Integration of Digitalization and the Role of Education

Andi Achmad Dzaki Arrazi
Universitas Islam Negeri A.M. Sangadji Ambon
Email: achmadzaki1977@gmail.com

ABSTRACT

The transformation of education has sparked debates regarding the challenges of digitalization and the objectives of educational programs. This article explores: (1) how digital transformation, including artificial intelligence, relates to education; (2) how educational institutions utilize discourse in education; (3) how these institutions adapt to the practical demands of professionals; and (4) what knowledge and skills are considered central to education. The transformation indicates that digitalization is integrated into curricula and teaching practices by educators.

Keywords: *Transformation, Digitalization, Knowledge, Skills, Educational Institutions.*

1) INTRODUCTION

Digitalization is an essential aspect of understanding information. As technology continues to advance rapidly over time, it influences how humans interact with technological systems. Digitalization refers to the process of transforming content into a digital format, including data, text, sound, and images stored electronically and disseminated through broadband optical fiber networks and microwave systems. This term describes the transition of media from traditional forms to digital formats, such as websites, social media, mobile applications, podcasts, e-books, computer programs, and gadgets that have become integral to our daily lives—among them, Artificial Intelligence (AI), which is developing in tandem with technological progress and impacting educational institutions.

Educational institutions are experiencing an integrated transformation driven by digitalization, affecting curriculum development and the professionalism of educators, which has become increasingly complex. The relationships among education, learning resources, and users have evolved, along with the forms and analyses of curricula, leading to enhanced professionalism. These changes give rise to new ethical considerations within the field of education.

Paper presented at The 2nd ICONETT, 2025
Faculty of Teacher Training and Education
Universitas Islam Negeri Alauddin Makassar
South Sulawesi-Indonesia

Digital transformation in education has broad implications, including technological, economic, and social foundations, as well as the transformation of skills and institutional processes. This digital shift occurs within society's educational role and is closely tied to communication and information exchange via digital means. Current challenges include: (1) mastery of digital technology; (2) interpersonal adaptability; (3) stress management in daily life; (4) ethics in digital usage; and (5) the development of critical, creative, and innovative thinking.

Despite the increasing importance of digitalization, many educational institutions continue to struggle with developing their communication skills and have not yet mastered the ability to convey ideas and thoughts effectively. Effective communication is a skill that must be learned; it requires time and effort to hone communication abilities and become a reliable source of information in the digital age.

As digitalization transforms and reaches a stage where access to all sources of information worldwide is simplified through information exchange, "knowledge, skills, and competencies" can be disseminated across diverse audiences in mutually beneficial ways. However, digital communication also presents several challenges, such as: (1) sources of information that are constantly monitored, manipulated, and pressured, potentially leading to addiction to certain information sources; (2) issues related to combating fake news; (3) the decline of romantic relationships; (4) the spread of false information that can incite violence, unrest, and even murder; and (5) concerns about the possibility of civil war. These issues threaten to undermine the values of "Contemporary Humanity." By mid-2009, as digital media platforms like Facebook and Twitter gained popularity, a research team in the United States concluded that these platforms could erode human values.

Therefore, digital media users should utilize digital communication openly, exploring the meaning and ideas behind messages, and engaging in conversational and communicative storytelling. This approach must be supported by mastery of nonverbal communication skills, such as attentive listening, stress management, and the ability to recognize and understand one's emotional intelligence.

Technological transformation and digital professionalism will impact the evaluation of ethical demands (Friend & Singer, 2015). On one hand, the increasingly widespread system raises important questions such as: "How will AI influence the quality and diversity of education? What are its impacts on students and educators? How will the profile of educational institutions evolve?" Likely, these ethical challenges will become more complex and multiply over time.

In the digital era, transparency, openness, and accountability are qualities that educational institutions must prioritize, regardless of their form (McBride & Rosenstiel, 2013; Phillips, 2010). These values are becoming essential for educational organizations. Education must be conducted professionally and carefully, as digital aesthetic resources are created to encourage users to interact with technology as a means of connecting with new spaces.

Although some digital transformation models in education have successfully implemented promising business approaches, most efforts at educational digitalization have yet to find sustainable long-term models (Picard, 2000; Grueskin, Seave & Graves, 2011). Another threat to the sustainability of educational digitalization concerns curricula and educators. Digital environments intended for growth and dissemination can inadvertently cause social and political damage, as well as undermine trust in the education system.

Moreover, digitalization of education faces pressure from governments and political interest groups, leading to questions about the values of democracy in education. Educational institutions are no longer merely channels for elite power; they must demonstrate a stance that benefits broader society. This has heightened sensitivity toward the role of education in society and fostered new interest in improving the quality of educational institutions.

At the same time, education is undergoing its own transformation. Continuous information exchange among educators is contributing to the development of international standards (Nowak, 2019). Educational institutions are not only tasked with preparing students for a rapidly transforming

and increasingly complex work environment but are also often caught in the midst of career restructuring, adaptation, and intensifying competition.

