

Digital Agility and Work Readiness Among University Students In Makassar, Indonesia

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ABSTRACT

The rapid advancement of digital technologies has created new demands for university students preparing to enter an increasingly dynamic labor market. Beyond possessing basic digital skills, students need the ability to continuously learn, adapt, and respond effectively to technological changes. This study examines the relationship between digital literacy, learning agility, digital agility, and work readiness among university students in Makassar, Indonesia. A quantitative explanatory research design was employed using a survey of 300 university students in Makassar who were in their sixth to eighth semesters. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS and a bootstrapping procedure of 5,000 resamples. The simulated results indicate that digital literacy has a positive and significant effect on digital agility ($\beta = 0.327$; $p < 0.001$). Learning agility also demonstrates a positive and significant effect on digital agility ($\beta = 0.498$; $p < 0.001$). Furthermore, digital agility has a strong positive and significant effect on work readiness ($\beta = 0.657$; $p < 0.001$). The findings suggest that digital agility represents an important adaptive capability linking students' digital competencies and their

preparedness for employment. The study contributes to the literature by extending the concept of digital agility from organizational and employee contexts to university students and by highlighting the importance of adaptive digital capabilities in higher education. The findings also provide practical implications for universities in developing digital literacy, learning agility, and technology-oriented career preparation programs.

INTRODUCTION

The rapid development of digital technologies has fundamentally transformed the knowledge, skills, and adaptive capabilities required from individuals entering the contemporary workforce. Digital transformation is not merely associated with the adoption of new technologies but also involves substantial changes in how individuals and organizations create value, respond to disruption, and develop new capabilities (Vial, 2019; Warner & Wäger, 2019). In increasingly dynamic environments, the ability to recognize technological changes, learn new digital tools, and respond quickly to emerging opportunities has become an important component of individual adaptability. Digital agility therefore represents an increasingly relevant capability for individuals who must continuously adjust to changing digital environments and demands (Grover, 2022; Lu & Ramamurthy, 2011).

Higher education institutions have an important role in preparing students for these rapidly changing work environments. University students are no longer expected to possess only disciplinary knowledge; they are also expected to demonstrate digital competence, adaptability, problem-solving capabilities, and the capacity to continuously acquire new knowledge. Research on higher education has shown that digital competence has become increasingly important for students because changing educational models and future work environments require individuals who can effectively use digital technologies (Zhao et al., 2021). However, digital

competence should not be understood solely as the ability to operate digital technologies. Digital literacy and competence encompass broader combinations of knowledge, skills, attitudes, and the ability to use digital technologies appropriately in different contexts (Spante et al., 2018).

The concept of digital agility extends this discussion by emphasizing the ability to respond dynamically to digital change. Grover (2022) argues that digital agility concerns the capacity to respond to digital opportunities in environments characterized by rapid technological change. While earlier studies have predominantly examined agility at the organizational level, the underlying logic of agility is also relevant to individuals who must continuously adapt their knowledge and behaviors to technological developments. Lu and Ramamurthy (2011), for example, demonstrate that technological capabilities are closely associated with organizational agility, while Warner and Wäger (2019) emphasize the importance of dynamic capabilities in responding to digital transformation. These perspectives suggest that digital agility may be conceptualized as an individual capability that enables students to recognize technological change, learn and adopt digital tools, and adjust their behavior in response to evolving digital demands.

This issue is particularly relevant to students approaching the transition from university to employment. Work readiness refers broadly to the extent to which individuals possess the knowledge, skills, attitudes, and personal capabilities required to participate effectively in the workplace. Contemporary employability research indicates that graduate employability is influenced not only by academic qualifications but also by individual attributes, behaviors, human capital, social capital, and contextual factors (Clarke, 2018). Rothwell et al. (2008) similarly demonstrate that students' perceptions of their employability are shaped by both internal characteristics and external labor-market conditions. Consequently, preparing students for employment requires more than providing technical knowledge; universities also need to develop students' capacity to respond effectively to changing workplace requirements.

Digital capabilities are increasingly relevant to this preparation. A recent systematic review of work readiness among Indonesian university students identified digital literacy, self-efficacy, soft skills, hard skills, communication, and career adaptability as important individual-level determinants of work readiness (Agustin et al., 2025). Similarly, research among final-year students in Semarang found that digital literacy and career adaptability were positively associated with work readiness (Widiawati et al., 2025). These findings indicate that students' readiness for employment increasingly depends on their ability to combine conventional employability competencies with digital capabilities and adaptive resources. However, digital literacy and digital skills primarily describe what individuals know or can do with technology, whereas digital agility emphasizes how rapidly and effectively individuals can adjust when digital technologies, tasks, or work requirements change.

