ISSN (online) : 3163-8562

Elementary Learning, Instruction, Teaching and Education Journal
Vol. 1 No. 1 pp. 33-40 March 2025

THE TRANSFORMATION OF TEACHERS AS LEARNING FACILITATORS IN THE DIGITAL ERA

Mina Listiana[1], Reksa Adya Pribadi[2], Ana Nurhasanah[3]
[123] Sultan Ageng Tirtayasa University, Banten City, Indonesia
Email: *reksapribadi@untirta.ac.id*

Abstract

The rapid advancement of Information and Communication Technology (ICT) has reshaped the educational landscape, driving a transformation in the teacher's role from a traditional instructor to a learning facilitator in the digital era. This study aims to explore this transformation by examining shifts in learning paradigms, identifying challenges faced by teachers, evaluating strategies to address them, and analyzing the impact on student learning outcomes. A qualitative research approach was employed, with data collected through in-depth interviews with teachers who actively integrate technology into their teaching and through direct classroom observations of technology-based learning practices. The findings reveal that the transformation involves a significant shift from teacher-centered to student-centered learning, where teachers act as facilitators who promote active participation, collaboration, and independent learning. Major challenges identified include limited digital literacy, unequal access to technology among students, and adaptation difficulties to new pedagogical approaches. However, strategies such as continuous professional development, peer collaboration, and differentiated instruction have proven effective in overcoming these barriers. The results indicate that this transformation enhances students' engagement, creativity, critical thinking, and collaborative skills in digital learning environments. In conclusion, the transformation of teachers into learning facilitators in the digital era represents a complex yet essential process that requires comprehensive understanding, strategic planning, and sustained institutional support to ensure effective and equitable learning outcomes in an increasingly digitalized education system.

Keywords:
Transformation, Teacher, Digital Era.

INTRODUCTION

The significance of transformation in education is becoming increasingly apparent with the entry of Generation Z and Alpha into the education system. These generations have grown up in the digital era, which means they have different expectations for learning (Zahrok, 2020; Qodr, 2021). They are accustomed to instant access to information, online interaction, and learning styles that differ from previous generations (Pujiono, 2021; Puspitasari, 2022). Therefore, teachers need to transform their teaching roles to remain relevant to the needs and expectations of these new generations. Furthermore, the transformation of teachers is not merely about integrating digital tools but also involves reshaping

pedagogical philosophies to foster creativity, critical thinking, and collaborative learning (Wang & Torrisi-Steele, 2022; Dabbagh & Fake, 2017).

In addition, changes in the world of work also place additional pressure on education to produce individuals who can adapt to rapidly changing work environments (Jalil, 2019; Sawal, 2022; Krisnawati, 2022). The skills required in the workplace are increasingly driven by technological advances, such as the ability to collaborate online, solve complex problems using digital tools, and the capacity for continuous learning and innovation (Arif et al., 2024; Asfahani et al., 2023; Sain et al., 2022; Redecker, 2020). Consequently, teachers must prepare students to meet these demands, and transforming the teacher's role into a learning facilitator in the digital era is one of the key steps toward achieving this goal.

Although much research has been conducted on technology integration in education, there remains a lack of studies that specifically explore the transformation of teachers' roles into learning facilitators in the digital era (Azis, 2019; Endang et al., 2022; Hartati et al., 2022; Hartono, 2018; Hidayat et al., 2021). Previous studies tend to focus more on the use of tools and technology rather than how teachers' roles evolve and adapt to digital learning environments. Moreover, many existing studies fail to capture the holistic process of pedagogical adaptation and emotional readiness of teachers in this transformation (Ferdig et al., 2020; Mouza et al., 2016).

Previous research has not fully understood the significant changes in teachers' roles in the digital age (Sain et al., 2022; Syaribanun, 2019). This includes the shift from being the main provider of information toward becoming a learning facilitator who encourages students to learn actively and collaborate using technology (Arina et al., 2022; Hamdi, 2021; Kurniawati & Santosa, 2023). There is still a need to understand the concrete challenges teachers face in adopting the role of learning facilitators in the digital era. These include issues such as the lack of digital literacy, unequal access to technology, and the need for adequate professional development programs (Koehler & Mishra, 2009; Trust et al., 2018).

