Journal of Research Administration
Society of Research Administrators International

THE IMPACT OF DIGITAL SKILLS ON THE PERCEIVED EMPLOYABILITY OF YOUTH

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Abstract

Digital technology has become an essential part of almost every aspect of our lives, especially for young people in Vietnam. Digital technology provides opportunities as well as challenges for Vietnamese youth. With its potential to improve education and academic outcomes, digital technology can help enhance the skills and knowledge of Vietnamese youth. However, the explosion of digital technology has also created new challenges. In a rapidly developing digital technology landscape, digital skills play an increasingly important role in youth's employability. This study aims to explore the impact of digital skills on the perceived employability of Vietnamese youth. The research was conducted through a survey of 624 young people (aged 18–30 years old), who are young workers working at businesses operating in five fields: information technology, finance and banking, logistics, tourism, and retail. Research results show that all six digital skills, including digital device operating skills, information and data mining skills, communication and collaboration skills, digital content creation skills, problem-solving skills, and safety and security skills, have a strong influence on the perceived employability of Vietnamese youth. This has practical significance in proposing solutions to promote digital skills as well as establishing digital skills training programs and content for workers in general and Vietnamese youth in particular.

Keywords: Digital skills, employability, youth, job, human resource management

JEL codes: O15, E24, M12, J01, F66

1. INTRODUCTION

For young Vietnamese people, digital technology has become an essential element of their lives. Vietnamese adolescents now have access to more sophisticated and complicated digital platforms than in the past due to the rapid advancement of digital technology. Digital technology has the ability to increase the significance and level of effort put into pursuing conventional and humanistic ideals, on the one hand. Numerous digital technology tools and applications are employed in education, enabling Vietnamese youngsters to have access to international educational materials, raise their educational attainment, and cultivate international talents. Vietnamese adolescents now have easier and faster access to updated information because to the

various advantages of digital technology. This aids in the socialization of Vietnamese adolescents, the enhancement of cultural diversity, and the acquisition of traditional and humanistic values. With digital technology, Vietnamese youth can quickly update and better prepare for their future.

The 4th Industrial Revolution (Industry 4.0) creates major changes in labor, giving rise to automation systems based on digital technology and smart robots. Industry 4.0 will gradually replace manual labor and many jobs for workers at different levels, depending on each industry. Labor in some occupations will decrease or even disappear, while it will increase or appear in some new occupations. On June 3, 2020, the Prime Minister issued Decision No. 749/QD-TTg approving the "National Digital Transformation Program to 2025, with an orientation to 2030." Vietnam's national digital transformation goal is to effectively build and implement a digital government, digital economy, and digital society. Digital transformation opens up unprecedented socio-economic development advantages for Vietnam. This is a comprehensive and qualitative change because it affects all subjects, including workers, businesses, and the government.

One of the important goals of digital transformation is to develop a digitally skilled workforce. It clearly states that the Vietnamese workforce must have digital capabilities and skills according to international standards and be able to apply digital technology fully and creatively at work. Specific targets are set for 2025, such as 50% of the workforce being re-skilled and up-skilled in ICT (10% in 2020). The plan is to train 1,000,000 more ICT experts, prioritizing new technologies such as AI, big data, cloud computing, and IoT (by 2020, reaching 300,000).

It can be seen that implementing national digital transformation with the above goals has set new requirements for workforce development. The workforce must meet new market demands. Workers, in addition to being equipped with professional knowledge and skills, must also be fully equipped with the necessary digital skills to adapt to the 4.0 Industrial Revolution and the requirements of digital transformation. Common activities for employees include data entry, data verification, image tagging, proofreading, and text transcription. While technology may replace workers in some jobs, it directly creates jobs in information technology and other industries.

This rapidly changing world requires a new set of skills for young workers. It is estimated that the number of roles requiring digital skills will increase by 12% by 2024. As companies' production and job demands continue to change rapidly, the youth labor supply needs to be able to adjust to meet these needs. Notably, young workers must commit to lifelong learning, where they continue to acquire skills and knowledge to remain relevant in the labor market. In 2017, Accenture developed a "New Skills Now" taxonomy to map the skills young people must have to remain competitive in the future. Therefore, equipping young people with digital skills will bring higher employment opportunities to Vietnamese youth.

2. THEORETICAL BASIS AND LITERATURE REVIEW

2.1. Digital skills

If the skills surveyed and identified by the World Economic Forum (WEF, 2020) are common skills for the workforce in the digital transformation era, the report "Skills for a Digital World" of the Organization for Economic Cooperation and Development focuses on digital skills and

provides important analysis (OECD, 2017). According to the OECD (2017), the increase in digital technology has driven up the demand for new skills—digital skills in three groups: (1) professional ICT skills for programming, application development, and network management; (2) general ICT skills for professional use; and (3) complementary ICT skills to perform new tasks related to the use of ICT in the workplace, such as information processing, self-direction, problem-solving, and communication.

A. Ferrari defines digital skills as the confident use of information technology for work, entertainment, learning, and communication. It is underpinned by skills in IT, i.e., the use of computers to retrieve, access, store, produce, present, and exchange information, communicate, and participate in collaborative networks through the Internet (Ferrari, 2013). Digital skills are the ability to use digital devices to perform activities such as data mining, communication and collaboration, digital content creation, problem-solving, and ensuring safety and security in the digital environment.