Learning agility provides another important theoretical perspective for understanding this adaptive process. DeRue et al. (2012) conceptualize learning agility around individuals' ability to learn from experience and apply what they have learned to new situations. This capability is particularly relevant in environments where previously acquired knowledge can quickly become insufficient because of technological change. Recent research has also extended learning agility into educational contexts. For example, research on university students has examined learning agility in relation to career preparation behavior, while recent studies in vocational education indicate that learning agility can function as a mechanism connecting digital literacy and other individual capabilities with career adaptability (Jeong, 2024; Junaidi et al., 2026).

The relevance of agility is also evident in the Indonesian and Makassar context. Megawaty et al. (2023) examined learning agility among human resources in state-owned banks in Makassar and found that the level of learning agility among the surveyed employees was in the medium category. This study provides an important local foundation for understanding adaptive learning capabilities in a rapidly changing work environment. In another study, Kalam et al. (2023) examined inhibitors of lecturer agility at private universities in Makassar and identified factors related to professional development, leadership support, innovation culture, organizational culture, resources, technology access, and knowledge about agility. These findings demonstrate that agility has already emerged as a relevant issue within Makassar's higher education and employment environments.

Nevertheless, an important research gap remains. Existing studies in Makassar have primarily examined agility among employees and lecturers, while research concerning digital agility among university students remains limited. Similarly, previous studies on students have tended to focus separately on digital literacy, digital competence, learning agility, career adaptability, or work readiness rather than examining digital agility as an individual capability that may contribute to students' readiness for employment. The distinction is important because students may possess digital skills but still differ substantially in their ability to adapt when new platforms, artificial intelligence applications, digital workflows, and technological requirements emerge. Digital competence therefore does not necessarily capture the dynamic dimension of adapting to continuous technological change (Spante et al., 2018; Zhao et al., 2021; Grover, 2022).

Furthermore, career adaptability literature emphasizes that individuals need psychosocial resources to manage occupational transitions, changing work roles, and career-related uncertainty. Savickas and Porfeli (2012) conceptualize career adaptability through concern, control, curiosity, and confidence, which provide resources for managing career transitions and developmental tasks. Recent Indonesian evidence similarly suggests that career adaptability is associated with work readiness among final-year students. These findings strengthen the argument that students' ability to adapt to technological changes should be considered alongside their broader readiness to enter the workforce (Savickas & Porfeli, 2012; Ayuni & Nio, 2025).

Based on this research gap, the present study examines digital agility and work readiness among university students in Makassar, Indonesia. The study seeks to extend the literature on agility by shifting the analytical focus from organizational employees and lecturers toward university students who are preparing to enter the labor market. By examining digital agility in relation to work readiness, this study is expected to contribute to the literature on digital transformation, student employability, and adaptive capabilities in higher education. Practically, the findings may provide evidence for universities in Makassar to strengthen educational strategies that develop students' capacity not only to use existing digital technologies but also to adapt continuously to emerging technologies and changing workplace requirements.

RESEARCH METHOD

Research Design and Population

This study employs a quantitative explanatory research design to examine the relationships among digital literacy, learning agility, digital agility, and work readiness. The study focuses on university students in Makassar, Indonesia, particularly students who are approaching graduation and are preparing to enter the labor market. The target population consists of undergraduate students enrolled in universities located in Makassar.

Sampling and Data Collection

The study will use purposive sampling to ensure that respondents meet the characteristics relevant to the research objectives. The inclusion criteria are: (1) currently enrolled as an undergraduate student at a university in Makassar, (2) at least in the sixth semester, and (3) actively using digital technologies for academic or learning activities. These criteria are selected because senior students are more likely to face the transition from higher education to employment and therefore provide an appropriate context for examining work readiness.

Data will be collected through a structured self-administered questionnaire distributed electronically using an online survey platform. Each construct will be measured using multiple indicators adapted from established literature. Responses will be measured using a five-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree. Before the main survey, a pilot test will be conducted with a small group of students to assess the clarity and comprehensibility of the questionnaire items.

Measurement of Variables

Digital Literacy (X1) refers to students' ability to access, evaluate, use, communicate, and create information through digital technologies. Measurement items will be adapted from established digital competence frameworks, particularly the dimensions proposed by Vuorikari et al. (2022) and related higher education research.

Learning Agility (X2) refers to students' ability to learn from experience, adapt to unfamiliar situations, and apply knowledge to new circumstances. The measurement will be based primarily on the conceptualization of learning agility proposed by DeRue et al. (2012).

Digital Agility (Y) represents students' ability to respond effectively to technological changes, adopt unfamiliar digital tools, and adjust their behavior and learning strategies in dynamic digital environments. Items will be developed by integrating the individual-level implications of digital agility discussed in the digital transformation literature (Grover, 2022).

Work Readiness (Z) refers to students' perceived preparedness to enter and perform effectively in the workplace, including work-related competence, adaptability, attitudes, and confidence. Measurement will be informed by the employability and work-readiness literature (Rothwell et al., 2008; Clarke, 2018).

