VELES JOURNAL

Vol. 8, No. 2; August 2024
E-ISSN 2579-7484
Pages 555-563
DOI: http://dx.doi.org/10.29408/veles.v8i2.26524

Navigating the Digital Shift: The State of Junior High Schools' Technological Readiness in Indonesia

[1]Aisyah Kistanti, [1]Sunardi, [1]Nur Arifah Drajati
[1]Universitas Sebelas Maret Surakarta, Indonesia

***Correspondence:**
aisyahkistanti@student.uns.ac.id

Submission History:
Submitted: April 13, 2024
Revised: July 10, 2024
Accepted: August 23, 2024

Abstract

The digital shift in education requires readiness among school members to manage the challenges of organizational change. This study investigates the technological readiness of junior high schools in Indonesia from teachers' perspective, using Weiner's (2009) theory of organizational readiness for change, and examines students' readiness for digital learning. Participants included teachers and students from four junior high schools in Boyolali, Central Java, selected through convenience sampling with a 95% confidence level (0.05). Descriptive statistical analysis indicated a positive readiness for digital transformation (mean = 3.74). The study found that only the Valence of Change factor had a statistically significant correlation with schools' readiness for digital shift. Furthermore, respondents showed a positive attitude toward digital learning, with no significant gender differences in students' perceptions and use of digital tools. These findings offer valuable insights for educators, researchers, and school administrators in driving digital transformation in education. The study recommends integrating digital learning into the curriculum to boost student engagement and interest.

Keywords: Learning, Digital Technology, Readiness Level, Junior High School

INTRODUCTION

The rapid advancement and widespread adoption of digital technology have transformed numerous aspects of daily life, including education. Academic institutions are at the forefront of this shift, where the successful integration of technology depends heavily on user acceptance (Kirkwood & Price, 2014). E-learning has become one of the most prevalent platforms, facilitating connections between teachers and students in digital environments (Lalani et al., 2021). The concept of "smart education" builds on this by enhancing educational outcomes through intelligent pedagogical approaches and innovative technologies (Li & Wong, 2022). A brilliant learning

environment integrates seven core components: curricular policies, content, student profiles, pedagogy, interfaces, resources, and human expertise (Jain et al., 2022).

In Indonesia, the *Kurikulum Merdeka* was introduced to simplify learning processes, deepen understanding, and enhance students' critical thinking and problem-solving skills by shifting the focus from rote learning to student-centered approaches (Rafid et al., 2024). Technology is at the core of this transformation, enabling direct communication between the Ministry of Education, Culture, Research, and Technology (MoECRT) and teachers, facilitating efficient curriculum implementation and professional development. Teachers play a crucial role in realizing the vision of *Kurikulum Merdeka*, and the Indonesian government has prioritized supporting their digital literacy through the provision of technological tools and comprehensive training programs (Wang, 2023). These initiatives equip educators with the skills to integrate technology into their teaching practices, from utilizing e-learning platforms to incorporating AI-driven tools, ensuring they can meet the challenges of modern education (Wyman et al., 2010). By fostering a technologically enabled teaching workforce, the government aims to create a more dynamic and responsive education system that aligns with global digital transformation trends, ultimately preparing students for future challenges while empowering teachers to guide this transition effectively.

For innovative education to thrive, several critical elements must be established, including solid teacher-student relationships, seamless access to physical and digital resources, high-quality educational services, and a culture of lifelong learning. Globally, the digital transformation of education is not only inevitable but essential, driven by the growing integration of technology into teaching and learning practices (Abad-Segura et al., 2020). As educational systems evolve, ongoing research investigates the roles of key stakeholders, such as educators, administrators, and policymakers, in effectively guiding and implementing this shift. Furthermore, studies focus on identifying strategies that ensure equitable access to technology and foster meaningful pedagogical changes that enhance teaching quality and student outcomes (Papachashvili, 2021). These efforts are crucial in shaping a resilient, future-ready education system that leverages the full potential of digital tools and approaches.

Some research on digital transformation readiness has focused on higher education, examining aspects like institutional capacity, technological resources, and the challenges universities face (Sánchez, 2020). Studies have explored the adoption of emerging technologies such as the Internet of Things (Motala et al., 2018) and the readiness of higher education teachers to use digital tools (Kamahina et al., 2019). Research has also examined how institutions' digital orientation influences their capacity for innovation (Aboobaker & Ka, 2021), with studies during the COVID-19 pandemic highlighting the need for socio-emotional support during emergency remote teaching (Händel et al., 2020). However, there is limited research on the readiness of lower educational levels, particularly junior high schools, for digital transformation. Additionally, while much attention has been given to infrastructure, human factors such as teacher and student readiness remain underexplored.

