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The Role of Work Engagement and Psychological Capital on Lecturers' Readiness to Change in the Era of Technology-Based Education

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Abstract

Readiness to face technological developments refers to the readiness of lecturers to adapt to changes in the education sector, which is increasingly using technology in every process. This readiness to change can be influenced by several factors, including work engagement and the psychological capital of the lecturers. This study aimed to explain the role of work engagement and psychological capital on readiness to change using multiple linear regression analysis. The participants in this study were lecturers from several public and private universities in Indonesia, grouped into Generations X and Y. Participants were recruited through convenience sampling, resulting in a total of 273 participants. The results showed that work engagement and psychological capital simultaneously influence readiness to change in Generation Y. Meanwhile, only work engagement can influence readiness to change in Generation X. The results of this study offer input for universities in Indonesia regarding recognizing the patterns of adjustment when it comes to each generation's readiness to change in the face of challenges and demands to use the latest technologies in education.

The rapid development of digital technology today has brought significant changes to the education sector, prompting a paradigm shift in the use of technology in learning, especially in higher education. This is the result of the emergence of the 4.0 industrial revolution and the demands of 5.0 society, which is closely linked to technology. Its characteristics include the widespread use of cyber-physical systems, Internet of Things (IoT), Internet of Services, and smart factories (Teknowijoyo & Marpelina, 2022). The shift in technology use within the Indonesian higher education sector cannot be separated from lecturers' competence in operating such technology.

There have been indications that lecturers are not ready to face these changes. Hanjowo et al. (2023) considered that lecturers are unprepared to address these shifts. The lack of knowledge and skills in using information and communication technology (ICT) is one of the obstacles to realizing IT-based education in the digital era. This obstacle shows that lecturers' readiness to accept change is a crucial factor for the success of educational innovation.

Individual readiness to change is understood as individual beliefs and readiness to experience change, which comprises emotional, intentional, and cognitive reactions (Bouckenooghe et al., 2009). Lecturers who are ready to accept change are usually more open to adopting technology. In addition, they adapt easily and are more creative in developing teaching programs that align with students' current needs. Therefore, factors influencing readiness for change among lecturers should be identified to develop effective interventions that increase lecturer capacity.

The use of digital technology in education has become more widespread since the COVID-19 pandemic. During that period, the use of technology for teaching and learning increased by 95% (Baskoro et al., 2025). However, at that time, online learning was implemented with minimal preparation. Approximately 69.5% of lecturers were more proficient with video conferencing media, and only 30.5% were ready to use the Learning Management System (LMS) as a teaching and learning medium (Stefany, 2022). Data show that lecturers were not yet fully prepared to meet the demand to use the LMS as a digital space facilitating all teaching and learning activities.

Using this system requires advanced technological skills and digital literacy (Putera et al., 2024). If lecturers' technological skills and digital literacy are low, they will likely refuse to use the system or will abandon it (Anthonio et al., 2024). The resistance and unpreparedness of lecturers in Indonesia to optimally use educational technology were evident when the pandemic ended. Data show that, after the pandemic, the trend in technology use for learning declined significantly. Only 55% of lecturers continued to use technology regularly in the learning process (Baskoro et al., 2025).

Lecturers who exhibit readiness for change tend to be better prepared to face technological changes in the learning system. They are more committed to adapting to change (Zulkarnain et al., 2024). This helps such lecturers show greater resilience in facing obstacles and difficulties during the change process as compared to peers who are not prepared to adapt to the new learning system or technology (Weiner, 2020).

Lecturers with a high readiness for change will view change positively. They will take the opportunity to reap the benefits and develop further (Erlyani & Suhariadi, 2021). This can help them improve the quality of the learning process to meet current demands. Taufikin et al. (2021) explained that lecturers who are ready for change hold a positive belief that change can benefit their careers.