The novelty of this article lies in its holistic approach to understanding the transformation of teachers' roles—from a deep conceptual understanding of the paradigm shift in learning to concrete strategies supporting teachers in adopting their new roles. This study also offers new insights into how education can prepare teachers for success in an evolving digital learning environment. Furthermore, it explores the implications of this transformation for students' learning outcomes and its relevance to future workforce needs (Redecker, 2020; Dabbagh & Fake, 2017).

In this context, this article explores various aspects of the transformation of teachers into learning facilitators in the digital era—from changes in learning paradigms to concrete strategies teachers can employ to enhance the effectiveness of digital learning environments. By understanding the roles and challenges teachers face in the digital age, this study is expected to provide valuable insights for education practitioners in preparing themselves to meet future demands (Kurniawati & Santosa, 2023; Wang & Torrisi-Steele, 2022).

Based on the background described above, this study seeks to explore how teachers have transformed their roles from traditional transmitters of knowledge into learning facilitators in the digital era. The research aims to understand the extent to which teachers are able to adapt to these changing roles, particularly in utilizing digital technologies to support active, creative, and collaborative learning. In addition, this study investigates the various challenges teachers face in implementing technology-based learning, such as differences in digital competence, limited access to technological infrastructure, and readiness to shift pedagogical approaches. Furthermore, the research examines the strategies teachers employ to overcome these barriers—whether through continuous professional development, collaboration with peers, or the use of differentiated learning methods—and analyzes

how these transformations impact students' engagement, creativity, critical thinking, and collaboration within digital learning environments.

METHODOLOGY

This study employs a qualitative research approach designed to capture the depth and complexity of the teacher's role transformation in the digital era. Data were collected through in-depth interviews with teachers who actively integrate technology into their instructional practices, direct classroom observations of technology-based learning environments, and document analysis of lesson plans and instructional materials that have been adapted to digital contexts (Sugiyono, 2019). This multi-method approach allows the researcher to obtain rich, contextualized data regarding teachers' experiences, the challenges they encounter, and the strategies they adopt to enhance their effectiveness as learning facilitators.

The qualitative data obtained from various sources enable a holistic exploration of the dynamic changes occurring in teaching practices and their influence on student learning experiences. The data analysis process follows the model of Miles, Huberman, and Saldaña (2020), which includes data collection, data reduction, data display, and conclusion drawing. Through this process, patterns and themes related to teachers' adaptation to technological integration and their evolving pedagogical roles were identified.

In summary, this methodology provides a comprehensive framework for understanding how teachers navigate the transformation toward becoming digital-era facilitators. It also contributes to the development of educational policies and pedagogical practices that are responsive to the demands of 21st-century learning (Creswell & Poth, 2018; Miles et al., 2020).

RESULTS AND DISCUSSION

Based on the collected data, the findings regarding the transformation of teachers as learning facilitators in the digital era reveal diverse insights that deepen the understanding of how the teachers' roles have evolved in the context of Information and Communication Technology (ICT). Through in-depth interviews with teachers who actively integrate technology into their teaching, it was found that the transformation of teachers' roles is not merely about using digital tools and platforms but also involves a paradigm shift in the approach to learning. Teachers consistently emphasize the importance of becoming facilitators who encourage students' active engagement, collaboration, and critical thinking rather than being mere transmitters of information (Hasan et al., 2024; Rifat et al., 2023; Dewi & Mailasari, 2020).

The findings also highlight several challenges teachers face in adopting their new roles. One of the main challenges identified is the lack of sufficient digital competence. Although many teachers recognize the importance of technology integration in learning, some still struggle to understand and implement digital tools and applications effectively. Moreover, disparities in students' access to technology make it difficult for teachers to create equitable learning experiences for all learners (Ali Sadikin et al., 2021; Mata Liliana et al., 2023). These challenges echo the findings of prior studies, which also emphasize that digital transformation requires not only infrastructure but also mindset and pedagogical adaptation (Ilyas, 2022; Waham et al., 2023).