This study addresses this gap by focusing on junior high school teachers, an often-overlooked group in digital transformation research. By applying Weiner's (2019)

Organizational Readiness for Change (ORC) theory, this study assesses both the psychological and behavioral readiness of teachers and the impact of factors such as gender, work area, training level, and seniority. Additionally, the research evaluates students' readiness for digital learning, acknowledging teachers' essential role in helping students effectively engage with digital education. This dual focus on teachers and students offers a more holistic view of digital readiness in secondary education.

The main objective of this research is to evaluate the readiness of junior high schools in Indonesia for digital transformation, particularly from teachers' perspective, using ORC factors such as commitment to change, change efficacy, change valence, and information assessment (task knowledge and resource availability). The study also seeks to explore the correlation between school readiness and various teacher characteristics while also assessing students' attitudes and preparedness for digital learning.

METHOD

This study employed a descriptive survey design, utilizing a predominantly quantitative approach to assess the readiness of secondary schools (specifically junior high schools) in Indonesia for digital transformation and to identify the factors influencing this readiness. The research team developed a 32-item questionnaire based on Weiner's (2019) Organizational Readiness for Change (ORC) theory and Shea et al.'s (2014) work. The questionnaire focused on four key factors and employed a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) to measure respondents' agreement levels.

The survey participants were teachers from junior high schools in Boyolali Regency, selected through a convenience sampling method. This approach involved selecting teachers who met the study criteria until the desired sample size was reached (Cohen et al., 2012). Out of the 122 teachers who completed the questionnaire, only 87 responses were used for analysis, as 35 were deemed unusable and excluded (Hair Jr et al., 2014). Additionally, to assess student readiness, a sample of 245 students was randomly selected from four junior high schools in Boyolali Regency, Central Java, with a 95% confidence level (0.05). A separate questionnaire titled "Students' Readiness towards Digital Learning" was administered, utilizing a Likert scale with response options of Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). The student questionnaire was validated by experts in ICT education and tested for reliability, yielding a reliability coefficient of 0.72, indicating acceptable reliability.

With the assistance of research aides, the researcher distributed the questionnaires, collected the completed responses, and applied a multi-stage sampling approach combining simple and stratified random sampling to select the student participants. Descriptive statistical methods and linear regression analysis addressed the two research questions. For the first research question, descriptive analysis determined the mean values of each item, providing insights into the status of the ORC-related factors. Additionally, a reliability analysis was conducted to assess the consistency of the factors. For the second research question, linear regression analysis was employed to identify the factors influencing respondents' readiness for digital transformation.

FINDING AND DISCUSSION

Findings

1. Readiness Status of Secondary Schools in Indonesia for Digital Transformation

The overall readiness of public secondary schools in Indonesia for digital transformation is cheerful. Descriptive statistical analysis of the 87 survey respondents shows an average score of 3.74 on a 5-point Likert scale, indicating that respondents generally agree that their schools are prepared for the digital shift. Among the key factors, change commitment and change efficacy showed positive results, with a mean of 3.89, slightly higher than change efficacy, which scored 3.60. Notably, "I can maintain momentum in implementing digital transformation in school activities" received the highest rating within the change efficacy factor, with a mean of 3.83.

Regarding the change valence factor, participants rated this factor positively, with a mean score of 3.82, suggesting that respondents generally perceive digital transformation as beneficial. The ten statements within this factor yielded similar results, with mean values between 3.74 and 3.89. However, the information assessment factor, which includes task knowledge and resource availability, showed slightly lower scores. The average for this factor was 3.45, with task knowledge receiving a mean score of 3.40. Several statements related to this factor, such as knowledge of the time, cost, and resources required for digital transformation, were rated lower, indicating uncertainty among respondents. The resource availability factor was rated at a mean of 3.50, although "I have the resources needed to implement digital transformation in school operations" was rated neutrally at 3.36.

A linear regression analysis was conducted to determine the correlation between various sample characteristics and the factors influencing readiness for digital transformation. The dependent variable was the overall readiness of junior high schools for digital transformation. In contrast, the independent variables included task knowledge, information assessment, work area, gender, training level, work seniority, and change valence.

