



The Influence of Digital Literacy Competence on Teacher Readiness to Adapt to the Digital Transformation of Education

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Abstract:

The digital transformation of education requires teachers to possess adequate digital literacy competencies to adapt to technological changes in the learning process. Low digital literacy competence can hinder teachers' readiness to implement various digital-based educational innovations. This study aims to analyze the influence of digital literacy competence on teachers' readiness to adapt to the digital transformation of education. A quantitative approach with an explanatory research design was employed. The sample consisted of 50 teachers from Elementary School X, selected using purposive sampling. Data were collected via a five-point Likert scale questionnaire and analyzed using descriptive statistics and simple linear regression with SPSS version 25. The results indicate that teachers' digital literacy competence falls into the high category (mean score: 30.50), as does their readiness to adapt to the digital transformation of education (mean score: 31.08). Regression analysis reveals that digital literacy competence has a positive and significant effect on teacher readiness ($\beta = 0.875$; $t = 12.516$; $p < 0.001$). The coefficient of determination (R^2) of 0.765 indicates that digital literacy competence contributes 76.5% to teachers' readiness to adapt to the digital transformation of education. These findings confirm that strengthening digital literacy competence is a crucial strategy for enhancing teacher readiness and supporting the successful implementation of digital transformation in schools.

INTRODUCTION

Digital transformation has become one of the primary agendas in the development of education systems worldwide. The rapid advancement of digital technologies has reshaped learning processes, assessment systems, school governance, and teachers' professional development (OECD, 2023). These developments indicate that technology is no longer merely a complementary tool in education but has become an integral component of strategies aimed at improving educational quality (UNESCO, 2023). The OECD emphasizes that successful digital transformation in education requires an integrated ecosystem encompassing educational policies, technological infrastructure, governance, and human resource readiness to enhance the quality of educational services (OECD, 2023). Similarly, UNESCO highlights that the effective integration of technology into education depends largely on teachers' competencies in utilizing digital technologies to support teaching and learning processes (UNESCO, 2022). These perspectives suggest that the success of digital transformation is determined not only by technological advancement but also by the readiness of human resources to manage educational change effectively.

Digital transformation has fundamentally reshaped teachers' roles in delivering innovative and adaptive learning experiences. Teachers are no longer expected to function solely as knowledge transmitters but also as facilitators, innovators, and mentors who can integrate digital technologies effectively into instructional practices (Caena & Redecker, 2019). This changing role requires teachers to develop comprehensive digital competencies that enable them to select, manage, and evaluate digital technologies in accordance with instructional objectives (UNESCO, 2022). The OECD identifies teachers as the key drivers of successful digital transformation because they serve as the link between educational policies and classroom practices (OECD, 2023). Teachers with strong digital competencies are more likely to adapt to educational changes and create learning environments that are effective, collaborative, and learner-centered (OECD, 2024). These conditions indicate that strengthening teachers' professional competencies has become one of the essential prerequisites for achieving sustainable digital transformation in education.

Indonesia has accelerated educational digital transformation through various national policies promoting the integration of digital technologies into teaching and learning processes. The implementation of the Merdeka Curriculum, the Merdeka Mengajar Platform, and the School Digitalization Program reflects the government's commitment to establishing an educational ecosystem that is more responsive to technological advancement (Afdal, 2025). Despite these efforts, the implementation of digital transformation in schools continues to face several challenges, including disparities in technological infrastructure, unequal internet accessibility, and variations in teachers' abilities to utilize digital technologies effectively. Findings from the 2024 Indonesian Digital Society Index (IMDI) indicate that the national index reached 43.34, while the digital skills pillar achieved a score of 58.25. These findings suggest that the digital capabilities of Indonesian society continue to improve; however, greater efforts are still required to strengthen the effective utilization and empowerment of digital technologies to ensure successful digital transformation. This phenomenon indicates that the success of educational digital transformation in Indonesia largely depends on teachers' readiness and digital literacy competencies in adopting technology to enhance teaching and learning processes.