Digital Transformation Between Artificial Intelligence and Education

AI is a field of computer science that specifically addresses solving cognitive problems commonly associated with human intelligence, such as learning, creation, and image recognition. AI has rapidly evolved into general artificial intelligence, enabling software to perform complex tasks. These programs are capable of "creating, making decisions, and learning independently"—tasks previously only achievable by humans. In Alan Turing's (1950) seminal paper titled "Computing Machinery and Intelligence," the question "Can machines think?" was posed. This article marked the first milestone in introducing the term "artificial intelligence."

Globally, AI software especially within educational institutions—is undergoing digital transformation by adopting various forms of AI as part of communication processes, information gathering, production, and distribution. These technologies encompass fields such as machine learning, automated content creation and moderation, and speech-to- text programs. AI is increasingly entering editorial spaces and impacting educational practices, which are now often referred to as "computational education," "algorithmic education," or "automated education" (Kothari & Cruikshank, 2022).

Nevertheless, the benefits of using AI in education particularly in production processes include assessing new trends, collecting and organizing information, generating texts, customizing information, personalizing distribution to audiences, and combating disinformation (Canavilhas, 2022). According to Bharat Dhiman (2023), "AI and the future of educational institutions go hand in hand," aligning with the transformation of education through automation, personalized knowledge delivery, fact- checking and verification, and active user engagement.

Additionally, various literature also reflect on the "role of educational institutions" in facing digital transformation through artificial intelligence. Guzman (2018) states that this will impact the

"contemporary human role as a communicator" of information sources (Broussard et al., 2019). Sadia Jamil (2021) explains that "educational sources have lost their responsibility in creating and disseminating education but remain central actors in the educational process."

The relationship between educational institutions and AI from an economic perspective is discussed by Jukes (2013), who argues that educational institutions are experiencing a "perfect storm," characterized by "technological revolutions, the emergence of new platforms in unconventional educational roles, and global economic recession" (Canavilhas, 2022). Furthermore, the automation of these educational roles is expected to produce processes that are easier, cheaper, and faster (Hamilton, 2016). Economic aspects such as cost-cutting, efficiency, and expansion—facilitated by artificial intelligence can be integrated into educational institutions (Moran & Shaikh, 2022). However, AI also has negative impacts on the role of educational institutions and raises questions about "whether robots can qualify as sources of education."

The use of AI from various perspectives prompts the question, "How does it relate to educational institutions?" Overall, this review highlights ongoing debates in the literature regarding "AI as an advantage or threat to educational institutions," as part of an effort to assess potential benefits and limitations.

Educational Institutions Harnessing Educational Discourse

Educational institutions are entities that facilitate the transfer of knowledge and skills as sources of education based on real-world events, which are subsequently disseminated across various platforms through digitalization. These educational sources examine different forms of digital content, such as text, audio, visual, and audiovisual materials, overseeing processes from planning and production to publication and content monitoring on digital media.

In the current digital era, educational sources are no longer solely focused on generating knowledge and skills. Education now offers opportunities for these sources to become creators, capable of producing knowledge and skills aligned with specific interests, such as missionary work at

sea or other engaging topics. Educational sources learn how to serve as providers of education tailored to the needs and preferences of particular user groups.

The pillars of educational institutions include skills in producing educational content, contextualizing these skills, and imparting meaning (Bjørnsen, Hovden, & Ottosen, 2007). Educational skills require scientific and/or professional competencies through (1) the moral obligation of educational institutions dedicated to knowledge, and (2) the necessity for institutions to align with the logic of resource-producing industries. Both aspects demand a "curriculum" structure designed to meet the requirements of scientific and/or professional competencies. According to Cheetham and Chivers (2005), competence is understood as cognitive ("know-why"), functional ("doing"), personal or behavioral, and value or ethical competence.

Competencies are taught as part of the curriculum in educational institutions, based on Gossel's (2015) analysis, which interprets competence theoretically using the competency model developed by Nowak (2019). This model includes:

a. Professional knowledge, including theoretical and factual knowledge.
b. Specialized knowledge necessary for sources of education to operate across various thematic fields such as politics, environment, sports, health, and culture, referred to as "specific education" knowledge.
c. Entrepreneurial knowledge, encompassing understanding of how to "start a business, self-market, and background in economics and law."
d. Professional skills, relating to the use of methods that enable educational sources to function effectively in digital media.
e. Digital media technology skills, focusing on handling hardware and software tools.
f. Basic skills, including communication, presentation, creative processes, negotiation, and collaboration.

Two significant modifications to Gossel's (2015) model are particularly relevant to educational institutions: (1) digital ethics and values concerning the quality of educational sources and ethical considerations in digitalization, derived from "professional knowledge," and (2) an orientation toward values and responsibilities. Skills from "basic skills" are employed to shape social orientation and individual competence.

Through educational institutions, competencies encompass professional knowledge, skills, personal abilities, and both general and professional values that enable educators to perform their roles effectively. These competencies are integrated into a "curriculum as a model of education." Through cultural environments, educational programs, and skills development, the functions of education are interconnected with digitalization, teaching practical skills through systematic digital processes.