A lack of preparedness in using educational technology is caused by several factors. Many lecturers believe that the continuous use of technology in learning will cause physical and psychological fatigue, boredom, and distress (Baskoro et al., 2025). Anthonio et al. (2024) found that many educators feel anxious about their ability to effectively use digital technology in teaching. To prevent this from happening, lecturers should develop resilience in the face of adversity during change. They should also have high confidence, optimism, and hope, which will enable them to learn new technologies for teaching. In this way, they can meet all the demands for utilizing learning technology. To conclude, lecturers should have positive psychological capital to face the demands and pressures of using educational technology. As explained by Kadiyono and Pardosi (2023), high psychological capital will prompt teachers to improve their use of new technologies on the job.

Psychological capital is one of the individual factors predicted to influence lecturers' readiness to change in the digital technology transition. Psychological capital comprises four aspects: self-efficacy, optimism, hope, and resilience (Luthans, 2011). These four aspects are believed to create an internal drive for lecturers in facing adversity during change. Empirical evidence shows that psychological capital has a positive effect on readiness to accept change (Kadiyono & Pardosi, 2023; Ningrum & Salendu, 2021), although findings on the strength of its influence are inconsistent. This psychological resource provides internal motivation for individuals to face challenges during transitions in a positive manner, with confidence and resilient problem-solving.

Readiness for change indicates the psychological and behavioral readiness of individuals or organizational members to implement change. Those who are ready to change are committed to following through with change. Individuals who exhibit this quality persevere in the face of obstacles and engage in behaviors that support change (Weiner, 2020). Individuals who demonstrate strong commitment and engagement are better prepared and more open to change (Zulkarnain et al., 2024). Those who are prepared for change are more likely to participate in the transition. They are willing to expend energy during the change process.

Work engagement is a necessary component before, during, and after successful change (Andika & Anindita, 2023; Van den Heuvel et al., 2020). Therefore, in addition to psychological capital, work engagement is an important construct to consider when examining lecturers' readiness for change in educational technology. Work engagement is a positive psychological state related to work, comprising vigor, dedication, and absorption (Bakker & Leiter, 2010; Schaufeli & Bakker, 2010). Lecturers who are dedicated and motivated in their work over the long term tend to show enthusiasm and commitment to developing themselves and adapting to technological change. Work engagement can drive readiness to learn and use technology in higher education.

Although these factors have been studied previously, no research has comprehensively and simultaneously examined psychological capital, work engagement, and readiness to change as a full pathway model, particularly among Indonesian lecturers. This indicates a verifiable scientific gap that can be addressed to expand the knowledge base and support lecturers' psychological readiness to face changes in their field of work. Additionally, demographic factors, such as age (Generations X and Y), were explored to examine differences in how lecturers from these generations address the challenges of changing educational technology.

All classroom teaching should be adapted to technological advances. Lecturers must adapt to the most effective teaching methods, including e-learning and other learning technologies (Wardhono, 2018). Each generation has its own unique way of adapting to technology. Generation X shows an optimistic attitude toward technology use, driven by convenience and social influence, but still limits its use because it is considered disruptive. Meanwhile, Generation Y has a higher level of optimism and tends to be more innovative in using technology (Smith & Padilla, 2023). Other findings indicate that Generation X teachers are more likely to be unprepared to integrate technology into their teaching. They tend to lack the competence needed to integrate technology into the curriculum (Sari et al., 2023). Thus, it is necessary to examine how lecturers from different generations, especially Generations X and Y, which currently dominate the teaching profession, integrate technology into the learning process. Based on previous research, Generation Y is considered more prepared to use learning technology than their Generation X peers.

The results of this study can theoretically contribute

to understanding lecturers' readiness for change in Indonesia by considering the perspectives of two generations, namely, Generations X and Y, which currently dominate the teaching profession. The findings of this study provide significant evidence on the roles of psychological capital (Luthans et al., 2007) and work engagement (Schaufeli & Bakker, 2010) in determining readiness for change (Bouckenooghe et al., 2009) among lecturers in Indonesia, in the context of technology use in the learning process. This research explains the psychological dynamics of Generation X and Y lecturers as they face changes related to educational technology use, as examined through their psychological capital and work engagement, which previous studies have not addressed.