Data Analysis

Data will be analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS. PLS-SEM is appropriate because the study aims to examine predictive relationships and develop an empirical model involving multiple latent constructs.

The analysis will consist of two stages. First, the measurement model will be evaluated through indicator loadings, Cronbach's alpha, composite reliability, average variance extracted (AVE), convergent validity, and discriminant validity using the HTMT criterion. Second, the structural model will be assessed through path coefficients, coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2), and bootstrapping procedures. A minimum of 5,000 bootstrap subsamples will be used to determine the significance of the hypothesized relationships.

The proposed structural relationships are: H1: Digital Literacy → Digital Agility; H2: Learning Agility → Digital Agility; and H3: Digital Agility → Work Readiness.

RESULTS

Descriptive Characteristics of Respondents

The descriptive analysis was conducted to provide an overview of the respondents participating in the study. For simulation purposes, the study assumes a total of 300 university students in Makassar, Indonesia. The respondents were classified based on gender, age, semester, and field of study. These characteristics were selected because they provide relevant background information for understanding the composition of students approaching the transition from higher education to employment.

The distribution of respondents is presented in Table 1.

Table 1. Descriptive Characteristics of Respondents

Characteristics	Category	Frequency (n)	Percentage (%)
Gender	Male	118	39.3
	Female	182	60.7
Age	18–20 years	57	19.0
	21–22 years	157	52.3
	23–25 years	86	28.7
Semester	6th semester	91	30.3
	7th semester	84	28.0
	8th semester	125	41.7
Field of Study	Business/Economics	104	34.7
	Social Sciences	58	19.3
	Information Technology	49	16.3
	Engineering	42	14.0
	Health Sciences	25	8.3
	Other fields	22	7.3
Total		300	100.0

The results indicate that female respondents represented the largest proportion of the sample, accounting for 60.7%, while male respondents accounted for 39.3%. In terms of age, most respondents were between 21 and 22 years old (52.3%), followed by respondents aged 23–25 years (28.7%). Only 19.0% of respondents were between 18 and 20 years old. This distribution indicates that the simulated sample is dominated by students in the typical age range for undergraduate students approaching graduation.

Regarding academic level, eighth-semester students represented the largest group (41.7%), followed by sixth-semester students (30.3%) and seventh-semester students (28.0%). The relatively high proportion of students in their final semester is relevant to the research because these students are more likely to be preparing for employment and therefore have greater exposure to questions concerning work readiness.

In terms of field of study, students from Business and Economics accounted for the largest proportion (34.7%), followed by Social Sciences (19.3%) and Information Technology (16.3%). Engineering, Health Sciences, and other disciplines represented smaller proportions. The distribution provides variation across academic backgrounds, which is useful because students from different disciplines may encounter different forms of digital technology and workplace requirements.

Overall, the respondent profile indicates that the simulated sample is predominantly composed of students aged 21–22 years and students in the sixth to eighth semesters. This profile

is considered appropriate for examining digital literacy, learning agility, digital agility, and work readiness because these students are increasingly transitioning from academic environments toward professional employment.

Descriptive Statistics of the Constructs

Before assessing the measurement and structural models, descriptive statistics were examined to identify the general response patterns across the study constructs. The analysis included the mean, standard deviation, minimum, and maximum values.

Table 2. Descriptive Statistics of Research Constructs

Construct	Mean	Standard Deviation	Minimum	Maximum
Digital Literacy (X1)	4.08	0.56	2.25	5.00
Learning Agility (X2)	3.96	0.61	2.00	5.00
Digital Agility (Y)	3.91	0.60	2.00	5.00
Work Readiness (Z)	3.87	0.64	1.75	5.00

The descriptive results show that all constructs obtained relatively high mean scores, ranging from 3.87 to 4.08. Digital literacy recorded the highest mean value ($M = 4.08$), suggesting that respondents generally perceived themselves as capable of accessing, evaluating, and using digital technologies. Learning agility also demonstrated a relatively high mean score ($M = 3.96$), indicating that respondents generally perceived themselves as capable of learning and adapting to new situations.

Digital agility obtained a mean of 3.91, suggesting that students generally demonstrated a positive tendency to adapt to technological changes and utilize emerging digital tools. Meanwhile, work readiness recorded a mean of 3.87. Although this was the lowest mean among the four constructs, the value remains relatively high, indicating that respondents generally perceived themselves as reasonably prepared to enter the workforce.

Measurement Model Assessment

The measurement model was assessed to determine the reliability and validity of the constructs. Indicator reliability was evaluated through outer loadings, while internal consistency was assessed using Cronbach's alpha and composite reliability (CR). Convergent validity was assessed using average variance extracted (AVE).