The ANOVA test results indicate that the model is consistent, with $F(7,78) = 66.237$, $p < 0.001$, and an Adjusted R-squared value of 0.843, meaning that changes in the independent variables can explain 84.3% of the variation in the dependent variable. However, the regression analysis shows that only one factor—change valence—has a statistically significant correlation with readiness for digital transformation ($\beta = 0.791$, $p < 0.001$). This indicates that changes in the perceived value of the transformation can explain 79.1% of the variation in transformation readiness. In contrast, factors such as information assessment ($\beta = 0.144$, $p = 0.099$), gender ($\beta = 0.02$, $p = 0.653$), training level ($\beta = 0.036$, $p = 0.821$), work seniority ($\beta = -0.012$, $p = 0.811$), and work area ($\beta = -0.070$, $p = 0.134$) were not found to have statistically significant correlations with readiness.

The analysis shows that only change valence significantly correlates with readiness for digital transformation, while other factors related to sample characteristics and information assessment do not significantly influence this readiness. This highlights the importance of digital transformation's perceived value and benefits in driving schools' readiness for change.

2. Student readiness for digital learning in secondary schools in Indonesia

This study also examined students' readiness in junior high schools in Indonesia for digital learning. To address this research question, a descriptive analysis was conducted using mean and standard deviation; the analysis shows that most statements (1, 3, and 4) have an average value above the threshold of 2.50, with a weighted average of 2.86 and a standard deviation of 0.86. This relatively high mean indicates that students generally perceive digital learning positively. The findings suggest that most respondents are ready and willing to engage in digital learning. However, the primary demotivating factor identified is inadequate information and communication technology (ICT) facilities.

Most students reported using smartphones as their primary tool for online learning, with platforms such as YouTube, Google Classroom, and Zoom commonly employed for educational and social purposes. While the students demonstrate readiness for digital learning, the issue of insufficient ICT resources hinders their complete acceptance and utilization of digital education. Additionally, the results indicate that students feel relatively confident using computers and the Internet for online learning. They possess basic technical skills, such as searching for information online, using MS Excel, MS PowerPoint, and MS Word, and managing online learning software. These competencies are crucial for enhancing students' readiness for digital learning. They suggest that, despite infrastructural challenges, students are generally proficient in using technology due to their exposure to tech-rich environments. This proficiency is a critical factor in their overall readiness for online education.

Discussion

This study identifies digital transformation in schools as a multi-dimensional organizational change process. By leveraging Weiner's (2019) Organizational Readiness for Change (ORC) theory, it evaluates the readiness of secondary schools in Indonesia, focusing on junior high schools in Boyolali Regency, Central Java. The results present crucial insights into the state of readiness from teachers' perspectives and factors influencing this readiness, including gender, work area, level of training, and seniority. The study also extends its scope to investigate student readiness for digital learning, thus providing a holistic perspective on the challenges and opportunities for digital transformation in education.

The results indicate that secondary schools in Indonesia demonstrate a general readiness for digital transformation, as reflected by an average readiness score of 3.74. Change Commitment and Change Efficacy also scored relatively high, at 3.96 and 3.60, respectively, signaling that teachers are committed to embracing digital change and confident in their ability to implement it. This readiness is a promising indicator, as teacher commitment is crucial for the success of any educational reform (Fullan, 2007). However, while the Valence of Change—or the perceived value of the transformation—was similarly positive, the findings around Information Assessment present a concerning gap. Teachers expressed uncertainty regarding critical aspects of digital transformation, such as task knowledge and resource availability, with these factors rated only at the "Neutral" level. This gap highlights a fundamental issue: when teachers do not fully understand the steps or

resources required for change, their ability to engage effectively in the process is compromised (Davis, 1989).

This disconnect between commitment and resource clarity poses a significant barrier. According to Weiner (2019), organizational readiness is about being open to change and understanding and mobilizing the resources and strategies needed for that change. If teachers are committed to change but unclear how to achieve it, their motivation may dwindle, leading to resistance, as Dent and Goldberg (1999) suggest. Resistance to change is often not a rejection of new ideas but a reaction to perceived obstacles or uncertainties in implementation. In the context of digital transformation, school leaders must not only foster a positive attitude towards change but also ensure that teachers are equipped with the necessary knowledge and resources to implement digital learning effectively.

Moreover, the strong correlation between the Valence of Change and readiness for digital transformation ($\beta = 0.791$, $p < 0.001$) reinforces the notion that teachers' perception of the value of change is critical. This finding is consistent with prior research by Phillips (2017) and Armenakis et al. (2007), which demonstrated that the perceived benefits of organizational change significantly predict readiness for change. In practical terms, this suggests that for digital transformation efforts to succeed, school leaders must clearly articulate the benefits of digital initiatives—not just for the institution but for teachers individually. By aligning digital transformation goals with teachers' personal and professional development, schools can create a stronger foundation for change.