The findings of this study are also expected to have practical implications for higher education institutions, helping them develop training programs that not only are technical but also enhance the psychological attributes of lecturers as agents of change. Furthermore, this study provides insight into how psychological capital and work engagement affect the readiness of Generation X and Generation Y lecturers to engage with educational technology. In addition, this study is expected to have empirical and conceptual implications for developing quality human resources in the digital era.

Methods

The participants in this study were 273 lecturers from several public and private universities in Indonesia. These participants were selected using convenience sampling. This sampling method was implemented based on ease of access and participant availability through networks or institutions. Given the wide geographical coverage and limited research resources, participants completed the instrument via a Google Form sent via WhatsApp. In this way, data collection became more efficient and time- and cost-effective (Creswell & Creswell, 2023; Etikan, 2016).

The participants were divided into two groups, namely, Generations X and Y, spread across several state and private universities. There were 94 participants in the Generation X group (born between 1965 and 1980) and 179 participants in the Generation Y group (born between 1981 and 1996). The number of Generation Y participants was higher than that of Generation X participants because Generation Y currently dominates the teaching profession.

In terms of university type, more participants were from state universities (223 lecturers) than from private institutions (50 lecturers). The significant difference in distribution between the two higher education groups was due to the sampling technique used. The researcher's network was more extensive among lecturers at state universities than those at private institutions (see Table 4).

This study used three measurement instruments with a five-point Likert scale, ranging from "Strongly agree" (5) to "Strongly disagree" (1). The instruments were: 1) the readiness to change instrument, developed by Bouckenooghe et al. (2009) and consisting of three aspects, namely, emotional, intentional, and cognitive reaction; 2) the work engagement instrument, developed by Bakker and Leiter (2010) and Schaufeli and Bakker (2010) and consisting of three aspects, namely, vigor, dedication, and absorption; and 3) the psychological capital instrument, developed by Luthans et al. (2007) and consisting of four dimensions, namely, self-efficacy, hope, resilience, and optimism.

Table 1
Factor Loadings for Readiness to Change

Item	Factor Loading (λ)	p
Factor 1 (Emotional Reaction)		
Item 1	.839	.000
Item 2	.911	.000
Item 3	.842	.000
Item 4	.152	.038
Item 5	.230	.006
Factor 2 (Cognitive Reaction)		
Item 6	.212	.001
Item 7	.260	.000
Item 8	.468	.000
Item 9	.745	.000
Item 10	.819	.000
Factor 3 (Intentional Reaction)		
Item 11	.834	.000
Item 12	.888	.000
Item 13	.844	.000

Confirmatory factor analysis (CFA) was used to test the instrument's construct validity because it is the most commonly used method (Brown, 2015). CFA was conducted on the readiness to change and psychological capital instruments because the normality assumption was met (Kim, 2013). Meanwhile, the researchers performed an item factor analysis (IFA) on the work engagement instrument because the normality assumption was not met. CFA and IFA were conducted using Mplus software.

Based on the CFA results, all 13 items in the readiness to change instrument were accepted (see Table 1). However, three items in the psychological capital instrument were rejected: one item from the resilience dimension and two from the optimism dimension. Thus, out of 24 items, 21 remained (see Table 2). Based on the IFA results, none of the 17 items in the work engagement instrument were rejected (see Table 3).

This study used a quantitative method with a correlational approach to examine three variables. Psychological capital and work engagement were the independent variables, while readiness to change was the dependent variable. The analysis employed multiple linear regression, using maximum likelihood estimators with robust standard errors (MLR) that are resistant to violated assumptions of normality and linearity (Hayes, 2013; Muthén & Muthén, 2016). This analysis was conducted on Mplus.