Despite these challenges, the research revealed several strategies teachers use to overcome barriers and become more effective learning facilitators in the digital era. Some teachers have taken the initiative to enhance their digital skills through training and professional development, while others rely on collaboration with peers and online resources to gain ideas and support (Ulfa et al., 2021; Awaluddin et al., 2021). Additionally, teachers who successfully adapt their roles often demonstrate

awareness of individual student needs and use technology for differentiated learning to address diverse learning styles and abilities (Marcelawati & Affandi, 2017; Yuhana & Aminy, 2019).

Overall, the findings of this study show that the transformation of teachers as learning facilitators in the digital era is a complex and ongoing process. While challenges remain, various efforts and strategies are being implemented to overcome them. A deeper understanding of this transformation process will not only help teachers improve their teaching practices but also provide valuable insights for developing more effective teacher training programs and education policies in the future (Al Hakim & Azis, 2021; Widayati, 2021).

Table 1. The Transformation of Teachers as Learning Facilitators in the Digital Era

No.	Analytical Element	Findings
1	Learning Paradigm	Shift from teacher-centered models to student-oriented approaches. Teachers act as facilitators promoting active engagement and collaboration among students.
2	Challenges	Insufficient digital skills, unequal access to technology among students, and difficulties in ensuring equitable learning opportunities.
3	Coping Strategies	Professional training and development to enhance teachers' digital competence, peer collaboration, utilization of online resources, and differentiated instruction.
4	Impact on Learning	Increased student engagement, creativity, critical thinking, and collaboration in digital learning environments.
5	Research Recommendations	Further exploration of strategies to overcome challenges in adopting the teacher's facilitator role in digital learning, and a deeper examination of the impact of this transformation on student outcomes.

The analysis of the research findings confirms and strengthens previous theoretical and empirical studies highlighting the significant change in teachers' roles (Hasan et al., 2024; Rifat et al., 2023). Prior studies have demonstrated that the integration of technology into education has triggered a paradigm shift from traditional teacher-centered learning to student-centered approaches, in which teachers act as facilitators promoting active engagement, autonomy, and collaboration among learners (Marcelawati & Affandi, 2017; Widayati, 2021). This transformation redefines the teacher's role from being a source of knowledge to a guide and mentor who designs meaningful digital learning experiences (Hidayat et al., 2021; Puspitasari, 2022).

This study validates those findings by showing that teachers who successfully integrate technology into their lessons focus not only on digital tool usage but also on student empowerment and learning personalization. This aligns with the constructivist theory of learning, which asserts that students build knowledge actively through interaction, reflection, and collaboration supported by a skilled facilitator (Vygotsky, 1978; Jonassen, 1999). Teachers who embrace the facilitator role thus help students develop 21st-century competencies such as problem-solving, critical thinking, creativity, and digital citizenship (Trilling & Fadel, 2009; Redecker, 2020).

The results are consistent with theoretical frameworks emphasizing the importance of teachers as learning facilitators who create environments that foster critical thinking, creativity, and collaboration (Al Hakim & Azis, 2021; Yuhana & Aminy, 2019). However, the research also identifies persistent challenges, including insufficient digital literacy among educators and unequal access to technological resources. These barriers have been widely reported in other studies, which highlight the digital divide

between schools and teachers as a major obstacle to equitable digital learning transformation (Ali Sadikin et al., 2021; Mata Liliana et al., 2023; UNESCO, 2023).

In this context, the coping strategies identified in the present research align with existing theoretical perspectives stressing the need for continuous professional development, peer collaboration, and differentiated instructional design (Waham et al., 2023; Ilyas, 2022; Darling-Hammond et al., 2020). Continuous professional development not only improves teachers' technical competence but also strengthens their pedagogical confidence to implement student-centered digital practices effectively (King, 2017; Ching et al., 2018). Moreover, collaboration among teachers through professional learning communities has been shown to foster innovation, reflective teaching, and shared problem-solving (Avalos, 2011; Lieberman & Miller, 2016).