However, the absence of statistically significant correlations between other variables—such as gender, work area, level of training, and seniority—and readiness is noteworthy. These findings challenge conventional assumptions that such demographic factors strongly influence readiness for change (Oreg et al., 2011). The lack of correlation suggests that digital transformation is perceived as equally necessary across different teacher demographics, perhaps indicating a shared recognition of the inevitability of digital integration in education. Nevertheless, this divergence from previous studies warrants further investigation, particularly with more extensive and more diverse samples, to better understand the nuances of these factors.

In addition to examining teacher readiness, the study provides critical insights into student readiness for digital learning. While students generally displayed a positive attitude toward digital learning, as reflected by the high mean scores, the primary demotivating factor identified was the lack of adequate ICT infrastructure. Most students rely on smartphones and popular platforms like YouTube, Google Classroom, and Zoom. This reliance suggests that while students are comfortable navigating digital platforms, their ability to fully engage in digital learning is hindered by limited available resources. The inadequacy of ICT infrastructure is a significant barrier, as access to appropriate tools is a fundamental prerequisite for successful digital learning (Selwyn, 2010).

Furthermore, the findings reveal that students' confidence in using technology does not always translate into active engagement, particularly in online discussions. Respondents showed lower scores for online communication self-efficacy despite high confidence in using digital tools. This gap between technological competence and engagement aligns with earlier

studies, highlighting that students, especially at the secondary level, often remain passive in traditional and digital learning environments (Schunk & Usher, 2012). Teachers, therefore, play a pivotal role in fostering more interactive and participatory digital classrooms. Strategies such as rewards or positive reinforcement could encourage students to engage more actively in online discussions. By integrating participation as part of ongoing assessment, teachers can motivate students to share their opinions, ask questions, and contribute to a more dynamic online learning experience.

The implications of these findings are far-reaching. For one, school leaders must prioritize the development of detailed digital transformation plans that outline the steps required for implementation and ensure that teachers have access to the necessary resources. Additionally, professional development programs should enhance teachers' task knowledge and resource management skills to reduce uncertainty and resistance. As for students, efforts must be made to improve ICT infrastructure and encourage active engagement in digital learning, particularly online communication.

This study highlights digital transformation's potential and challenges in Indonesian secondary schools. While there is a positive readiness for change, gaps in information and resource clarity could hinder progress. School leaders must address these gaps by providing more explicit guidance and better support for teachers and students. By doing so, they can foster a more effective and sustainable digital transformation that enhances the quality of education and prepares students for the demands of the digital age.

CONCLUSION

Digital transformation is an inevitable shift in education, requiring secondary schools, including those in Indonesia, to adapt to new technological environments. This study highlights that while teachers are increasingly adopting digital tools, schools still face challenges due to gaps in infrastructure and teachers' digital competencies. The success of digital transformation largely depends on well-prepared teachers who understand the value of these changes and have the resources to implement them. The strong link between teachers' recognition of the benefits (Valence of Change) and their readiness for transformation underscores the importance of aligning digital initiatives with teachers' needs and professional growth.

To ensure a smooth transition, school administrators must prioritize integrating digital learning alongside traditional teaching methods while providing the necessary infrastructure and support. Involving teachers in the decision-making process will improve policy implementation and address core challenges in digital education. By fostering teacher involvement and improving access to resources, schools can enhance the quality of digital learning and better prepare students for the demands of the digital age.

REFERENCES

Abad-Segura E, González-Zamar MD, Infante-Moro JC, Ruipérez García GR. (2020). Sustainable management of digital transformation in higher education: global research trends. *Sustainability*; 12(5). https://doi.org/10.3390/su12052107

Aboobaker N, Ka Z. (2021). Digital learning orientation and innovative behavior in the higher education: effects of organizational learning culture and readiness for change. *International Journal of Educational Management*; 35(5):1030-47. https://doi.org/10.1108/IJEM-09-2019-0345

Armenakis AA, Bernerth JB, Pitts JP, Walker HJ. (2007). Organizational change recipients' beliefs scale: development of an assessment instrument. *The Journal of Applied Behavioral Science*; 43(4):481-505. https://doi.org/10.1177/0021886307303654

Bandura A, Freeman WH, Lightsey R. (1999). Self-efficacy: the exercise of control. Springer.

Bandura A. (2000). Exercise of human agency through collective efficacy. *Current Directions in Psychological Science*; 9(3):75-8. https://doi.org/10.1111/1467-8721.00064

Cohen L, Manion L, Morrison K. (2012). Research methods in education. 6th ed. Routledge; 38(3).

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340. https://www.jstor.org/stable/249008

Dent EB, Goldberg SG. (1999). Challenging "resistance to change,". *The Journal of Applied Behavioral Science*; 35(1):25-41. https://doi.org/10.1177/0021886399351003

Fullan, M. (2007). Change the terms for teacher learning. *The Learning Professional*, *28*(3), 35.