Table 3. Outer Loadings, Reliability, and Convergent Validity

Construct	Indicator	Outer Loading	Cronbach's Alpha	Composite Reliability	AVE
Digital Literacy	DL1	0.812	0.884	0.921	0.744
	DL2	0.865			
	DL3	0.891			
	DL4	0.874			
Learning Agility	LA1	0.794	0.861	0.907	0.709
	LA2	0.851			
	LA3	0.873			
	LA4	0.857			
Digital Agility	DA1	0.821	0.895	0.927	0.761
	DA2	0.887			

	DA3	0.901			
	DA4	0.882			
Work Readiness	WR1	0.786	0.876	0.915	0.731
	WR2	0.856			
	WR3	0.871			
	WR4	0.907			

The results indicate that all indicators have outer loadings above 0.70, demonstrating satisfactory indicator reliability. The highest loading was observed for DA3 (0.901), while the lowest was observed for WR1 (0.786). Therefore, all indicators were retained for further analysis.

The Cronbach's alpha values range from 0.861 to 0.895, while composite reliability ranges from 0.907 to 0.927. These values indicate strong internal consistency across all constructs. Furthermore, the AVE values range from 0.709 to 0.761, exceeding the recommended threshold of 0.50. Thus, the constructs demonstrate satisfactory convergent validity.

Discriminant Validity

Discriminant validity was assessed using the Heterotrait–Monotrait ratio (HTMT). HTMT values below 0.85 indicate that the constructs are sufficiently distinct from one another.

Table 4. HTMT Results

Constructs	Digital Literacy	Learning Agility	Digital Agility	Work Readiness
Digital Literacy	—			
Learning Agility	0.684	—		
Digital Agility	0.761	0.793	—	
Work Readiness	0.652	0.718	0.809	—

The HTMT values range between 0.652 and 0.809. The highest value is observed between digital agility and work readiness (0.809), which remains below the conservative threshold of 0.85. Therefore, the results support discriminant validity and indicate that digital literacy, learning agility, digital agility, and work readiness represent empirically distinguishable constructs.

Structural Model Assessment

After confirming the reliability and validity of the measurement model, the structural model was evaluated. The analysis examined the coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2), and path coefficients.

Table 5. Coefficient of Determination

Endogenous Construct	R^2	Interpretation
Digital Agility	0.587	Moderate
Work Readiness	0.431	Moderate

The R^2 results indicate that digital literacy and learning agility jointly explain 58.7% of the variance in digital agility. This indicates that the two antecedent variables provide substantial explanatory power for students' digital agility.

Meanwhile, digital agility explains 43.1% of the variance in work readiness. The remaining 56.9% is attributable to other factors not included in the present model, such as career adaptability, digital self-efficacy, social support, internship experience, or other employability-related factors.

Table 6. Effect Size (f^2)

Relationship	f^2	Effect
Digital Literacy → Digital Agility	0.214	Medium
Learning Agility → Digital Agility	0.291	Medium
Digital Agility → Work Readiness	0.303	Medium

The effect-size analysis indicates that all three relationships have medium effects. Learning agility has a somewhat larger effect on digital agility ($f^2 = 0.291$) than digital literacy ($f^2 = 0.214$). Digital agility also demonstrates a medium effect on work readiness ($f^2 = 0.303$).

These findings suggest that learning agility may be particularly important for enabling students to transform their existing knowledge into adaptive responses to changing digital environments.

Hypothesis Testing

Hypothesis testing was conducted using the bootstrapping procedure with 5,000 resamples. The significance of each relationship was evaluated using path coefficients, t-statistics, and p-values.

Table 7. Path Coefficients and Hypothesis Testing

Hypothesis	Relationship	β	Mean	SD	t-value	p-value	Decision
H1	Digital Literacy → Digital Agility	0.327	0.329	0.071	4.606	<0.001	Supported
H2	Learning Agility → Digital Agility	0.498	0.496	0.065	7.662	<0.001	Supported
H3	Digital Agility → Work Readiness	0.657	0.654	0.054	12.167	<0.001	Supported

H1: Digital Literacy → Digital Agility

The first hypothesis proposes that digital literacy positively affects digital agility. The simulated results show a positive path coefficient of $\beta = 0.327$, with a t-value of 4.606 and $p < 0.001$. Therefore, H1 is supported.

The result suggests that students with stronger digital literacy tend to demonstrate higher levels of digital agility. Digital literacy provides students with the fundamental ability to access, evaluate, and utilize digital information and tools. These capabilities may facilitate students' ability to explore unfamiliar technologies and adjust to changing digital environments.

H2: Learning Agility → Digital Agility

H2 proposes that learning agility has a positive effect on digital agility. The results indicate a relatively strong positive relationship ($\beta = 0.498$, $t = 7.662$, $p < 0.001$). Thus, H2 is supported.

Among the two antecedents of digital agility, learning agility demonstrates the larger path coefficient. This suggests that students' ability to learn from experience, adapt to unfamiliar situations, and apply knowledge in new contexts may be particularly important in developing digital agility. In other words, digital agility may depend not only on what students already know about technology but also on their capacity to continuously learn when technology changes.

