

Digital skills and work readiness: unveiling the mediating effect of digital self-efficacy

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Abstract

This study examines the effect of Digital Skills (DS) on Digital Work Readiness (DWR) among youth, emphasizing the mediating role of Digital Self-Efficacy (DSE). It highlights the importance of linking technical competence with psychological empowerment to prepare young jobseekers for a rapidly digitalized labour market. In Yogyakarta, Indonesia, 185 respondents between the ages of 18 and 35 participated in a quantitative survey. PLS-SEM was used to analyze the data and test the suggested correlations. The findings show that whereas DS has no direct effect on DWR, it considerably raises DSE. Rather, DSE completely mediates the association between DS and DWR, implying that to improve employability, digital competencies must be paired with confidence in utilizing technology.

Keywords: Digital Skills, Digital Work Readiness, Digital Self-Efficacy.

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Abstrak

Penelitian ini mengkaji pengaruh Digital Skills (DS) terhadap Digital Work Readiness (DWR) pada kalangan pemuda, dengan menekankan peran mediasi Digital Self-Efficacy (DSE). Penelitian ini menyoroti pentingnya menghubungkan kompetensi teknis dengan pemberdayaan psikologis guna mempersiapkan pencari kerja muda menghadapi pasar tenaga kerja yang semakin terdigitalisasi. Penelitian ini menggunakan survei kuantitatif dengan 185 responden berusia 18–35 tahun di Yogyakarta, Indonesia. Data dianalisis menggunakan Partial Least Squares Structural Equation Modeling (PLS-SEM) untuk menguji hubungan yang diajukan. Hasil penelitian menunjukkan bahwa DS berpengaruh signifikan terhadap peningkatan DSE, namun tidak secara langsung memengaruhi DWR. Sebaliknya, DSE sepenuhnya memediasi hubungan antara DS dan DWR. Hal ini mengindikasikan bahwa kompetensi digital perlu disertai dengan keyakinan dalam menggunakan teknologi agar dapat meningkatkan daya saing kerja.

Kata Kunci: Digital Skills, Digital Work Readiness, Digital Self-Efficacy

1. Introduction

Digital transformation has emerged as one of the most disruptive forces reshaping the global labour market in the twenty-first century (Tenney, 2024). Rapid technological change is not only altering organizational structures and workflows but also redefining job categories, transforming work relationships, and heightening the demand for adaptive and multidimensional competencies (Gomber et al., 2018; Śledziowska & Włoch, 2021; Suhada, 2024). Flexible arrangements such as remote work have demonstrated the inclusivity of digital economies, offering access to previously marginalized groups (Dettling, 2017; Shukla et al., 2021). Yet, these benefits coincide with escalating competency expectations, creating a dual challenge: expanding opportunities but also intensifying demands for readiness (Lent, 2018; Li, 2024). Among its most visible manifestations is the global surge of teleworking, which has blurred the spatial boundaries of employment.

Global labour markets are being reshaped by the rapid rate of digital revolution, which presents both fundamental constraints and previously unheard-of opportunities. Nearly 50% of workers globally would need to retrain by 2025, according to the World Economic Forum (2024), with technology accounting for one-third of future competencies (Rehman et al., 2024; Li, 2024). Beyond sustaining internal labour markets, a strong digital ecosystem enhances service exports and global economic integration (Hanna, 2018; Ahi et al., 2023). In this context, digital skills (DS) are not merely technical assets but foundational requirements for employability and competitiveness. The ability to leverage digital tools effectively determines both individual career trajectories and organizational innovation (Mannila et al., 2018; Yuan et al., 2024; Bejaković & Mrnjavac, 2020). Furthermore, there is a shortage of skilled digital workers even though the country's digital economy is expected to grow to USD 360 billion by 2030 (Google–Temasek e-Conomy SEA Report, 2024). According to Gayatri et al. (2022), between 2021 and 2025, Indonesia is expected to experience an annual surplus of roughly 600,000 digital labor arrivals. Therefore, job opportunities will grow more constrained and will not be able to extend into global labor markets, which can be done remotely, if training programs continue to focus primarily on fundamental technical abilities.