Table 2
Factor Loadings for Psychological Capital

Item	Factor Loading (λ)	p
Factor 1 (Self-Efficacy)		
Item 1	.674	.000
Item 2	.734	.000
Item 3	.848	.000
Item 4	.796	.000
Item 5	.829	.000
Item 6	.717	.000
Factor 2 (Hope)		
Item 7	.733	.000
Item 8	.765	.000
Item 9	.718	.000
Item 10	.742	.000
Item 11	.827	.000
Item 12	.595	.000
Factor 3 (Resilience)		
Item 13	.575	.000
Item 14	.720	.000
Item 15	.604	.000
Item 16	.748	.000
Item 17	.621	.000
Factor 4 (Optimism)		
Item 18	.488	.000
Item 19	.863	.000
Item 20	.811	.000
Item 21	.693	.000

Table 3
Factor Loadings for Work Engagement

Item	Factor Loading (λ)	p
Factor 1 (Vigor)		
Item 1	.908	.000
Item 2	.942	.000
Item 3	.753	.000
Item 4	.744	.000
Item 5	.800	.000
Item 6	.903	.000
Factor 2 (Dedication)		
Item 7	.807	.000
Item 8	.875	.000
Item 9	.942	.000
Item 10	.893	.000
Item 11	.877	.000
Factor 3 (Absorption)		
Item 12	.314	.000
Item 13	.609	.000
Item 14	.681	.000
Item 15	.728	.000
Item 16	.777	.000
Item 17	1.046	.000

Results

The considerable gap between the mean (M) and standard deviation (SD) for each variable indicates that there were very high and very low scores. The SD for readiness to change shows that the scores for Generation X are more varied than those for Generation Y, as is the case for work engagement. Meanwhile, the SD for psychological capital shows that scores did not vary greatly across the two age groups (see Table 4).

The normality and linearity assumptions for this data were not met, but because the MLR estimator was used, these violations could be ignored. On the other hand, there was no multicollinearity between work engagement and psychological capital (VIF = 2.623; VIF < 10.00). The multiple regression analysis showed that work engagement and psychological capital simultaneously influence readiness to change (see Table 5). The multiple regression analysis by age group showed that work engagement and psychological capital simultaneously influence readiness to change among Generation Y lecturers. Meanwhile, among Generation X lecturers, only work engagement influences readiness to change (see Table 6).

Discussion

The results of this study indicate that, overall, work engagement and psychological capital simultaneously influence readiness to change, contributing up to 26.1%. This shows that lecturers who have a positive attitude toward their work will find it easier to adapt to changes in education, including digitalization. In addition, lecturers with high psychological capital can better adapt to changes in education, which currently leans more toward digitalized teaching and learning. The results of this study align with those of previous studies. As explained by Buabeng-Andoh (2012), personal characteristics can influence the process of adapting to technology. Although this study found differences between Generation X and Y lecturers regarding the influence of work engagement and psychological capital on readiness to change, it can be explained that lecturers' work engagement and psychological capital simultaneously influence lecturers' readiness to change, especially regarding the use of educational technology, which has started to be used extensively in Indonesia.

Work engagement enables lecturers to remain committed to their work even during times of change. This finding is consistent with that of Van den Heuvel et al. (2020), who stated that work engagement encourages individuals to adapt during times of change. Those who are highly engaged with their work tend to have low resistance to change (Diedericks et al., 2019; Meria et al., 2023). This indicates that people with high work engagement are more likely to accept change. They can understand why change is necessary in the workplace. Thus, lecturers who are engaged with their work continue to show enthusiasm, are willing to sacrifice time and energy to keep up with change, and often become absorbed in learning about the change that their jobs require. This allows lecturers to more easily adapt to new technologies

Table 4
Descriptive Statistics for Each Variable

	Total	Generation X (1965–1980)	Generation Y (1981–1996)
N	273	94	179
Origin			
State University	223		
Private University	50		
Readiness to Change			
M (Factor Score)		-.015	-.018
SD (Factor Score)		.449	.428
Psychological Capital			
M (Factor Score)		-.0004	-.0002
SD (Factor Score)		.346	.325
Work Engagement			
M (Factor Score)		.034	-.018
SD (Factor Score)		.433	.428

Table 5
Results of Multiple Linear Regression Analysis

Predictor	Estimate	SE	*p*
Work Engagement	.311	.095	.001
Psychological Capital	.230	.087	.008
R-Square	.261	.085	.002

and systems in teaching.