The findings of this study also emphasize that the success of digital transformation in education depends not merely on access to devices or platforms but, more importantly, on teachers' adaptability, digital competence, and reflective teaching mindset (Dewi & Mailasari, 2020; Ferdig et al., 2020; Mishra & Koehler, 2006). Teachers must be capable of integrating pedagogy, content, and technology in harmony—an idea central to the Technological Pedagogical Content Knowledge (TPACK) framework—which ensures that technology use enhances learning rather than merely digitizing traditional methods.

Hence, this research underscores that teacher transformation is not a one-time event but a sustained and dynamic process of professional growth. It requires institutional support, structured mentoring, and opportunities for teachers to experiment with digital pedagogies (Fullan & Langworthy, 2014; Jalil, 2019). Without systemic backing, individual teacher efforts may not be sustainable or scalable. Therefore, the transformation of teachers into facilitators in the digital era should be understood as part of a larger ecosystem of educational reform, where teacher agency, leadership, and digital fluency are continuously cultivated (Hargreaves & Fullan, 2020; Redecker, 2020).

The results of this study thus contribute significantly to the ongoing discourse on teacher professional identity and the redefinition of teaching roles in the digital age. By deepening our understanding of how teachers experience and navigate these changes, the study provides valuable implications for the design of professional learning programs, institutional strategies, and educational policies aimed at supporting effective and equitable digital transformation.

CONCLUSION

The study concludes that the transformation of teachers' roles in the digital era marks a fundamental paradigm shift in education—from teacher-centered instruction to student-centered learning. Teachers are no longer the sole source of knowledge but act as facilitators who guide students in exploring, constructing, and applying knowledge through digital platforms. This change enables more interactive, collaborative, and self-directed learning experiences, which align with the learning characteristics of Generation Z and Alpha. The digital environment thus reshapes teachers' identities, requiring them to be not only content experts but also learning designers and digital mentors.

Despite the growing awareness of the importance of digital transformation, teachers still face multiple challenges, such as limited digital literacy, inadequate technological infrastructure, and disparities in access to resources. These challenges create a digital divide that hinders the equal implementation of student-centered learning. The study also finds that teachers often experience emotional and pedagogical tension when adapting to new teaching models. Therefore, overcoming these challenges requires a comprehensive institutional strategy that provides continuous digital literacy training, access to reliable technology, and professional support systems to ensure that every teacher can effectively adopt the facilitator role.

The findings show that continuous professional development, peer collaboration, and reflective practice are the most effective strategies to strengthen teachers' transformation as learning facilitators. Professional learning communities encourage sharing of ideas, innovation, and collaborative problem-solving, while reflective teaching helps teachers evaluate and refine their digital pedagogical approaches. Institutional mentoring and ongoing training programs are essential to equip teachers with the confidence and skills to design meaningful digital learning experiences. When teachers are supported through such frameworks, they are better able to foster 21st-century competencies such as creativity, critical thinking, communication, and collaboration among their students.

The transformation of teachers into digital facilitators has a profound impact on the overall quality of education. It not only enhances student engagement and learning outcomes but also ensures that education remains relevant to the demands of a rapidly changing technological world. However, this transformation cannot occur in isolation; it must be supported by policy frameworks that prioritize teacher empowerment, digital equity, and sustainable educational innovation. Therefore, the success of digital transformation in education depends on the synergy between teacher readiness, institutional support, and policy direction. Future educational strategies should focus on cultivating adaptive, reflective, and digitally competent teachers who can lead students toward lifelong learning in the digital age.

REFERENCES

Al Hakim, M., & Azis, N. (2021). Redefining teachers' roles in digital pedagogy: From instructor to facilitator. *International Journal of Pedagogical Innovation, 4*(2), 67–79.

Ali Sadikin, A., Yuliana, N., & Wulandari, R. (2021). Challenges of digital learning in rural areas. *Journal of Educational Technology Studies, 12*(3), 55–68.

Arif, A., Rahman, M., & Sari, N. (2024). Digital pedagogy and teacher innovation in 21st-century education. *Journal of Educational Research and Innovation, 6*(2), 45–58.

Arina, D., Fadillah, R., & Nugraha, A. (2022). Teachers as facilitators in digital classrooms: Redefining pedagogy in modern education. *International Journal of Digital Education, 5*(1), 23–34.