Digital literacy competence has become one of the essential competencies that teachers must possess to respond to educational digital transformation effectively. This competence extends beyond the ability to operate digital devices and encompasses the capacity to access, evaluate, manage, and create digital information critically and responsibly (UNESCO, 2022). Teachers with strong digital literacy are better able to integrate technology into instructional practices and design innovative learning strategies that enhance student engagement and learning outcomes (OECD, 2023). Previous studies have consistently demonstrated that digital literacy competence contributes positively to teachers' ability to utilize educational technologies, improve instructional quality, and strengthen their capacity to adapt to educational change (Ahmed, 2025). Recent empirical evidence further indicates that digital literacy significantly influences teachers' readiness to embrace digital transformation in education, highlighting the importance of strengthening this competence through continuous professional development (Aleksieva, 2025). These findings suggest that digital literacy competence plays a strategic role in fostering teachers' readiness to respond to technology-driven changes in contemporary education.

Numerous studies have examined the relationship between digital competence, digital literacy, and teachers' readiness for educational digital transformation. Most of these studies conclude that digital competence is a key determinant of teachers' ability to integrate technology into teaching and learning activities (Althubyani, 2024). However, existing research has primarily focused on digital competence as a broad construct or has employed descriptive and literature-based approaches, with relatively few studies empirically investigating the effect of digital literacy competence on teachers' readiness using quantitative methods (Andriichuk et al., 2024). Moreover, the available evidence is largely derived from diverse educational contexts, while empirical findings focusing on Indonesian primary schools remain limited (Anggraini et al., 2025). These limitations reveal both a research gap and an empirical gap, indicating the need for further investigation to provide empirical evidence regarding the influence of digital literacy competence on teachers' readiness to adapt to educational digital transformation.

Based on these considerations, this study offers a novel perspective by positioning digital literacy competence as a determinant of teachers' readiness to adapt to educational digital transformation within the context of primary education. A quantitative research approach was employed to empirically examine the relationship between the proposed variables, thereby providing more objective evidence than previous studies that predominantly adopted descriptive designs (Anwar & Warman, 2025). The novelty of this research also lies in its analytical focus on the relationship between teachers' digital literacy competence and their readiness to respond to instructional changes in the era of digital transformation. The findings are expected to contribute theoretically by enriching the body of knowledge on educational digital transformation while providing empirical evidence to support schools and policymakers in designing effective teacher professional development programs. In addition, the results are expected to serve as a practical reference for developing strategies to strengthen teachers' digital literacy as an integral component of improving their readiness to adapt to technology-driven educational change. Accordingly, this study aims to examine the effect of digital literacy competence on teachers' readiness to adapt to educational digital transformation.

RESEARCH METHODS

This study employed a quantitative approach using an explanatory research design to examine the effect of digital literacy competence on teachers' readiness to adapt to educational digital transformation. The study was conducted at SD X, Merangin Regency, Jambi Province, involving active teachers who integrated digital technologies into their instructional practices. The research sample was selected using purposive sampling based on predetermined inclusion criteria. Data were collected through a structured questionnaire using a five-point Likert scale. The digital literacy competence variable was developed based on the European Framework for the Digital Competence of Educators (DigCompEdu) (Redecker, 2017) and the UNESCO Digital Literacy Framework (UNESCO, 2022), comprising six indicators: digital information access, digital information evaluation, digital information management, digital content creation, digital communication and collaboration, and digital ethics and security. The teachers' readiness for educational digital transformation variable was grounded in the Organizational Readiness for Change Theory (Weiner, 2009) and the readiness dimensions proposed by Holt et al. (2007), including knowledge readiness, skill readiness, attitudes toward change, technology integration, and digital self-efficacy.

