should establish systematic training and

development programs to enhance the technological readiness and professional capabilities of educational personnel.

3.3 Strategies for Sustainable Educational Administration

Sustainable educational administration in the digital era requires educational institutions to develop effective strategies that integrate technology, innovation, leadership, and collaborative management systems. Educational administrators must establish clear policies and strategic plans that support long-term digital transformation while ensuring educational quality and organizational sustainability. Strategic educational management involves the effective allocation of technological resources, development of digital infrastructure, and promotion of innovation in teaching and administrative practices. In addition, administrators must create organizational cultures that encourage adaptability, collaboration, and continuous improvement in response to technological and societal changes.

Conclusion of Challenges and Development Approaches for Early Childhood Education, administration. Early childhood education administration in the digital era faces various challenges related to technological access, digital readiness, educational inequality, and the rapid pace of digital transformation. Many educational institutions continue to experience limitations in technological infrastructure, digital competencies among educational personnel, and organizational preparedness, which can affect the effectiveness of educational administration and learning management. These challenges highlight the importance of developing appropriate strategies and support systems to ensure equal educational opportunities and sustainable educational development.

CONCLUSION

Early Childhood Education Administration in the Digital Era is an important process that requires educational institutions to adapt their administrative systems, leadership approaches, and learning management practices to align with rapid technological and societal changes. Effective educational administration plays a significant role in promoting children's holistic development, improving educational quality, and creating supportive learning environments. In the digital era, educational administrators are expected to integrate digital technology, innovation, and information systems into educational management while demonstrating digital leadership, strategic planning, and collaborative management skills. Moreover, digital technology and innovation have transformed early childhood education by enhancing learning experiences, improving communication systems, and supporting effective school administration. Digital learning media, online platforms, and educational technologies help create engaging and flexible learning environments that encourage children's creativity, participation, and digital literacy development. Information systems also contribute to more efficient academic management, communication, and data-driven decision-making processes within educational institutions. In addition, collaboration among teachers, parents, and communities through digital platforms strengthens educational partnerships and supports children's learning development more effectively.

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