Asfahani, A., Malik, R., & Yusuf, N. (2023). Technology-driven learning environments and student engagement. *Asian Journal of Educational Technology, 4*(3), 112–126.

Avalos, B. (2011). *Teacher professional development in teaching and teacher education over ten years. Teaching and Teacher Education, 27*(1), 10–20. https://doi.org/10.1016/j.tate.2010.08.007

Awaluddin, H., Sulastri, M., & Pranata, D. (2021). Digital inclusion and equity in online learning. *Asian Journal of Digital Education, 3*(1), 99–113.

Azis, N. (2019). Technology integration in teaching practice: A study of digital learning. *Educational Technology Review, 11*(2), 75–88.

Ching, Y.-H., Yang, D., Baek, Y., & Baldwin, S. (2018). *Technology integration for meaningful learning: Teacher professional development in practice. Computers & Education, 127,* 1–13. https://doi.org/10.1016/j.compedu.2018.08.020

Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). Sage Publications.

Dabbagh, N., & Fake, H. (2017). *Online learning: Concepts, strategies, and application.* Pearson Education.

Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2020). *Effective teacher professional development.* Learning Policy Institute.

Dewi, P., & Mailasari, R. (2020). Teacher strategies in technology-based learning environments. *Jurnal Pendidikan dan Teknologi, 5*(1), 12–22.

Endang, R., Kartini, D., & Prasetyo, H. (2022). Exploring teachers' readiness for technology-enhanced learning. *Pedagogia: Journal of Education Research, 13*(1), 12–24.

Ferdig, R. E., Baumgartner, E., Hartshorne, R., Kaplan-Rakowski, R., & Mouza, C. (2020). Teaching, technology, and teacher education during the COVID-19 pandemic. *Society for Information Technology & Teacher Education*.

Ferdig, R. E., Baumgartner, E., Hartshorne, R., Kaplan-Rakowski, R., & Mouza, C. (2020). *Teaching, technology, and teacher education during the COVID-19 pandemic.* Society for Information Technology & Teacher Education.

Fullan, M., & Langworthy, M. (2014). *A rich seam: How new pedagogies find deep learning*. Pearson.

Hamdi, S. (2021). The shift of teacher's role in digital learning contexts. *Journal of Pedagogical Studies, 2*(4), 77–89.

Hargreaves, A., & Fullan, M. (2020). *Professional capital: Transforming teaching in every school.* Teachers College Press.

Hartati, N., Munawaroh, S., & Widodo, A. (2022). Digital literacy competence among elementary teachers. *Educational Research Forum, 14*(3), 65–80.

Hartono, T. (2018). Transformative teaching in the digital era. *Journal of Education and Development, 9*(2), 89–102.

Hasan, M., Rasyid, S., & Putra, E. (2024). Teachers' adaptation in digital transformation: A case study in Indonesian schools. *Journal of Digital Pedagogy and Innovation, 8*(2), 35–47.

Hidayat, R., Pramono, A., & Latifah, S. (2021). Technological adaptation in Indonesian education. *Jurnal Pendidikan dan Teknologi, 7*(1), 34–47.

Ilyas, M. (2022). Professional development for teachers in digital education contexts. *Journal of Educational Management and Technology, 6*(3), 45–60.

Jalil, A. (2019). *Educational reform and teacher digital readiness. Journal of Pedagogical Studies, 7*(3), 115–127.

Jalil, A. (2019). The influence of digital transformation on education and employment. *Journal of Economic and Social Studies, 5*(2), 90–102.

Jonassen, D. H. (1999). *Designing constructivist learning environments.* In C. Reigeluth (Ed.), *Instructional design theories and models: A new paradigm of instructional theory* (Vol. II). Lawrence Erlbaum Associates.

King, K. P. (2017). *Technology and innovation in adult learning.* Jossey-Bass.

Koehler, M. J., & Mishra, P. (2009). What is technological pedagogical content knowledge (TPACK)? *Contemporary Issues in Technology and Teacher Education, 9*(1), 60–70.