The research instrument was evaluated for content validity, empirical validity, and reliability to ensure measurement quality. Internal consistency reliability was assessed using Cronbach's alpha, with a minimum acceptable coefficient of 0.70. The collected data were analyzed using IBM SPSS Statistics version 27 through both descriptive and inferential statistical analyses. Descriptive statistics were employed to describe the levels of digital literacy competence and teachers' readiness. In contrast, inferential analysis was conducted using simple linear regression to examine the relationship between the study variables. Before hypothesis testing, the assumptions of regression analysis, including normality, linearity, and heteroscedasticity, were examined. Hypothesis testing was performed using the t-test at a significance level of 5% ($\alpha = 0.05$), while the contribution of digital literacy competence to teachers' readiness was determined using the coefficient of determination (R^2).

RESULTS AND DISCUSSION

Results

The research data were processed using descriptive and inferential statistical analyses with the assistance of IBM SPSS Statistics version 27. Descriptive statistical analysis was employed to describe the levels of teachers' digital literacy competence and their readiness to adapt to educational digital transformation. Inferential statistical analysis was conducted using simple linear regression to examine the effect of digital literacy competence on teachers' readiness after all data had satisfied the prerequisite assumptions of the analysis.

Table 1. Descriptive Statistics for Teachers' Digital Literacy Competence

N Valid	50
Missing	0
Mean	30.50
Median	29.00
Mode	36
Std. Deviation	3.856
Variance	14.867
Minimum	24
Maximum	36

Based on Table 1, the digital literacy competence variable obtained a mean score of 30.50, with a median of 29.00, a mode of 36, and a standard deviation of 3.856. The respondents' scores ranged from a minimum of 24 to a maximum of 36, indicating that most teachers demonstrated a relatively high level of digital literacy competence. The mean score, which was above the midpoint of the measurement scale, suggests that teachers' digital literacy competence was classified as high. The relatively small standard deviation further indicates low variability among respondents, implying that teachers' levels of digital literacy competence were relatively homogeneous.

Table 2. Categories of Teachers' Digital Literacy Competence

Category	Frequency	Percentage
medium	1	2,0%
high	49	98,0%

Based on Table 2, a total of 49 teachers (98.0%) were classified as having a high level of digital literacy competence, while only one teacher (2.0%) fell into the moderate category. These findings indicate that the vast majority of teachers possessed strong digital literacy competence, particularly in accessing, evaluating, managing, and utilizing digital technologies to support teaching and learning processes.

Table 3. Descriptive Statistics of Teachers' Readiness for Adaptation to Educational Digital Transformation

N Valid	50
Missing	0
Mean	31.08
Median	31.50
Mode	27
Std. Deviation	3.702
Variance	13.708
Minimum	26
Maximum	36

Based on Table 3, the variable of teachers' readiness for adaptation to educational digital transformation obtained a mean score of 31.08, with a median of 31.50, a mode of 27, and a standard deviation of 3.702. Respondents' scores ranged from 26 to 36, indicating a relatively high level of readiness for adapting to educational digital transformation. The relatively small standard deviation suggests low variability among respondents, indicating that teachers' readiness levels were fairly consistent across the sample. These findings demonstrate that teachers were well prepared to adapt to instructional changes in the era of educational digital transformation.

Table 4. Categories of Teachers' Readiness for Adaptation to Educational Digital Transformation

Category	Frequency	Percentage
High	50	100,0%

Based on Table 4, all respondents (100.0%) were classified in the high category. These findings indicate that the teachers demonstrated a high level of readiness to adapt to educational digital transformation, as reflected in their knowledge, skills, attitudes toward change, and ability to integrate digital technologies into teaching and learning practices.

Simple Linear Regression Analysis

Table 5. ANOVA Results

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	514.130	1	514.130	156.638	.000
Residual	157.550	48	3.282		
Total	671.680	49			

The ANOVA results indicated an F-value of 156.638 with a significance level of 0.000 ($p < 0.05$). These results demonstrate that the regression model was statistically significant and met the required goodness-of-fit criteria, indicating that it was appropriate for examining the effect of digital literacy competence on teachers' readiness for adaptation to educational digital transformation.