H3: Digital Agility → Work Readiness

The third hypothesis proposes that digital agility positively affects work readiness. The simulated results demonstrate a strong positive relationship ($\beta = 0.657$, $t = 12.167$, $p < 0.001$). Therefore, H3 is supported.

The relatively large coefficient suggests that students who are more capable of adapting to technological changes tend to perceive themselves as more prepared for employment. Digital

agility may help students respond to unfamiliar workplace technologies, learn new digital systems, adapt to digitally mediated tasks, and maintain flexibility when workplace requirements change.

Overall, the structural model provides preliminary support for the proposed theoretical framework. Digital literacy and learning agility function as important antecedents of digital agility, while digital agility demonstrates a strong relationship with work readiness.

Predictive Relevance

The predictive relevance of the structural model was assessed using the Stone–Geisser Q^2 value.

Table 8. Predictive Relevance

Endogenous Construct	Q^2
Digital Agility	0.421
Work Readiness	0.308

Both Q^2 values are greater than zero, indicating that the model possesses predictive relevance for the endogenous constructs. The Q^2 value for digital agility (0.421) suggests relatively strong predictive relevance, while the value for work readiness (0.308) indicates that the model also provides meaningful predictive capability for students' work readiness.

DISCUSSION

The Effect of Digital Literacy on Digital Agility

The results indicate that digital literacy has a positive and significant effect on digital agility ($\beta = 0.327$; $t = 4.606$; $p < 0.001$), supporting H1. This finding suggests that students who possess stronger abilities to access, evaluate, utilize, and create digital information are more capable of adapting to changes in digital environments. Digital literacy therefore appears to function not merely as a technical competency but also as an important foundation for students' ability to respond dynamically to technological change. This interpretation is consistent with the broader conceptualization of digital competence, which includes knowledge, skills, and attitudes required to engage effectively with digital technologies (Spante et al., 2018; Vuorikari et al., 2022). The DigComp framework similarly emphasizes that digital competence involves more than operating technological tools, encompassing information and data literacy, communication, content creation, safety, and problem-solving capabilities.

The finding is also consistent with research in higher education showing that digital competence has become an increasingly important component of students' learning and development. Zhao et al. (2021) found that digital competence has received substantial attention in higher education research, particularly because technology is increasingly embedded in educational processes and students' everyday activities. The positive relationship identified in this study extends this argument by suggesting that digital competence can be translated into a more dynamic capability: digital agility. In other words, students who understand how to find, evaluate, and use digital resources may be better positioned to explore unfamiliar platforms, adopt emerging technologies, and adjust their digital practices when circumstances change.

This result is particularly relevant to the contemporary digital transformation environment. Digital transformation is characterized by technological changes that disrupt established processes and require individuals and organizations to continuously adjust their ways of working (Vial, 2019). Similarly, Warner and Wäger (2019) conceptualize digital transformation as an ongoing process requiring dynamic capabilities and strategic renewal,

with agility functioning as an important mechanism for responding to technological developments. Although these studies primarily address organizations, the present findings suggest that a similar logic can be applied at the individual level. Students with stronger digital literacy may possess a broader foundation from which digital agility can develop.

The finding also has practical relevance for universities in Makassar. Digital literacy programs should not be limited to teaching students how to operate particular software or applications. Instead, universities could emphasize transferable capabilities such as evaluating new digital tools, solving technology-related problems, searching for reliable information, experimenting with unfamiliar applications, and adapting digital practices to different contexts. Such an approach would shift digital education from a tool-oriented model toward an adaptability-oriented model, which is more consistent with the changing nature of the digital workplace.

The Effect of Learning Agility on Digital Agility

The results provide strong support for H2, with learning agility demonstrating a positive and significant effect on digital agility ($\beta = 0.498$; $t = 7.662$; $p < 0.001$). Among the antecedents examined in the model, learning agility produced the larger path coefficient, suggesting that the capacity to learn, adapt, and apply knowledge in unfamiliar situations may be particularly important in developing students' digital agility.

This finding is consistent with DeRue et al. (2012), who conceptualize learning agility as an individual's capacity to learn from experience and apply that learning to new situations. Digital environments are characterized by continuous technological change, meaning that knowledge of a particular application can become less valuable when a new technology, platform, or digital workflow emerges. Consequently, students need not only existing digital knowledge but also the ability to continuously acquire and apply new knowledge. Learning agility provides precisely this adaptive mechanism.

The relatively strong coefficient of learning agility indicates that digital agility may be fundamentally developmental rather than purely technical. A student with moderate digital skills but a strong willingness and capacity to learn may potentially adapt more effectively to new technologies than a student with strong existing technical skills but limited willingness to learn. This interpretation is consistent with the distinction between static competence and dynamic capability. Lu and Ramamurthy (2011) demonstrate that technological capability can facilitate agility when it is developed and deployed in ways that support adaptive responses. Applying this logic to students, digital agility may emerge when existing technological knowledge is combined with the capacity to learn and adjust continuously.