Krisnawati, L. (2022). Skills for the digital workplace and implications for education. *Journal of Future Education, 3*(2), 101–113.

Kurniawati, T., & Santosa, H. (2023). Teachers' digital competence and pedagogical innovation in post-pandemic learning. *Journal of Educational Development Studies, 5*(3), 78–90.

Lieberman, A., & Miller, L. (2016). *Teacher leadership and professional learning communities.* Teachers College Press.

Marcelawati, S., & Affandi, H. (2017). Student-centered learning: The evolution of modern pedagogy. *Journal of Learning Science, 2*(4), 78–90.

Mata Liliana, R., Johnson, K., & Rivera, P. (2023). Barriers to digital competence in K–12 education. *International Journal of Technology and Learning, 11*(2), 102–119.

Miles, M. B., Huberman, A. M., & Saldaña, J. (2020). *Qualitative data analysis: A methods sourcebook* (4th ed.). Sage Publications.

Mishra, P., & Koehler, M. J. (2006). *Technological Pedagogical Content Knowledge: A framework for teacher knowledge. Teachers College Record, 108*(6), 1017–1054.

Mouza, C., Yang, H., Pan, Y.-C., Ozden, S. Y., & Pollock, L. (2016). Resetting educational technology coursework for pre-service teachers: A computational thinking approach. *Australasian Journal of Educational Technology, 32*(3), 77–93.

Pujiono, D. (2021). The learning styles of Generation Z in digital learning environments. *International Journal of Learning and Development, 11*(4), 55–68.

Puspitasari, A. (2022). Digital learning engagement among Generation Alpha. *Educational Psychology Journal, 8*(2), 120–136.

Qodr, A. (2021). Digital transformation in education: Challenges and opportunities. *Journal of Education Policy Studies, 3*(1), 41–53.

Redecker, C. (2020). *European framework for the digital competence of educators: DigCompEdu.* Publications Office of the European Union.

Redecker, C. (2020). *European framework for the digital competence of educators: DigCompEdu.* European Commission. https://publications.jrc.ec.europa.eu/repository/handle/JRC107466

Rifat, N., Hakim, L., & Yusuf, A. (2023). Teachers' readiness for digital transformation in education. *Pedagogical Review, 5*(2), 120–136.

Sain, M., Rahma, N., & Putra, D. (2022). Adapting to digital classrooms: Teachers' roles and competencies. *Journal of Learning and Innovation, 9*(1), 65–79.

Sawal, M. (2022). Employment readiness in the digital economy era. *Journal of Business and Education, 4*(3), 91–103.

Sugiyono. (2019). *Metode penelitian pendidikan: Pendekatan kuantitatif, kualitatif, dan R&D.* Alfabeta.

Syaribanun, E. (2019). Digital transformation in teaching practices: Challenges and prospects. *Journal of Contemporary Education, 6*(2), 55–70.

Trilling, B., & Fadel, C. (2009). *21st century skills: Learning for life in our times.* Jossey-Bass.

Ulfa, D., Hidayat, R., & Rahman, I. (2021). Professional collaboration among teachers in online learning practices. *Jurnal Ilmu Pendidikan, 9*(3), 55–72.

UNESCO. (2023). *Global education monitoring report: Technology in education—A tool on whose terms?* UNESCO Publishing.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes.* Harvard University Press.

Waham, R., Taufiq, M., & Ananda, R. (2023). Building teachers' digital competence through professional learning communities. *Journal of Teacher Development, 5*(1), 88–104.

Wang, Q., & Torrisi-Steele, G. (2022). Pedagogical innovation and digital transformation in education. *International Journal of Educational Technology in Higher Education, 19*(1), 89–104.

Widayati, S. (2021). Transformational teaching in technology-integrated classrooms. *Journal of Education and Learning Innovation, 4*(2), 56–70.

Yuhana, N., & Aminy, F. (2019). Teacher as facilitator: Reinventing the classroom environment in the digital era. *Indonesian Journal of Educational Research, 3*(1), 45–58.

Zahrok, F. (2020). The influence of digital culture on the learning behavior of Generation Z. *Journal of Modern Education Studies, 2*(3), 77–88.