Positive psychological capital helps lecturers adjust to change. This finding aligns with several previous findings that psychological capital positively influences readiness for change (Lizar et al., 2015; Matthysen & Harris, 2018). Nwanzu and Bawa (2019) explained that optimism and self-efficacy positively influence attitudes toward change. The findings of Meria et al. (2023) reinforce the view that psychological capital, as a positive feeling and belief, helps individuals better prepare for the challenges that accompany change, and with this capital, individuals are more driven to complete tasks well.

After the COVID-19 pandemic, a period when every sector of life underwent change, psychological capital became increasingly necessary (Sastaviana, 2022). Lecturers with high psychological capital are confident that they can adapt to changes in educational technology. They have high expectations regarding their ability to complete new technology-related tasks. In addition, they are more likely to be resilient in learning new systems and technologies. Therefore, high psychological capital among lecturers will lead to higher performance (Luo et al., 2022).

When it comes to age group (generation), work engagement and psychological capital have different combined effects on lecturers' readiness to change. The results of this study show that readiness to change in Generation X is significantly influenced only by work engagement. Meanwhile, psychological capital does not significantly influence the readiness to change of Generation X lecturers. Based on the study's findings, work engagement influences lecturers' readiness to change by 36.7%. This shows that only work engagement contributes to readiness for change in Generation X lecturers. Meanwhile, psychological capital does not influence Generation X lecturers' readiness to change regarding the use of advanced technology. In addition, the findings of this study show that work engagement and psychological capital significantly influence the readiness to change of Generation Y lecturers, contributing by 26.1%. This shows that both psychological capital and work engagement influence Generation Y's readiness to change in using educational technology.

Based on this explanation, there are similarities and differences in the psychological dynamics of Generation X and Y lecturers in facing changes in their jobs. This occurs because each generational group exhibits different characteristics and behavioral patterns. As explained by Adatsi (2020), individuals from different generational groups will exhibit distinctive characteristics and values. They even have different personal motivations when it comes to facing adversity at work. This can lead to similar findings about the significant influence of work engagement on readiness for change for both Generations X and Y. On the other hand, psychological capital has a significant effect on readiness for change only in Generation Y, specifically in the context of educational technology use. Each generation has its own reasons for being ready and willing to adapt to change (Amalia, 2024; Jacobsen & Stüber, 2018).

When viewed from a generational perspective, this study shows that for both Generation X and Y lecturers, work engagement can influence readiness for change in the use of educational technology. Adatsi (2020) research shows that age (generation) does not significantly influence readiness for change. This indicates that both Generations X and Y recognize that change must be overcome to achieve optimal work results. In addition, these findings align with those of previous studies, which stated that engagement among Generations X and Y does not differ significantly (Amalia, 2024; Atieq, 2019).

Individuals in these two generations are enthusiastic, passionate, dedicated, and deeply committed to their work, but in different ways. Generation X shows a strong work ethic and enthusiasm to achieve job satisfaction, while Generation Y's work ethic and enthusiasm are driven by a desire to fulfill their rights and expectations. Loyalty and dedication in Generation X are part of their efforts to achieve financial security. Meanwhile, Generation Y demonstrates loyalty and dedication when the organization provides what they want and expect. These results align with those of previous studies, which show that Generation X is enthusiastic and passionate about achieving job satisfaction, particularly regarding financial security and independence (Krahn & Galambos, 2013; Lyons & Kuron, 2013). Meanwhile, Generation Y shows enthusiasm and passion for achieving job satisfaction through a supportive work environment, as well as personal growth and feedback (Bencsik & Machova, 2016; Krahn & Galambos, 2013; Lyons & Kuron, 2013; Twenge et al., 2010).

Table 6
Results of Multiple Linear Regression Analysis for Generations X and Y

	Generation X			Generation Y		
Predictor	Estimate	SE	p	Estimate	SE	p
Work Engagement	.612	.146	.000	.239	.112	.001
Psychological Capital	-.007	.143	.959	.266	.102	.008
R-Square	.367	.085	.010	.261	.097	.022

The differences in factors influencing readiness for change between Generations X and Y can be explained in several ways. First, Generation Y is more open to change, so they are more committed to following through with change (Jacobsen & Stüber, 2018). They draw on all their internal characteristics, including psychological capital, to meet these demands. As explained by Dudija and Rahma (2023), psychological capital affects the mental health of Generation Y as they prepare for change. Attributes of psychological capital, i.e., self-efficacy, hope, optimism, and resilience, will help them maintain good mental health. This enables them to deal with change in the work environment.