Despite the critical importance of DS, digital work readiness (DWR)—defined as the preparedness to engage effectively in digital work environments, remains uneven, especially among youth. Young workers, including graduates and entry-level employees, frequently face a mismatch between technical training and workplace application (Mkhize & Reddy, 2025). While

training programs proliferate, they often fail to foster the psychological confidence required for effective digital engagement (Aguirre & Olis, 2025). Digital self-efficacy (DSE), defined as individuals' belief in their ability to use digital platforms successfully, has been shown to shape not only adoption but also persistence and success in digital work (Bejarano et al., 2022; Ibrahim & Aldawsari, 2023; Tomczak et al., 2023; NA et al., 2024; Tee et al., 2024). However, DSE is influenced by structural factors such as government programs and local policy support (Chen et al., 2021; Bejaković & Mrnjavac, 2020). While prior studies have examined DS, DSE, and DWR separately, few have integrated them into a comprehensive framework. This gap is especially pressing in Indonesia, where the youth demographic (18–35 years old) is critical for digital economic growth but remains underserved by educational and labour systems.

This study addresses the research gap by developing an integrated model to analyse the role of DS in enhancing DWR, with DSE positioned as a mediating variable. By focusing on Indonesian youth, the study extends prior research concentrated in European contexts, such as DS scale validation (Audrin et al., 2024; Suhada et al., 2024), and advances the understanding of DSE from an academic perspective to practical workforce readiness (Ibrahim & Aldawsari, 2023; Tomczak et al., 2023; NA et al., 2024). Moreover, the study adapts established frameworks such as DigComp and PIAAC, locally validated for Yogyakarta's youth, ensuring both contextual and methodological rigor (Laver et al., 2012; Blank & Schmidt, 2022).

This study provides useful insights for workforce development and the creation of digital policies in addition to its theoretical contribution. To help young workers succeed in remote and hybrid contexts, educational institutions are anticipated to use the findings to inform the development of integrated curriculum that combine technical knowledge with psychological empowerment (Hybrid Learning Environments, 2012; Mohanty et al., 2025). Policymakers and industry stakeholders can also use the model to create focused interventions that boost the competence and confidence of Indonesia's developing digital workforce, like mentorship programs, digital literacy accelerators, and training that increases self-efficacy.

2. Theoretical Background and Hypothesis

Digital Skill

Digital skills (DS), which include both fundamental and advanced talents that enable people to use information and communication technology effectively across professional and social contexts, are becoming more and more acknowledged as a fundamental prerequisite in the digital age. Information and data literacy, communication and cooperation, digital content production, safety, and problem-solving are the five core domains into which the European Commission (2013) divides DS. From a different angle, DS are also seen as crucial skills for becoming employable in the digital age, which includes the ability to use networks, digital technology, and communication tools (Van Deursen *et al.*, 2016). When it comes to strategic capability, DS is the capacity to use digital technologies to accomplish both task execution and more general organizational goal (Yoo & Jang, 2023). This idea is further refined by measurement-based methods; a thorough analysis found eight essential DS dimensions: digital well-being, communication and teamwork, cybersecurity, technology use, content management, critical thinking, responsibility, identity and development, and digital well-being (Audrin et al., 2024).

New research shows that the influence of DS on DWR is very context-specific, changing based on age groups, sectoral demands, and the degree of institutional support (Leesakul et al., 2022; Audrin *et al.*, 2024). As a result, whereas DS are clearly necessary and essential in today's labour markets, their ability to promote DWR rests on context-sensitive training interventions that are adapted to the difficulties of digital transformation.

Digital Self efficacy

A person's confidence in their ability to use digital tools and technology efficiently is known as digital self-efficacy, or DSE. (Banoglu et al., 2015; Pajares & Urdan, 2007; Yoo & Jang, 2023). The idea, which has its roots in Bandura's (1997) theory of self-efficacy, has been expanded to tackle the difficulties associated with digitization. Strong evidence from earlier research suggests that DSE mediates the relationship between digital skills and a number of outcomes, including performance and preparedness for the workforce (Yu, 2022; Briones et al., 2023; Afari et al., 2023). Importantly, if people lack confidence in using their digital skills, having them alone does not ensure that they will perform at their best at work. Their contributions usually go unappreciated in these situations. DSE is therefore a crucial psychological facilitator that transforms digital competencies into productive professional behaviours. (Rezai et al., 2024; Liu et al., 2024).