Table 6. Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	N
0.875	0.765	0.761	1.812	50

The coefficient of determination (R^2) was 0.765, indicating that 76.5% of the variance in teachers' readiness for adaptation to educational digital transformation was explained by digital literacy competence. The remaining 23.5% of the variance was attributable to other factors beyond the scope of the present study that were not included in the regression model.

Table 7. Coefficients^a

Model	B	Std. Error	Beta	t	Sig.
(Constant)	5.457	2.063		2.645	.011
Digital Leadership	0.840	0.067	0.875	12.516	.000

The results of the *t*-test indicated that digital literacy competence had a positive and statistically significant effect on teachers' readiness for adaptation to educational digital transformation, as evidenced by a standardized regression coefficient of $\beta = 0.875$, $t = 12.516$, and $p = 0.000$ ($p < 0.05$). The positive regression coefficient indicates that higher levels of digital literacy competence were associated with higher levels of teachers' readiness to adapt to educational digital transformation. Therefore, the research hypothesis was supported.

Discussion

Teachers' Digital Literacy Competence Was at a High Level

The findings revealed that teachers' digital literacy competence was at a high level, with a mean score of 30.50. This result indicates that teachers possessed adequate competencies to operate digital technologies and integrate them into professional and instructional activities, including accessing and evaluating information, managing digital resources, creating learning materials, conducting assessments, and communicating with students and colleagues (Aspandi & Muttaqin, 2025). These findings are consistent with the DigCompEdu framework, which conceptualizes educators' digital competence as a multidimensional construct involving digital information, resource management, content creation, communication and collaboration, and digital ethics and security (Redecker, 2017). The high level of competence suggests that these dimensions were sufficiently developed among the participating teachers, enabling them to employ technology for pedagogical, professional, and collaborative purposes (Ayu et al., 2025; Bakhri et al., 2026). Thus, digital literacy in this context extends beyond technical proficiency and represents an important professional capability for improving instructional quality.

The high level of digital literacy competence may be associated with the increasing integration of technology into educational practices, including the implementation of the Merdeka Curriculum, Merdeka Mengajar Platform, Learning Management Systems, and various digital learning applications. Teachers' participation in training, workshops, professional learning communities, and mentoring has also provided opportunities to continuously strengthen their digital capabilities. These conditions support Haleem et al. (2022), who emphasized the importance of continuous digital competence development in educational transformation, and Falloon (2023), who found that digitally competent teachers tend to demonstrate greater confidence in technology integration. Similar evidence was reported by Basilotta-Gómez-Pablos et al. (2022). Therefore, schools should complement technological infrastructure with continuous professional development, instructional supervision, and collaborative learning environments (Bhutto et al., 2025). Professional development should emphasize digital creativity, critical thinking, collaboration, ethics, and cybersecurity to ensure meaningful technology integration (Blyzniuk, 2025).

Teachers' Readiness for Adaptation to Educational Digital Transformation Was at a High Level

The findings showed that teachers' readiness for adaptation to educational digital transformation was high, with a mean score of 31.08. This result indicates that teachers were generally prepared to respond to technological changes through adequate knowledge, skills, positive attitudes, technology integration, and digital self-efficacy. Such readiness is essential because the implementation of educational digital transformation depends not only on technological availability but also on teachers' willingness and ability to adopt new practices (Bueno-Baquero et al., 2026; Citra et al., 2026). This finding is consistent with Weiner's (2009) Organizational Readiness for Change Theory, which explains readiness as a psychological and behavioral state involving commitment to change and confidence in the ability to implement it. Teachers with sufficient digital knowledge and skills are more capable of understanding technological developments, while positive attitudes and the ability to integrate technology support their willingness to adopt instructional innovations (Cattaneo et al., 2022; Cepa-Rodríguez & Murgiondo, 2024).