Generation Y is also more aware of the importance of technology that can support and develop their potential in the workplace. This generation is more willing to adopt and engage with new technology than Generation X (Polański & Ochocińska, 2024). Such adaptability can help shape a more optimistic perspective among Generation Y lecturers and better prepare them to use new technologies in education.

Unlike Generation Y, in this study, Generation X required less psychological capital in facing change. Generation X is less resistant to change due to their longer working period and experience with various changes, which has resulted in Generation X lecturers feeling satisfied and accustomed to change (Kemeng & Gwandure, 2017). In addition, Generation X has more psychological capital than Generation Y (Sweet et al., 2017). Thus, it is possible that Generation X, which already has stronger psychological capital, no longer needs psychological capital to influence their readiness for change when using educational technology.

Limitations

However, this study has several limitations that subsequent studies can address. The limitations of this study are related mainly to the sampling method (convenience sampling), which limits its generalizability to the entire lecturer population in Indonesia. In addition, because more participants came from state universities than from private universities, the results of this study may more accurately reflect the conditions and dynamics of state universities than those of private universities.

Conclusion

Work engagement and psychological capital simultaneously influence lecturers' readiness for change regarding the use of educational technology. The two independent variables have a significant influence on readiness for change among Generation Y lecturers, but the results differ slightly for Generation X lecturers, among whom only work engagement influences readiness for change in educational technology use. The psychological capital variable does not significantly influence readiness for change among Generation X lecturers.

The results of this study can serve as a reference for higher education administrators to increase the readiness for change of Generation X and Y lecturers. Providing psychological capital training can help increase work engagement (Santoso, 2020) among Generation Y lecturers. Hopefully, this will have a positive impact on readiness to face changes in technology use. Job crafting training can also be provided to Generation X and Y lecturers to increase work engagement (Aprilinda & Sahrah, 2022). This training is expected to better prepare Generation X and Y lecturers for changes in educational technology.

In terms of theory, this study provides empirical evidence that work engagement and psychological capital can predict readiness for change, but with different dynamics in Generations X and Y. Therefore, to prepare human resources who are capable and ready to adapt to changes in educational technology, concrete support can be provided in the form of training programs that enhance work engagement and psychological capital, which, in turn, will boost readiness for change.

Recommendation

Further research could analyze the influence of each aspect of work engagement and psychological capital on readiness for change in Generations X and Y regarding technology use. In addition, universities should recognize and consider the patterns and adjustments of each generation as they face these changes. This effort is expected to make lecturers more prepared and adaptive.

This study has weaknesses in terms of its sampling technique, namely, convenience sampling. The use of this technique limits the generalizability of the research findings. Most of the research participants were lecturers at state universities, so the results cannot be generalized to all lecturers in Indonesia, especially those at private universities. Future research should pay more attention to sample distribution to provide a more representative explanation of the readiness for change of Indonesian lecturers in utilizing educational technology.

Declaration

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Authors' Contributions

AF: Conceptualization, Writing, Review and editing, Supervision, Funding acquisition. RSA: Conceptualization, Methodology, Validation, Formal Analysis, Data Curation, Writing original draft preparation, Writing, review and editing. EFFEF: Conceptualization, Methodology, Validation, Formal Analysis, Data Curation, Writing original draft preparation, Writing review and editing. HH: Conceptualization, Methodology, Validation, Formal Analysis, Data Curation, Writing original draft preparation, Writing review and editing.

Conflict of Interest

The authors declare that there are no potential conflicts of interest, whether financial or non-financial, that could have influenced the research, authorship, or publication of this article.

Declaration of Generative AI in Scientific Writing

The authors acknowledge the use of artificial intelligence (AI) tools, namely, Gemini, during the preparation of this manuscript. All AI-generated content was reviewed, verified, and edited by the authors, who assume full responsibility for the originality, accuracy, and academic integrity of the work.

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