Digital Work Readiness

The term "digital work readiness" (DWR) refers to how well people can adjust, participate, and continue to be productive in a digital workplace (Sulistyohati et al., 2022). According to Renta-Davids et al. (2016), DWR encompasses psychological and behavioural aspects such as confidence, adaptability, and digital learning experiences in addition to technical expertise. Bridgstock (2009) further highlights the close relationship between DWR and lifelong learning and digital literacy, which serve as essential skills for meeting the changing needs of the labour market.

Digital preparedness is also significantly shaped by external factors. Important enablers have been found to include things like access to technology, organizational digital culture, and organized training initiatives (Jewapatarakul & Ueasangkomsate, 2024; Suhada & Muafi, 2024). Therefore, DWR involves not only personal knowledge and abilities but also the infrastructure needed to successfully incorporate digital technologies into routine work procedures (Boc et al., 2023; Rahmat et al., 2024).

The Impact Digital Skills on Digital Self-Efficacy

Enhancing one's digital skills through education and real-world experience has a significant impact on one's growing digital self-confidence (Mannila *et al.*, 2018). This occurs because proficient technology users cultivate a good self-perception, which encourages individuals to be more involved and confident in digital environments (Bellini *et al.*, 2016; Cosby *et al.*, 2023). It has been shown that those with high levels of self-efficacy and digital competency are better able to adapt to technological advances and confidently navigate digital challenges (Rosales-Márquez *et al.*, 2025).

H1: Digital skills have a positive and significant effect on Digital Self-Efficacy.

Digital Skills' Effect on Digital Work Readiness

One of the most important indicators of workforce readiness for the Fourth and Fifth Industrial Revolutions is digital skills, which also predict digital work readiness (Panjaitan *et al.*, 2024). Additionally, studies conducted in the tourist industry show a discrepancy between the digital capabilities of graduates and industry demands, underscoring the crucial role that digital skills play in determining digital work readiness (Stylianou & Pericleous, 2025). It has been shown that Digital Work Readiness (DWR) is positively and significantly impacted by Digital Self-Efficacy (DSE) (Arpasi Bejarano et al., 2022; Tee et al., 2024). Digital literacy, hard skills, and soft skills significantly contribute to the work readiness of IT students, accounting for up to 94.3% of the influence. (Sulistyohati et al., 2022). Additionally, some research have shown that digital skills

and digital work preparedness are positively correlated (Rahmat et al., 2024). The proposal of Hypothesis H2 is based on theory and the results of earlier studies.

H2: Digital skills have a positive and significant impact on digital work readiness.

The Impact of Digital Self Efficacy on Digital Work Readiness

Digital Self-Efficacy, which is characterized as a person's confidence in their capacity to use digital technology efficiently, is seen as a powerful predictor of Digital labor Readiness in the age of digital labor. Numerous scholarly investigations have indicated that in the digital age, self-efficacy positively impacts work readiness (Rahmat *et al.*, 2024). Self-efficacy has a significant positive effect on work readiness among tourism students in Bali, Indonesia. (Eagle *et al.*, 2022). Self-efficacy enhances job readiness by analyzing the connection between emotional control, distant social skills, and digital self-efficacy (Tramontano *et al.*, 2021). Considering current theories and earlier study findings, hypothesis H3 is put forth.

H3: Digital Self-Efficacy has a positive and significant effect on digital work readiness.

Digital Self Efficacy as Mediator

Digital sales preparation has a favorable impact on digital literacy, which in turn boosts self-efficacy (NA et al., 2024). Previous research has also looked at the relationship between digital skills and academic accomplishment and self-efficacy, highlighting the mediating function of self-efficacy in these relationships (Ibrahim & Aldawsari, 2023; Tomczak *et al.*, 2023).

H4: Digital Self-Efficacy (DSE) significantly mediates the relationship between Digital Skills (DS) and Digital Work Readiness (DWR).