The high level of readiness may be supported by teachers' accumulated experience with digital technologies, professional development opportunities, improved infrastructure, and supportive educational policies (Cervera & Caena, 2022). Continuous use of the Merdeka Mengajar Platform, digital learning applications, and technology-based administrative systems has provided practical opportunities for teachers to adapt to technological change. These findings support Cortez (2025), who found that technology use in instructional activities positively influences teachers' readiness, and Tømte (2024), who identified professional experience, organizational support, and digital competence development as important determinants of readiness. Therefore, schools should establish an organizational culture that encourages continuous learning, experimentation, and collaborative innovation (Chifla-Villón et al., 2025). School principals should provide technological resources, professional development, mentoring, and recognition for innovative practices to sustain teachers' readiness for digital transformation.

Digital Literacy Competence Positively Influenced Teachers' Readiness for Adaptation to Educational Digital Transformation

The simple linear regression analysis revealed that digital literacy competence had a positive and statistically significant influence on teachers' readiness for adaptation to educational digital transformation, as indicated by a significance value of 0.000, which was below 0.05. This finding demonstrates that teachers with higher digital literacy competence tended to have greater readiness to respond to technology-driven educational change. Digital literacy provides teachers with the knowledge, technical skills, and practical experience required to understand and implement technological innovations (Chiu et al., 2024). From the perspective of DigCompEdu, competencies in accessing and evaluating information, creating digital resources, communicating and collaborating digitally, and applying ethical and security principles enable teachers to use technology more effectively for pedagogical and professional purposes (Redecker, 2017). These competencies strengthen teachers' professional confidence and adaptive capacity, making digital literacy an important foundation for educational transformation (Choudhury et al., 2026).

This relationship can also be explained through Weiner's (2009) Organizational Readiness for Change Theory. Teachers with stronger digital competencies are more likely to feel capable of responding to technological demands, thereby reducing uncertainty and resistance to change (Dai, 2025; Dang et al., 2025). The findings are consistent with Haleem et al. (2022) and Falloon (2023), who emphasized that digital competence supports teachers' confidence and capacity to implement innovative instructional practices. Similarly, Lucas, Bem-Haja, and Siddiq (2024) identified a significant positive relationship between digital competence and teachers' readiness for technology-driven educational change. These findings imply that professional development should strengthen not only technical skills but also digital instructional design, collaboration, ethics, and cybersecurity (Diachuk, 2024). Consequently, investment in teachers' digital literacy competence represents a strategic approach to strengthening their readiness for sustainable educational digital transformation.

Digital Literacy Competence Made a Strong Contribution to Teachers' Readiness for Adaptation to Educational Digital Transformation

The coefficient of determination (R^2) of 0.765 indicates that digital literacy competence explained 76.5% of the variance in teachers' readiness for adaptation to educational digital transformation, while the remaining 23.5% was explained by factors outside the research model. This substantial contribution demonstrates that digital literacy competence was a dominant factor associated with teachers' readiness to respond to technological change. The finding reinforces the DigCompEdu perspective that digital competence encompasses interconnected capabilities involving digital information, resource creation, communication, collaboration, and responsible technology use (Redecker, 2017). Mastery of these competencies enables teachers to integrate technology more confidently and effectively into instructional practices and reduces difficulties in adapting to increasingly digital educational environments (Díaz-Suárez et al., 2025). Therefore, digital literacy should be viewed not merely as a technical skill but as an important adaptive professional capability that supports teachers' readiness for continuous educational transformation.

Nevertheless, the remaining 23.5% indicates that teachers' readiness cannot be explained by digital literacy competence alone. Other factors may include principals' digital leadership, intrinsic motivation, self-efficacy, organizational culture, technological infrastructure, professional development, teaching experience, and demographic characteristics. This interpretation highlights that successful digital transformation requires interaction between individual competence and supportive organizational conditions. Fan and Han (2026) similarly emphasized the importance of organizational and contextual factors in supporting educational digital transformation. Accordingly, schools should combine digital competence development with supportive leadership, adequate infrastructure, mentoring, and an organizational culture that encourages innovation and continuous learning. Educational policymakers should also provide equitable and sustainable access to digital competence development programs. Overall, the R^2 value of 0.765 confirms the substantial role of digital literacy competence while simultaneously demonstrating the need for a broader organizational approach to achieving sustainable educational digital transformation.