Hair JF Jr, William C, Babin BJ, Anderson RE. (2014). Multivariate data analysis. Joseph F. Hair Jr. William C. Black.

Händel, M., Stephan, M., Gläser-Zikuda, M., Kopp, B., Bedenlier, S., & Ziegler, A. (2020). Digital readiness and its effects on higher education students' socio-emotional perceptions in the context of the COVID-19 pandemic. *Journal of Research on Technology in Education*, *54*(2), 267-280. https://doi.org/10.1080/15391523.2020.1846147

Holt DT, Vardaman JM. (2013). Toward a comprehensive understanding of readiness for change: the case for an expanded conceptualization. *Journal of Change Management*; 13(1):9-18. https://doi.org/10.1080/14697017.2013.768426

Jain, N., Thomas, A., Gupta, V., Ossorio, M., & Porcheddu, D. (2022). Stimulating CSR learning collaboration by the mentor universities with digital tools and technologies–an empirical study during the COVID-19 pandemic. *Management Decision*, *60*(10), 2824-2848.

Kamahina RS, Yakovenko TV, Daibova EV. (2019). Teacher's readiness to work under the conditions of educational space digitalization. *International Journal of Higher Education*; 8(7):79-83. https://doi.org/10.5430/ijhe.v8n7p79

Kirkwood, A., & Price, L. (2014). Technology-enhanced learning and teaching in higher education: What is 'enhanced' and how do we know? A critical literature review. *Learning, Media and Technology*, 39(1), 6–36. https://doi.org/10.1080/17439884.2013.770404

Lalani, K., Crawford, J., & Butler-Henderson, K. (2021). Academic leadership during COVID-19 in higher education: Technology adoption and adaptation for online learning during a pandemic. *International Journal of Leadership in Education*, 1-17. https://doi.org/10.1080/13603124.2021.1988716

Li, K. C., & Wong, B. T. M. (2022). Research landscape of smart education: a bibliometric analysis. *Interactive Technology and Smart Education*, *19*(1), 3-19. https://doi.org/10.1108/ITSE-05-2021-0083

Oreg S, Vakola M, Armenakis A. (2011). Change recipients' reactions to organizational change: A 60-year review of quantitative studies. J Appl Behav Sci;47(4): 461-524. https://doi.org/10.1177/0021886310396550

Papachashvili N. (2021). Digital transformations and the challenges of higher education institutions.

Phillips JE. (2017). Effects of changing valence and informational assessments on organizational readiness for change. Walden University.

Rafid, R., Dhayinta, S. T., & Nurita, R. F. (2024). Civic education barcode media reviewed from 21st century skills learning. *EDUCATUM: Scientific Journal of Education*, *2*(2), 38-47. https://doi.org/10.59165/educatum.v2i2.63

Sánchez MA. (2017). A framework to assess organizational readiness for the digital transformation. *Dimensión Empresarial*; 15(2):27-40.

Sánchez, M.A. (2020). University e-readiness for the digital transformation: the case of Universidad Nacional del Sur. *Revista Gestão & Tecnologia*. http://repositoriodigital.uns.edu.ar/handle/123456789/4823

Schunk, D. H., & Usher, E. L. (2012). Social cognitive theory and motivation. *The Oxford handbook of human motivation*, *2*, 11-26.

Selwyn, N. (2010). Degrees of digital division: reconsidering digital inequalities and contemporary higher education. *Rev. U. Soc. Conocimiento*, *7*, 33.

Shea, C.M., Jacobs, S.R., Esserman, D.A. *et al.* Organizational readiness for implementing change: a psychometric assessment of a new measure. *Implementation Sci* **9**, 7 (2014). https://doi.org/10.1186/1748-5908-9-7

Wang, C., Zhang, M., Sesunan, A., & Yolanda, L. (2023). Technology-driven education reform in Indonesia: a look into the crurrent status of the Merdeka Belajar Program. http://repositori.kemdikbud.go.id/id/eprint/30538

Weiner, B. J. (2020). A theory of organizational readiness for change. In *Handbook on implementation science* (pp. 215-232). Edward Elgar Publishing. https://doi.org/10.4337/9781788975995.00015

Wyman, L., Marlow, P., Andrew, C. F., Miller, G., Nicholai, C. R., & Rearden, Y. N. (2010). High stakes testing, bilingual education and language endangerment: A Yup'ik example. *International Journal of Bilingual Education and Bilingualism*, *13*(6), 701-721. https://doi.org/10.1080/13670050903410931