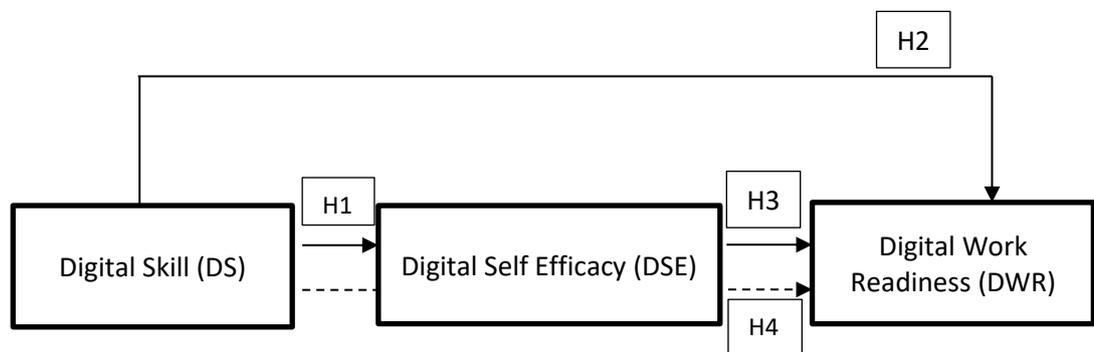


Figure 1. Research Model

3. Methodology

To examine the connections between DS, DSE, and DWR, this study uses an explanatory quantitative research approach using Partial Least Squares Structural Equation Modeling (PLS-SEM). The study, which was carried out in Yogyakarta, Indonesia, in 2025, focused on people who were in the process of moving from school to the workforce. Structured questionnaires that were given to participants both online and offline were used to gather data. Young people between the ages of 18 and 35 make up the demographic of interest, and the sample size of 185 respondents is mainly made up of recent graduates and final-year students. To guarantee the inclusion of participants who are actively involved in digital contexts pertinent to work preparedness, purposeful sampling was used. The selected sample size above the PLS-SEM minimum requirement, which suggests a threshold of 10 times the number of observed indicators.

Sample and procedures

To reflect those who are most likely to encounter digital transformation during their career entry process, the respondents were chosen using purposive sampling. There were 185 valid replies in all, which sufficiently satisfy the methodological specifications for PLS-SEM analysis. To increase accessibility and response rates, a combination of offline paper-based surveys and online distribution through Google Forms was used to deliver the questionnaires. Throughout the whole research procedure, ethical principles like informed permission, voluntary participation, and answer anonymity were closely adhered to.

Measurement

Responses were recorded on a Likert scale, and all constructs were evaluated using multi-item instruments modified from previously validated scales. Sixteen statement items covering eight dimensions technology use, cybersecurity, critical inquiry, communication and collaboration, digital well-being, ethics and social responsibility, environment, and identity and development were used to evaluate digital skills (DS). These items were developed by Audrin et al. (2024). Eight items representing information and data literacy, teamwork and communication, digital content creation, and problem-solving were used to gauge digital self-efficacy (DSE); these items were modified from Laver et al. (2012) and Ulfert-Blank & Schmidt (2022). Seven statement items based on Nikolaev et al. (2020), Boc et al. (2023), and Rahmat et al. (2024) were used to measure digital work readiness (DWR), which is the capacity to use digital technology into work procedures. The five criteria used to assess Digital Government Support (DGS) were taken from Chen et al. (2021) and Bejaković & Mrnjavac (2020) and were connected to technological infrastructure, digital incentives, policy and regulatory frameworks, and skill development programs.

Data Analysis Technique

The collected data were analyzed using PLS-SEM, as it is suitable for testing complex structural models and handling latent variables with multiple indicators. Prior to hypothesis testing, measurement model evaluation was conducted to assess indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. Subsequently, and the structural model was examined through path coefficients, R^2 values, effect sizes (f^2), predictive relevance (Q^2). Bootstrapping with 5,000 resamples was applied to assess the significance of hypothesized relationships. This rigorous procedure ensures robust empirical evidence to support the proposed research framework.