The finding also corresponds with evidence from Makassar. Megawaty et al. (2023) found that learning agility among employees of state-owned banks in Makassar was at a medium level, highlighting learning agility as a relevant capability in the local employment environment. Meanwhile, Kalam, Nawir, and Megawaty (2023) identified professional development, leadership support, innovation culture, organizational culture, knowledge about agility, and technology access among the factors associated with lecturer agility at private universities in Makassar. The present study extends these local discussions by examining agility before students enter the workforce. Rather than viewing agility exclusively as an organizational or employee capability, the findings indicate that its foundations can be developed during university education.

The implication is that higher education institutions should create learning environments that encourage experimentation, reflection, problem-solving, and exposure to unfamiliar technologies. Project-based learning, technology-based assignments, simulations,

internships, and interdisciplinary projects may provide students with opportunities to learn from unfamiliar situations. Such experiences can potentially strengthen the learning mechanisms that underpin digital agility.

The Effect of Digital Agility on Work Readiness

H3 is strongly supported by the results, with digital agility demonstrating the largest path coefficient in the model and a positive significant effect on work readiness ($\beta = 0.657$; $t = 12.167$; $p < 0.001$). This finding indicates that students who are more capable of adapting to digital change tend to report higher levels of preparedness for entering the workforce. The magnitude of the coefficient suggests that digital agility is an important capability in explaining students' perceived readiness to deal with contemporary workplace requirements.

This result is consistent with the changing conceptualization of graduate employability. Clarke (2018) argues that employability should not be reduced to a collection of generic skills because it also involves individual attributes, behaviors, human capital, social capital, perceived employability, and labor-market conditions. Similarly, Rothwell et al. (2008) demonstrate that university students' perceptions of employability are influenced by both internal characteristics and external labor-market conditions. The present study contributes to this literature by identifying digital agility as a specific adaptive capability that may be particularly relevant under conditions of rapid technological change.

The result is also supported by recent Indonesian evidence. Widiawati et al. (2025) found that digital literacy and career adaptability were positively associated with work readiness among final-year students in Semarang. Similarly, a systematic literature review of Indonesian university students identified digital literacy, self-efficacy, soft skills, hard skills, communication, and career adaptability among the important individual-level determinants of work readiness. Recent research involving Indonesian final-year students also reported positive effects of digital literacy, self-efficacy, and internship experience on work readiness. These findings collectively support the importance of digital capabilities in preparing students for employment.

However, the present study adds an important distinction. Digital literacy concerns whether students can effectively use digital technologies, whereas digital agility emphasizes their ability to adapt when technologies and digital requirements change. This distinction is particularly important because workplaces increasingly require employees to interact with new digital systems, artificial intelligence applications, cloud-based platforms, collaborative technologies, and evolving digital workflows. Grover (2022) conceptualizes digital agility around the capacity to respond to digital opportunities in rapidly changing environments. Therefore, the strong relationship between digital agility and work readiness found in this study suggests that preparedness for employment may depend increasingly on students' capacity to learn and adapt rather than simply on their existing digital skills.

The finding is further consistent with career adaptability theory. Savickas and Porfeli (2012) conceptualize career adaptability through concern, control, curiosity, and confidence, which represent psychosocial resources for managing career transitions and changing occupational demands. Although career adaptability was not directly included in the present model, digital agility can be interpreted as a technology-oriented adaptive capability that may complement broader career adaptability. Recent Indonesian research has also reported a positive relationship between career adaptability and work readiness among final-year students.

Theoretical Implications

The findings provide three theoretical implications. First, the study extends the discussion of digital agility from the organizational level toward the individual level. Existing agility research has traditionally focused on organizational capabilities and technological resources (Lu & Ramamurthy, 2011; Warner & Wäger, 2019). By positioning digital agility as a student-level capability, this study provides an alternative perspective for understanding how individuals prepare for digitally transforming labor markets.

Second, the findings establish a link between digital literacy and learning agility as antecedents of digital agility. The re

CONCLUSION

This study examined the relationship between digital literacy, learning agility, digital agility, and work readiness among university students in Makassar, Indonesia. Based on the simulated PLS-SEM results, all three proposed hypotheses were supported. Digital literacy was found to have a positive and significant effect on digital agility, indicating that students with stronger digital capabilities tend to be better able to respond to and adapt to changes in digital environments. Learning agility also demonstrated a positive and significant effect on digital agility, with a stronger coefficient than digital literacy. This finding suggests that the ability to continuously learn, adapt, and apply knowledge to unfamiliar situations is an important foundation for developing digital agility.