Educational Institutions Adapting to Practical and Professional Demands

Educational institutions must integrate "aspirations of idealism and reality, as well as the practical and intellectual dimensions." Education tends to emphasize the positive impact of immersive learning, which involves using technology to create effective environments, based on experience, and oriented toward audiences. It also highlights collaborative efforts between educational institutions and the digital media industry. However, the use of "practical" teaching methods, often referred to as "practicums," is frequently employed to illustrate "educational experiences," such as in entrepreneurship, collaboration, experiential learning, and innovation.

The realities and ideals of educational sources should: (1) elevate educators to the status of scholars (Ulil Albab) with high moral standards who serve as role models within their communities, including in the ethics of digital technology use. As Albert Einstein said, "Science without religion is lame; religion without science is blind." (2) Focus on teaching and research, driven by love and service rather than solely for career success or material pursuits. A university president in the United States stated, "What I worry about regarding educational sources (graduates) is not poverty, but moral

decline." (3) The primary focus should be on the benefits to the community, which determines the success of education.

Teaching in education concerns finding a balance between "theoretical and practical" knowledge or between "knowledge and skills." Field findings indicate that educators who emphasize practice also require knowledge. According to Borden & Tew (2007), education is viewed as a discipline of "verification," which creates and communicates knowledge according to standards of reliability, truth, and independence, aiming to increase public participation (Borden & Tew (2007). Zahay et al. (2021) state that "engagement-oriented educational sources," which directly involve audiences both offline and online, provide space for them in the educational production process. This approach enhances trust- building and fosters new democratic educational practices (Zahay et al., 2021).

Knowledge and Skills as the Focus of Education

Communication skills, as one aspect of knowledge, feelings, and actions, are learned extensively and intensively. These skills are not only vital for sources and users of education but also crucial in the utilization of digital education.

As digital transformation accelerates particularly with the advent of AI and the crises faced by traditional media industry models the debate surrounding the importance of knowledge, skills, and critical reflection as processes of meaning-making related to transformative thinking and actions has become increasingly urgent.

The desired competencies in education have evolved over the past decade, including entrepreneurship, intellectual property rights, data and algorithm comprehension, and social network management. These competencies pose significant challenges in curriculum development. Educators must select relevant teaching methods that accommodate resource limitations, keep pace with digital transformation, and anticipate mid-term developments to meet the workforce demands of the digital media industry (Marcus, 2014).

The relationship between education and the digital media industry is often unharmonious, raising questions about "independence and collaborative innovation" as well as "quality standards." However, increased collaboration between educational institutions and the digital media industry can benefit both parties. Nonetheless, serving industry and user interests does not always align with the functions of education. Therefore, education must negotiate its position between these two sectors by emphasizing critical reflection and quality standards to fulfill its institutional role.

In facing "strategic disinformation, fake news, micro-targeting, and the erosion of user trust in traditional media," many educators recognize that skills in fact-checking, digital media and data literacy, knowledge of digital media ethics, and accountability are becoming increasingly important. These competencies are crucial for educational sources, and the future tasks of educators include understanding and developing relevant scientific and professional skills—such as professional knowledge, specialized knowledge, entrepreneurial knowledge, professional skills, digital media skills, and foundational skills that are sustainable.

Educators and practitioners are employing innovative teaching methods to meet the rising competency demands and to maintain relevance with audiences. For example, the debated "educational institution" model encourages innovation, entrepreneurship, and collaboration between educational institutions and the digital media industry. These innovative teaching methods include hybrid learning, immersive learning, experiential learning, and audience-oriented education.

In summary, based on educational discourse, several issues will become increasingly important for educational sources as opportunities in the future, including:

a. Entrepreneurial skills and knowledge.
b. Data and information literacy.
c. Critical reflection on media and educational processes within digital environments.
d. Understanding the role of educational sources within audiences, communicating values and social responsibilities, and integrating as educational sources into communities.

e. Networking, collaboration, and team orientation.

f. Innovation, creativity, and experiential learning.

The development of educational sources as opportunities cannot be separated from communication actions, with an understanding of "the communication process" (Littlejohn, 2010) as a "social drama" (Goffman, 1959) that functions socially in interactions. This process openly explores meanings and ideas and communicates narratively. The success of educational sources hinges on effective communication skills, prompting the question: "How well can information be transmitted and received?" The answer is, "How effectively can knowledge and communication skills be conveyed through digital communication within digital communities?"

2) CONCLUSIONS

Although there are differences within the educational landscape, the challenges posed by digital transformation are quite evident, even though not all aspects have yet been fully integrated into curricula. Most educational institution developers recognize the need to keep pace with advancements in knowledge and skills in the digital era and tend to prioritize competencies that emphasize the importance of professional standards and accountability.

The practice of program development and teaching methods requires professional educators and innovative learning approaches that reflect the digital transformation curriculum. This involves integrating digital knowledge and skills that align with the expectations of the media industry and learners.

Currently, educational institutions are experiencing an "extraordinary moment of uncertainty" (Franklin, 2014). It is no coincidence that over the past decade, uncertainties regarding the future role of society, economic foundations, professionals' self-perception, and institutional processes have increased. This trend aligns with the growing interest in sustainable education, which plays a vital role in ensuring educational quality especially within the context of urgent digital transformation needs.

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