4. Results and Discussion

Descriptive analysis

Table 1 displays the demographic information of the 185 respondents. Of the sample, 41% were men and 59% were women. A youthful population actively pursuing higher education, and the early stages of career advancement is shown by the fact that the largest age group was between the ages of 22 and 25 (34.05%), followed by those between the ages of 18 and 21 (28.11%).

Regarding occupation and education, most respondents (64.32%) held a bachelor's degree, followed by those who had completed senior high school (32.43%) and those who had earned a master's degree (5.22%). Additionally, 61% were students and 39% were working, ensuring a balance between academic and professional experiences. Because it indicates a generation whose self-efficacy and digital skills significantly impact their ability to satisfy the goals of the research, this demographic profile is crucial for analysing the research variables. Of

the sample, 41% were men and 59% were women. A youthful population actively pursuing higher education, and the early stages of career advancement is shown by the fact that the largest age group was between the ages of 22 and 25 (34.05%), followed by those between the ages of 18 and 21 (28.11%).

Table 1. Descriptive Analysis

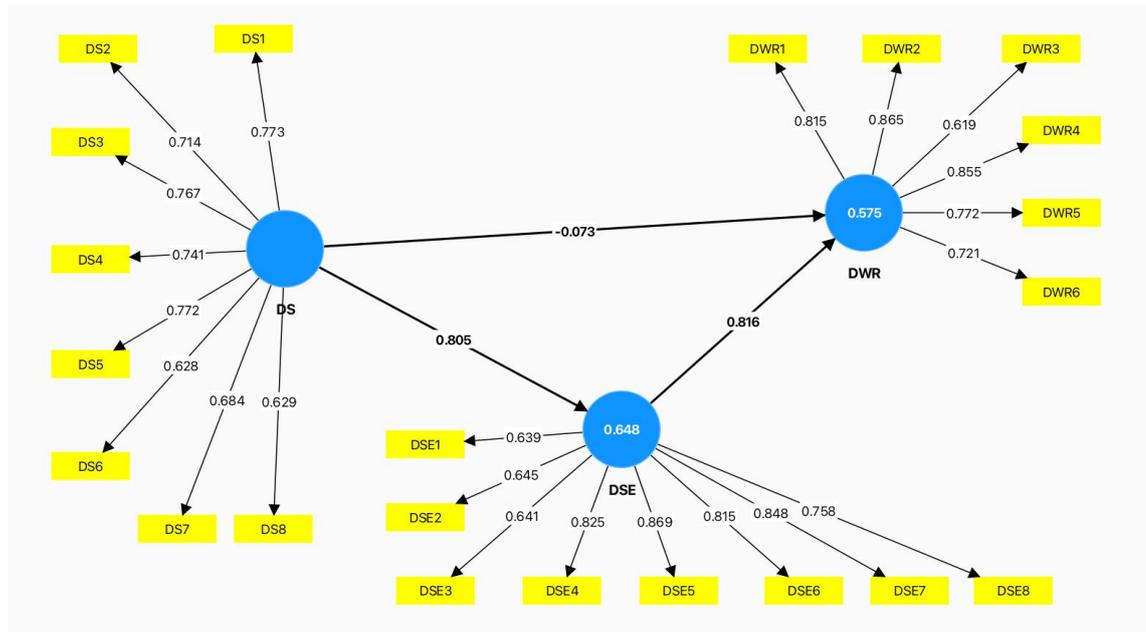
<i>Characteristic</i>	<i>Criteria</i>	<i>Amount</i>	<i>Percentage (%)</i>
<i>Gender</i>	Man	75	41%
	Woman	110	59%
Total		185	
<i>Age</i>	18–21 Years	52	28,11%
	22–25 Years	63	34,05%
	26–30 Years	41	22,16%
	31–35 Years	29	15,68%
Total		185	
<i>Education</i>	Senior High School	60	32,43%
	Bachelor	119	64,32%
	Master	6	5,22%
Total		185	
<i>Status</i>	Student	115	61%
	Employee	70	39%
Total		185	

Source: Processed by the author (2025)

Measurement Model Evaluation

Outer model evaluation

The outer loadings analysis yielded values ranging from 0.619 to 0.869. A number of indicators in Digital Skills (0.628) and Digital Work Readiness (0.619) were kept since the Composite Reliability (CR) and Average Variance Extracted (AVE) still met the necessary standards. Cronbach's Alpha ratings between 0.862 and 0.901 and CR values between 0.863 and 0.915, which all exceeded the suggested cut-off value of 0.70, indicated good construct dependability. Additionally, convergent validity was attained because each construct could account for over 50% of the variance of its indicators, as indicated by AVE values ranging from 0.512 to 0.607.