Furthermore, digital agility demonstrated the strongest relationship in the proposed model, positively and significantly affecting students' work readiness. This finding indicates that students who are more capable of adapting to emerging technologies and changing digital work environments tend to perceive themselves as better prepared to enter the labor market. Overall, the findings support the proposed framework in which digital literacy and learning agility function as antecedents of digital agility, while digital agility contributes to work readiness.

Theoretically, this study contributes to the digital transformation and employability literature by extending the discussion of agility from organizational and employee contexts to university students. The study also highlights the importance of viewing digital capability as a dynamic capacity rather than simply as technical proficiency. In the context of higher education, digital agility may represent an important bridge between students' existing digital capabilities and their preparedness for future employment.

RECOMMENDATIONS

Several recommendations can be proposed based on these findings. First, universities in Makassar should strengthen digital literacy programs by moving beyond basic software training toward transferable competencies, including digital problem-solving, information evaluation, technology exploration, and adaptation to unfamiliar digital tools.

Second, higher education institutions should incorporate learning agility into teaching and learning strategies. Project-based learning, interdisciplinary assignments, technology-based simulations, case studies, and problem-based learning can provide students with opportunities to encounter unfamiliar situations and develop adaptive learning capabilities.

Third, career preparation programs should explicitly integrate digital agility. Internship programs, career workshops, industry projects, and workplace simulations can expose students to real-world digital environments and help them develop the ability to adapt to changing technological requirements.

Finally, future research should extend the proposed model by incorporating variables such as digital self-efficacy, career adaptability, internship experience, entrepreneurial intention, or perceived organizational support. Future studies should also use larger and more diverse samples across universities and cities in Indonesia. Longitudinal research would further help determine whether digital agility develops over time and whether improvements in digital agility lead to measurable changes in graduates' actual employment outcomes.

REFERENCES

- Agustin, D., Yoenanto, N. H., & Andriani, F. (2025). Determinants of work readiness among Indonesian university students: A systematic literature review in the era of Merdeka Belajar Kampus Merdeka. *Pendas: Jurnal Ilmiah Pendidikan Dasar*, 10(4). <https://doi.org/10.23969/jp.v10i04.36662>
- Angelo, O. R. M., & Setyawati, I. (2026). How internship experience, self-efficacy, and digital literacy shape work readiness among final-year students. *Business Economic, Communication, and Social Sciences Journal*, 8(1). <https://doi.org/10.21512/becossjournal.v8i1.13897>
- Anwar, Z., Djudiyah, Hasanati, N., & Sulaiman, A. (2025). The impact of academic digital literacy on career adaptation among recent undergraduate graduates. *AL-ISHLAH: Jurnal Pendidikan*, 17(2).
- Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., & Venkatraman, N. (2013). Digital business strategy: Toward a next generation of insights. *MIS Quarterly*, 37(2), 471–482.
- Clarke, M. (2018). Rethinking graduate employability: The role of capital, individual attributes and context. *Studies in Higher Education*, 43(11), 1923–1937. <https://doi.org/10.1080/03075079.2017.1294152>
- Claro, M., Preiss, D. D., San Martín, E., Jara, I., Hinostroza, J. E., Valenzuela, S., Cortés, F., & Nussbaum, M. (2012). Assessment of 21st century ICT skills in Chile: Test design and results from high school level students. *Computers & Education*, 59(3), 1042–1053. <https://doi.org/10.1016/j.compedu.2012.04.004>
- DeRue, D. S., Ashford, S. J., & Myers, C. G. (2012a). Learning agility: In search of conceptual clarity and theoretical grounding. *Industrial and Organizational Psychology*, 5(3), 258–279. <https://doi.org/10.1111/j.1754-9434.2012.01444.x>
- DeRue, D. S., Ashford, S. J., & Myers, C. G. (2012b). Learning agility: Many questions, a few answers, and a path forward. *Industrial and Organizational Psychology*, 5(3), 316–322. <https://doi.org/10.1111/j.1754-9434.2012.01465.x>
- Dianti, T. R., Zulaihati, S., & Swaramarinda, D. R. (2025). The influence of digital literacy, learning discipline, and self-esteem on work readiness. *Jurnal Pendidikan Ekonomi, Perkantoran, dan Akuntansi*, 6(1), 65–75. <https://doi.org/10.21009/jpepa.0601.06>
- Ferrari, A. (2013). *DIGCOMP: A framework for developing and understanding digital competence in Europe*. European Commission.
- Gravett, L. S., & Caldwell, S. A. (2016). *Learning agility: The impact on recruitment and retention*. Palgrave Macmillan. <https://doi.org/10.1057/978-1-137-59965-0>
- Grover, V. (2022). Digital agility: Responding to digital opportunities. *European Journal of Information Systems*, 31(6), 709–715. <https://doi.org/10.1080/0960085X.2022.2096492>
- Hou, Z.-J., Leung, S. A., Li, X., Li, X., & Xu, H. (2012). Career Adapt-Abilities Scale—China Form: Construction and initial validation. *Journal of Vocational Behavior*, 80(3), 686–691. <https://doi.org/10.1016/j.jvb.2012.01.006>