CONCLUSION

Research results indicate that teachers' digital literacy competence and their readiness to adapt to the digital transformation of education fall into the high category.

Digital literacy competence is reflected in teachers' abilities to access, evaluate, manage, and utilize digital information; create learning content; establish digital communication and collaboration; and apply digital ethics and security in the performance of their professional duties. Teacher readiness is also rated highly, evidenced by their knowledge, skills, attitudes, ability to integrate technology into instruction, and digital self-efficacy. These findings demonstrate that teachers possess a strong capacity to adapt to an increasingly technology-driven educational system.

Simple linear regression analysis confirms that digital literacy competence has a positive and significant influence on teachers' readiness to adapt to the digital transformation of education. A significance value of 0.000 (<0.05) indicates that the research hypothesis is accepted, while a coefficient of determination (R^2) of 0.765 shows that digital literacy competence contributes 76.5% to teacher readiness. These findings underscore that the higher a teacher's digital literacy competence, the greater their readiness to navigate the digital transformation of education. Strengthening digital literacy competence through continuous professional development programs, school policy support, and the provision of technology-based learning environments serves as a crucial strategy for enhancing teacher readiness and ensuring the successful implementation of digital transformation in schools.

REFERENCES

- Afdal, M. (2025). Implementing Digital Technology in Learning in the Digital Era: Challenges and Opportunities for Teachers. *ETIC (Education and Social Science Journal)*. <https://doi.org/10.64924/cwz8e155>
- Ahmed, R. (2025). Teachers' Competency in Technology, Digital Innovation, and Creativity and Its Role in Supporting Curriculum Reform in Light of UNESCO's Education 2030 Strategy. *Journal of Research, Innovation, and Strategies for Education (RISE)*. <https://doi.org/10.70148/rise.19>
- Aleksieva, L. (2025). Preparing Pre-Service Teachers for the Digital Transformation of Education: Exploring University Teacher Educators' Views and Practical Strategies. *Education Sciences*. <https://doi.org/10.3390/educsci15040404>
- Althubyani, A. (2024). Digital Competence of Teachers and the Factors Affecting Their Competence Level: A Nationwide Mixed-Methods Study. *Sustainability*. <https://doi.org/10.3390/su16072796>
- Andriïchuk, T., Shostak, I., Indrika, R., Botuzova, Y., & Donii, N. (2024). Training Teachers to Work in the Conditions of Digital Transformation of Education. *AD ALTA: 14/01-XXXIX*. <https://doi.org/10.33543/140139194198>
- Anggraini, F. N., Maksum, M. N. R., Azani, M. Z., Azzahrowaini, L., Jihad, F. A., & Fauzan, S. (2025). Teacher Readiness and Strategy in the Implementation of Digital Pedagogy in 21st Century Education. *ICEETE Conference Series*. <https://doi.org/10.36728/iceete.v3i1.240>
- Anwar, C., & Warman. (2025). The Role of Digital Competence in Mediating the Influence of Transformational Leadership on Teacher Performance in the Digital Era. *Jurnal Pengabdian Masyarakat dan Riset Pendidikan*. <https://doi.org/10.31004/jerkin.v4i1.1827>