Source: Processed by the author (2025)

Figure 1 Outer loading

The Heterotrait–Monotrait Ratio (HTMT) provided additional evidence of discriminant validity, with all values staying below the cautious cutoff of 0.90. However, the construct pairs for Digital Skills–Digital Self-Efficacy (0.890) and Digital Self-Efficacy–Digital Work Readiness (0.857) were comparatively high, indicating a close conceptual relationship that is still acceptable. The Digital Skills–Digital Work Readiness pair, on the other hand, demonstrated a moderate degree of distinction (0.664). The measuring model's overall validity and reliability were adequate, indicating that the constructs may be used in the inner model analysis.

Table 3. Reliability and validity of the measures

No	Variable	Outer loadings	CA	CR	AVE	Heterotrait–monotrait ratio (HTMT) ^a		
						1	2	3
1	DS	0.628-0.767	0.862	0.863	0.512	-		
2	DWR	0.619-0.85	0.867	0.878	0.607	0.664		
3	DSE	0.639-0.869	0.901	0.915	0.579	0.89	0.857	

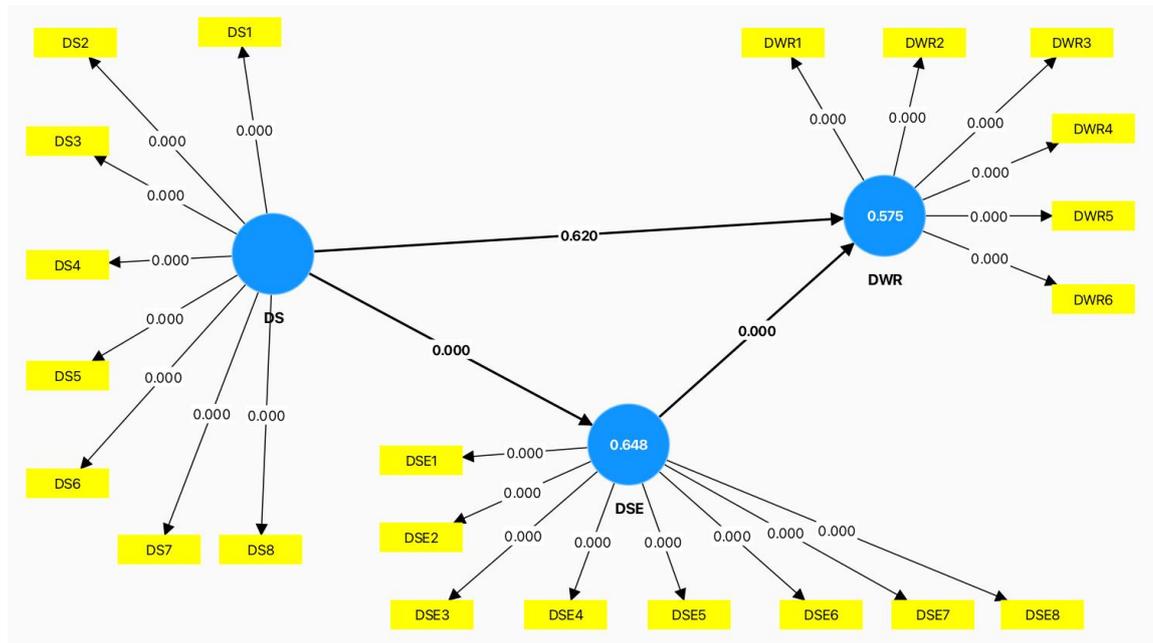
Source: Processed by the author (2025)