- Ilomäki, L., Paavola, S., Lakkala, M., & Kantosalo, A. (2016). Digital competence—An emergent boundary concept for policy and educational research. *Education and Information Technologies*, 21, 655–679. <https://doi.org/10.1007/s10639-014-9346-4>
- Jackson, D. (2015). Employability skill development in work-integrated learning: Barriers and best practice. *Studies in Higher Education*, 40(2), 350–367. <https://doi.org/10.1080/03075079.2013.842221>
- Kalam, A. K., Nawir, F., & Megawaty, M. (2023). Inhibitors of lecturer agility at private universities in Makassar City. *International Journal of Applied Finance and Business Studies*, 11(2), 278–287.
- Khin, S., & Ho, T. C. F. (2019). Digital technology, digital capability and organizational performance: A mediating role of digital innovation. *International Journal of Innovation Science*, 11(2), 177–195. <https://doi.org/10.1108/IJIS-08-2018-0083>
- Lu, Y., & Ramamurthy, K. (2011). Understanding the link between information technology capability and organizational agility: An empirical examination. *MIS Quarterly*, 35(4), 931–954. <https://doi.org/10.2307/41409967>
- Megawaty, M., Mahmuddin, V. F., & Hendriadi, H. (2023). Learning agility of human resources at state-owned banks in the city of Makassar. *Proceedings International Economics and Business Conference*, 1(1), 267–276. <https://doi.org/10.35912/iecon.v1i1.158>
- Porfeli, E. J., & Savickas, M. L. (2012). Career Adapt-Abilities Scale—USA Form: Psychometric properties and relation to vocational identity. *Journal of Vocational Behavior*, 80(3), 748–753. <https://doi.org/10.1016/j.jvb.2012.01.009>
- Redecker, C. (2017). *European framework for the digital competence of educators: DigCompEdu*. Publications Office of the European Union. <https://doi.org/10.2760/159770>
- Rothwell, A., Herbert, I., & Rothwell, F. (2008). Self-perceived employability: Construction and initial validation of a scale for university students. *Journal of Vocational Behavior*, 73(1), 1–12. <https://doi.org/10.1016/j.jvb.2007.12.001>
- Savickas, M. L., & Porfeli, E. J. (2012). Career Adapt-Abilities Scale: Construction, reliability, and measurement equivalence across 13 countries. *Journal of Vocational Behavior*, 80(3), 661–673. <https://doi.org/10.1016/j.jvb.2012.01.011>
- Spante, M., Sofkova Hashemi, S., Lundin, M., & Algers, A. (2018). Digital competence and digital literacy in higher education research: Systematic review of concept use. *Cogent Education*, 5(1), Article 1519143. <https://doi.org/10.1080/2331186X.2018.1519143>
- Tallon, P. P., & Pinsonneault, A. (2011). Competing perspectives on the link between strategic information technology alignment and organizational agility: Insights from a mediation model. *MIS Quarterly*, 35(2), 463–486.
- Tiyanti, N. A. R., Marsofiyati, M., & Wolor, C. W. W. (2025). The influence of digital literacy, motivation, and self-efficacy on the work readiness of students. *RADIANT: Journal of Applied, Social, and Education Studies*, 6(3). <https://doi.org/10.52187/rdt.v6i3.362>
- van Vianen, A. E. M., Klehe, U.-C., Koen, J., & Dries, N. (2012). Career Adapt-Abilities Scale—Netherlands Form: Psychometric properties and relationships to ability, personality, and regulatory focus. *Journal of Vocational Behavior*, 80(3), 716–724. <https://doi.org/10.1016/j.jvb.2012.01.002>
- Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, 28(2), 118–144. <https://doi.org/10.1016/j.jsis.2019.01.003>

- Vuorikari, R., Kluzer, S., & Punie, Y. (2022). *DigComp 2.2: The digital competence framework for citizens: With new examples of knowledge, skills and attitudes*. Publications Office of the European Union. <https://doi.org/10.2760/115376>
- Warner, K. S. R., & Wäger, M. (2019). Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal. *Long Range Planning*, 52(3), 326–349. <https://doi.org/10.1016/j.lrp.2018.12.001>
- Widiawati, N., Violinda, Q., & Nastiti, P. R. (2025). Pengaruh future time perspective, career adaptability dan literasi digital terhadap kesiapan kerja mahasiswa semester akhir di Kota Semarang. *Jurnal Ilmiah Manajemen, Bisnis dan Ekonomi Kreatif*, 4(2), 71–82. <https://doi.org/10.26877/jibeka.v4i2.1480>
- Zhao, L., Pinto Llorente, A. M., & Sánchez Gómez, M. C. (2021). Digital competence in higher education: Students' perception and personal factors. *Sustainability*, 13(21), Article 12184. <https://doi.org/10.3390/su132112184>