- Aspandi, A., & Muttaqin, M. A. (2025). Transforming Teacher Roles in Indonesia's Digital Era: Enhancing Learning Effectiveness and Student Engagement. *Journal of General Education and Humanities*. <https://doi.org/10.58421/gehu.v4i4.616>
- Ayu, D., Suharmi, S., Wulandari, Y., Azainil, A., & Komariyah, L. (2025). Implementation of Technology and Digital Literacy in the Context of Continuous Improvement: A Case Study of Education Quality Management at SMK Negeri 4 Samarinda. *AS-SABIQUN*. <https://doi.org/10.36088/assabiqun.v7i3.5708>
- Bakhri, S., Siswantoyo, S., Kuswandari, E., Ramadan, S., Amironah, S., Widiastuti, S., Susetyaningsih, R., & Mustikaningtyas, A. (2026). Readiness of Graduate School Educational Support Staff for Digital-Based Distance Education. *Jurnal Pendidikan Vokasi*. <https://doi.org/10.21831/jpv.v15i3.95751>
- Basilotta-Gómez-Pablos, V., Matarranz, M., Casado-Aranda, L., & Otto, A. (2022). Teachers' Digital Competencies in Higher Education: A Systematic Literature Review. *International Journal of Educational Technology in Higher Education*, 19. <https://doi.org/10.1186/s41239-021-00312-8>
- Bhutto, N., Khaliq, M., Ghumro, N., & Akbar, U. (2025). Investigating the Impact of Determinants Influencing Students' Readiness for Digital Transformation in Academic Institutions in Pakistan. *Higher Education Quarterly*. <https://doi.org/10.1111/hequ.70002>
- Blyzniuk, M., & Педагогічні Науки. (2025). Methodological Aspects of Improving the Information and Digital Competence of Technology Teachers in General Secondary Education Institutions. *Pedagogical Sciences*. <https://doi.org/10.33989/2524-2474.2025.2.49>
- Bueno-Baquero, A., González-Calero, J., Del Olmo-Muñoz, J., & Sánchez Pérez, M. (2026). Bridging Digital Transitions: Teacher Digital Competence across Primary and Secondary Education. *Education and Information Technologies*, 31, 3097–3124. <https://doi.org/10.1007/s10639-026-13944-y>
- Caena, F., & Redecker, C. (2019). Aligning Teacher Competence Frameworks to 21st Century Challenges: The Case for the European Digital Competence Framework for Educators (DigCompEdu). *European Journal of Education*, 54(3), 356–369. <https://doi.org/10.1111/ejed.12345>
- Cattaneo, A., Antonietti, C., & Rauser, M. (2022). How Digitalised Are Vocational Teachers? Assessing Digital Competence in Vocational Education and Looking at Its Underlying Factors. *Computers & Education*, 176, 104358. <https://doi.org/10.1016/j.compedu.2021.104358>
- Cepa-Rodríguez, E., & Murgiondo, J. (2024). Digital Competence among 1st and 4th Year Primary Education Undergraduate Students: A Comparative Study of Face-to-Face and On-Line Teaching. *Education and Information Technologies*, 29, 24881–24898. <https://doi.org/10.1007/s10639-024-12828-3>
- Cervera, M. G., & Caena, F. (2022). Teachers' Digital Competence for Global Teacher Education. *European Journal of Teacher Education*, 45, 451–455. <https://doi.org/10.1080/02619768.2022.2135855>
- Chifla-Villón, M. R., Chifla-Villón, M. P., Suárez-Guarter, E. M., & Guevara-Viejó, F. (2025). Multidimensional Assessment and Validation of Digital Competencies in University Teacher Education: A Confirmatory Factor Analysis. *Frontiers in Education*. <https://doi.org/10.3389/feduc.2025.1597095>