Notes: DS = digital skill; DWR = digital work readiness; DSE= digital self-efficacy; CA = Cronbach's alpha; CR = Composite reliability; AVE = Average variance explained

Inner model evaluation

A path coefficient of $\beta = 0.805$, t -value = 18.979, and $p < 0.001$ indicated that DS had a strong, positive, and significant effect on DSE, according to the Smart PLS analysis. The significant influence of DS in influencing DSE was demonstrated by the extremely large effect size ($F^2 = 1.838$). Additionally, DS was shown to be predictively relevant ($Q^2 = 0.363$) and explained 64.8% of the variance in DSE ($R^2 = 0.648$). Conversely, the effect size was insignificant ($F^2 = 0.004$) and the direct association between DS and DWR was not significant ($\beta = 0.073$, $t = 0.495$, $p = 0.620$).

However, the model showed excellent predictive relevance ($Q^2 = 0.462$) and explained 57.5% of the variance in DWR ($R^2 = 0.575$).



Source: Processed by the author (2025)
Figure 2 Inner Model

Additionally, the results showed that DSE had a substantial impact size ($F^2 = 0.552$) and a positive and significant influence on DWR ($\beta = 0.816$, $t = 5.946$, $p < 0.001$), highlighting the critical role that DSE plays in improving digital work readiness. Crucially, the indirect effect of DS on DWR via DSE was similarly significant ($\beta = 0.656$, $t = 6.088$, $p < 0.001$), indicating that DSE is the primary mediator of DS's influence on DWR. Overall, the structural model demonstrated robust predictive relevance ($Q^2 = 0.363-0.462$) and excellent explanatory power ($R^2 = 0.648$ for DSE and $R^2 = 0.575$ for DWR), offering significant empirical support for DSE's mediating role in the link between DS and DWR.

Table 4. Structural model results

	β	<i>SD</i>	<i>t-value</i>	<i>p-value</i>	F^2	R^2 square	Q^2
Direct effect							
DS -> DSE	0.805	0.042	18.979	0.000	1.838	0.648	0.363
DS -> DWR	0.073	0.147	0.495	0.620	0.004	0.575	0.462
DSE -> DWR	0.816	0.137	5.946	0.000	0.552		0.450
Indirect effect							
DS -> DSE -> DWR	0.656	0.108	6.088	0.000			

Source: Processed by the author (2025)

Notes: DS = digital skill; DWR = digital work readiness; DSE= digital self-efficacy

Discussion

The Impact of Digital Skills on Digital Self-Efficacy

The results indicate that Digital Skills (DS) have a strong, positive, and significant effect on Digital Self-Efficacy (DSE) ($\beta = 0.805$, $t = 18.979$, $p < 0.001$). The large effect size ($F^2 = 1.838$) suggests that higher levels of digital competence substantially enhance individuals' confidence in using technology. This finding reinforces the argument that technical mastery is not only a functional skillset but also a psychological resource that empowers individuals to engage effectively with digital environments. Similar conclusions were reached by Mannila et al. (2018), Bellini et al. (2016), and Cosby et al. (2023), who emphasized that formal digital training and hands-on practice significantly strengthen self-efficacy in technology adoption.

In the context of Yogyakarta, where digital transformation is evident in MSMEs, tourism, and higher education, such skills provide a foundation for building technological confidence (Hsu et al., 2025; Rosales-Márquez et al., 2025). Therefore, H1 is strongly supported, affirming that digital competence acts as a catalyst for self-belief, a prerequisite for thriving in a technology-driven labour market.

The Impact of Digital Skills on Digital Work Readiness

Contrary to expectations, the direct relationship between Digital Skills (DS) and Digital Work Readiness (DWR) was found to be statistically insignificant ($\beta = 0.073$, $t = 0.495$, $p = 0.620$), with a negligible effect size ($F^2 = 0.004$). Although DS contributes to the explained variance in DWR ($R^2 = 0.575$), the lack of direct significance suggests that technical abilities alone do not guarantee readiness for digital-based employment. This finding diverges from several earlier studies (Panjaitan et al., 2024; Stylianou & Pericleous, 2025; Rahmat et al., 2024), which posited that digital competence directly enhances employability and job preparedness.

In the specific context of Yogyakarta's young workforce, this result underscores a critical insight: digital proficiency must be internalized through psychological mechanisms to translate into readiness. Youths may possess technical know-how, yet still lack the confidence or mindset required to apply those skills productively in professional settings. Thus, without strengthening DSE, the impact of DS on employability outcomes remains limited. Accordingly, H2 is not supported, reinforcing the notion that the mere acquisition of digital skills is insufficient to foster digital work readiness.

The Impact of Digital Self-Efficacy on Digital Work Readiness

The analysis further demonstrates that Digital Self-Efficacy (DSE) exerts a strong and significant influence on Digital Work Readiness (DWR) ($\beta = 0.816$, $t = 5.946$, $p < 0.001$), with a large effect size ($F^2 = 0.552$). This indicates that self-confidence in handling digital tools is a critical determinant of one's readiness to participate effectively in a digitalized workplace. The finding aligns with those of Rahmat et al. (2024), Eagle et al. (2022), and Tramontano et al. (2021), who found that higher self-efficacy correlates with better adaptability, persistence, and proactive engagement in technology-driven tasks.

For young jobseekers in Yogyakarta, this result has important implications: psychological empowerment amplifies the practical benefits of technical competence. When individuals believe in their capacity to use technology effectively, they are more likely to embrace innovation, solve problems digitally, and maintain motivation in complex work environments. Therefore, H3 is supported, highlighting DSE as a pivotal factor in shaping digital work readiness.

Digital Self-Efficacy as Mediator

The mediation analysis confirms that DSE significantly mediates the relationship between DS and DWR ($\beta = 0.656$, $t = 6.088$, $p < 0.001$). This full mediation indicates that digital competence improves work readiness only when individuals internalize those skills through heightened self-efficacy. In other words, technical skills must be accompanied by confidence and psychological readiness to generate employability outcomes.

This result aligns with Ibrahim and Aldawsari (2023), Tomczak et al. (2023), and NA et al. (2024), who found that the success of digital capacity-building initiatives depends heavily on individuals' belief in their ability to apply what they have learned. The finding contributes to the ongoing discourse on youth employability in the digital era by unveiling the mediating mechanism that bridges skill acquisition and work preparedness.

Practically, this suggests that digital education and workforce training should integrate psychological components such as mentoring, experiential learning, and mastery experiences to build confidence alongside skills. Conceptually, it supports the theoretical proposition that digital self-efficacy serves as the psychological conduit through which digital competence translates into readiness for employment. Consequently, H4 is supported, confirming that the synergy between technical and psychological empowerment is essential for preparing youth to thrive in the digital labour market.

5. Conclusion

This study advances an integrative model of Digital Work Readiness (DWR) by revealing the interconnected roles of Digital Skills (DS) and Digital Self-Efficacy (DSE). The findings show that DS significantly enhance DSE, and DSE, in turn, strongly predicts DWR. However, the absence of a direct relationship between DS and DWR indicates that technical competence alone is insufficient; rather, the internalization of these skills through strengthened self-efficacy is essential for shaping digital readiness. This highlights that effective digital empowerment requires not only skill acquisition but also psychological confidence, suggesting that educational and training programs should combine digital competence development with strategies that build self-efficacy to prepare youth for the digital workforce.

Limitations

Although this research offers valuable insights, several limitations should be acknowledged. First, the data were collected within the socio-economic and technological context of Yogyakarta, which may restrict the generalizability of the findings to regions with different levels of digital infrastructure and labour market dynamics. Second, the cross-sectional design limits the ability to capture the evolution of DS, DSE, and DWR over time. Future studies could therefore employ longitudinal or experimental methods to better examine causality and developmental processes.

Another limitation lies in the reliance on self-reported measures, which are vulnerable to social desirability bias and respondents' subjective self-assessments. Incorporating objective, performance-based measures of digital competence would provide a more robust evaluation. Finally, while this study focused primarily on DS and DSE, other institutional and contextual factors such as government digital support, workplace culture, or organizational resources were not examined. Including such factors could yield a more comprehensive understanding of the drivers of digital work readiness.

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