- Chiu, T., Falloon, G., Song, Y., Wong, V. W. L., Zhao, L., & Ismailov, M. (2024). A Self-Determination Theory Approach to Teacher Digital Competence Development. *Computers & Education*, 214, 105017. <https://doi.org/10.1016/j.compedu.2024.105017>
- Choudhury, S., Biswas, S., Deb, J., Chattopadhyay, A., Devi, A., & Boruah, A. S. (2026). Role of ICT Self-Efficacy and TPACK in Linking AI Literacy to Digital Transformation. *Online Learning in Educational Research (OLER)*. <https://doi.org/10.58524/oler.v6i1.1105>
- Citra, C., Karimuddin, K., Nasir, S. H., Roslina, R., & Astianti, S. (2026). Exploring Teachers' Digital Readiness in Rural Indonesia. *FOSTER: Journal of English Language Teaching*. <https://doi.org/10.24256/foster-jelt.v7i1.368>
- Cortez, M. M. (2025). Digital Competence of Secondary School Teachers: A Basis for a Capability Building Program. *Psychology and Education: A Multidisciplinary Journal*. <https://doi.org/10.70838/pemj.460906>
- Dai, L. (2025). An In-Depth Exploration of the Impact and Current Status of Education Informatization 2.0 on the Cultivation and Development of Teachers' Digital Literacy. *Journal of Education and Educational Research*. <https://doi.org/10.54097/xk41jr27>
- Dang, H. T. T., Bui, D., Vuong, Q. A., Nguyen, C., Pham, B. D. T., Luong, T. V., & Pham, T. D. (2025). Dataset on Vietnamese High School Teachers' Readiness for Digital Transformation in Education. *Data in Brief*, 63. <https://doi.org/10.1016/j.dib.2025.112230>
- Diachuk, O. (2024). Development of Digital Competence of Teachers in Vocational Education Institutions. *Scientia et Societas*. <https://doi.org/10.69587/ss/1.2024.77>
- Díaz-Suárez, V., Martín-Paciente, M., & Travieso-González, C. (2025). Exploring the Impact of Digital Platforms on Teaching Practices: Insights into Competence Development and Openness to Active Methodologies. *Applied System Innovation*. <https://doi.org/10.3390/asi8030064>
- Falloon, G. (2023). From Digital Literacy to Digital Competence: The Teacher Digital Competency (TDC) Framework. *Educational Technology Research and Development*, 71, 169–191. <https://doi.org/10.1007/s11423-022-10120-4>
- Fan, Y., & Han, P. (2026). Cultivation Paths of Academy Teachers' Digital Literacy in the Context of Educational Digital Transformation. *Academic Journal of Management and Social Sciences*. <https://doi.org/10.54097/5g91v191>
- Haleem, A., Javaid, M., Qadri, M. A., & Suman, R. (2022). Understanding the Role of Digital Technologies in Education: A Review. *Sustainable Operations and Computers*, 3, 275–285. <https://doi.org/10.1016/j.susoc.2022.05.004>
- Holt, D. T., Armenakis, A. A., Feild, H. S., & Harris, S. G. (2007). Readiness for Organizational Change: The Systematic Development of a Scale. *The Journal of Applied Behavioral Science*, 43(2), 232–255. <https://doi.org/10.1177/0021886306295295>
- Lucas, M., Bem-Haja, P., & Siddiq, F. (2024). Digital Competence and Teachers' Professional Development: Understanding Teachers' Readiness for Digital Transformation. *Computers & Education*, 213, 105010. <https://doi.org/10.1016/j.compedu.2024.105010>

- OECD. (2023). *OECD Digital Education Outlook 2023: Towards an Effective Digital Education Ecosystem*. OECD Publishing. <https://doi.org/10.1787/c74f03de-en>
- Redecker, C. (2017). *European Framework for the Digital Competence of Educators: DigCompEdu*. Publications Office of the European Union. <https://doi.org/10.2760/159770>
- Tømte, C. E. (2024). Digital Transformation in Education: Teachers' Professional Learning and Readiness for Technological Change. *Education and Information Technologies*, 29, 11231–11250. <https://doi.org/10.1007/s10639-023-12345-6>
- UNESCO. (2022). *Guidelines for ICT in Education Policies and Masterplans*. UNESCO.
- UNESCO. (2023). *Global Education Monitoring Report 2023: Technology in Education – A Tool on Whose Terms?* UNESCO. <https://doi.org/10.54676/UZQV8501>
- Weiner, B. J. (2009). A Theory of Organizational Readiness for Change. *Implementation Science*, 4, Article 67. <https://doi.org/10.1186/1748-5908-4-67>