According to the UNESCO Institute for Statistics (2018), digital skills are defined as the ability to use digital devices, communication applications, and networks to access and manage information. They allow people to create and share digital content, communicate and collaborate, and solve problems to improve themselves effectively and creatively in life, study, work, and other social activities.

Every digital transformation process in an organization or business is related to and depends on the participants operating in the organization or business to form a value chain. The requirement to participate in the digital transformation process of organizations and businesses is that workers need to be trained in digital skills at least at a basic level, and depending on each position in that value chain, there are different skill requirements. Basic digital skills include technology skills (application of digital technology) and management skills (self-management and organizational management) appropriate to the requirements and level of digital transformation. Although both the fourth industrial revolution and digital transformation originate from technology, among the factors that determine success are human factors, institutional factors, and technological factors. In digital transformation, the human factor is the prerequisite and decisive factor because, without changes in human thinking and awareness, there cannot be digital transformation. Yen, D.T., believes that digital skills are the skills to search, evaluate, use, share, create content, solve problems, and secure information using information technology and the Internet. This includes basic and professional skills, as well as social and emotional skills, allowing workers to effectively use digital technology at work (Yen, 2021).

The importance of digital skills is demonstrated by the efforts of many countries and regions to develop and refine digital skills frameworks and strategies to strengthen these capacities in their citizens. UNESCO's survey in 47 countries shows that, in many cases, countries apply multiple digital skills frameworks at the same time to serve many different purposes (UNESCO, 2018). There are three digital skills frameworks developed by international businesses and organizations and applied in 43 countries: ICDL (International Computer Driving License) (applied in 31 countries), IC (Certiport Internet and Computing Core Certification) (applied in 13 countries), and

Microsoft's Digital Literacy Standard Curriculum (applied in 11 countries). Additionally, 11 countries have built their own digital skills frameworks, and 7 countries still apply the above international skills frameworks at the same time.

Based on the findings from in-depth and online consultations, UNESCO has proposed a version of the digital competence framework that complements the existing content of the European digital competence framework DigComp 2.0 (DigComp was developed by a team of experts and certified in Europe). The Digital Competency Framework aims to provide understanding and direction for developing digital competencies for citizens in Europe across competency areas (Information and Data Proficiency; Communication and Collaboration; Digital Content Creation; Safety; Problem Solving) within digital competencies and specific digital competencies corresponding to each scope that a citizen must have.

The UNESCO Institute for Statistics carried out a project to build a global reference framework for digital skills in 2018. By conducting actual research in 47 countries around the world on the economic situation, science and technology, and education levels, UNESCO developed a Digital Skills Framework, including seven main competency groups: Operating equipment and software; information and data mining; communication and collaboration; digital content creation; security; problem-solving; and career-related competencies.

Digital skills are a key component in the success of a digital society, including "the cognitive and social practical abilities needed to take advantage of and use a variety of media, information, and different technologies to gain advantages in unique and creative ways to optimize personal and business value" (Raskino & Waller, 2016). The Council of Australian University Librarians (CAUL) expands this definition to include active participation in all aspects of work and life in the digital world, so that people develop skills, knowledge, and understanding to help them live, study, and work in the digital society. CAUL has provided a definition of digital capabilities and built a digital capability framework based on the Joint Information Systems Committee (JISC) framework. This competency framework is for use in higher education institutions. Organizations and businesses can apply and adapt it when necessary (CAUL, 2015).

The research project of the Australian National Centre for Vocational Education Research (NCVER), developed by Gekara et al. (2019), identified a digital skills framework for the workforce that includes four categories, eight subsections, and 17 indicators.

Yen (2021) identifies an officially proposed digital skills framework including six skill groups and 20 specific skills: operating digital devices (2 skills), information exploitation and data skills (3 skills), communication and collaboration skills (3 skills), digital content creation skills (4 skills), problem-solving skills (4 skills), and safety and security skills (4 skills). This study approaches the digital skills framework developed by Yen (2021) and UNESCO (2018).

2.2. Perceived employability

The nature of the concept of employability has been widely debated in academic research, as many scholars have proposed a number of different but related definitions of employability (Forrier et

al., 2015; Fugate et al., 2021). However, research shows that employability is important, especially during the transition period after graduating from university and entering the labor market.

Employability represents the ability and opportunity, depending on individual resources and contextual conditions, to achieve or maintain meaningful, potentially fulfilling, sustainable employment (Clarke, 2018; Pool & Sewell, 2007; Fugate et al., 2004).

According to another approach, employability is the self-perceived ability and opportunity to attain employment appropriate to a worker's qualifications (Vanhercke et al., 2014). People may possess skills or have access to objectively favorable environmental conditions that make them more employable. If they do not have these skills or do not consider them important, it is difficult for that person to be hired (Silla et al., 2009). Thus, employability is seen as an outcome (or output) produced by both the individual and contextual (i.e., organizational and social) factors (or inputs), which are said to shape subjective perceptions of employability (Forrier et al., 2015; Vanhercke et al., 2014). In addition to these, the theoretical model of employability by Vanhercke et al. (2014) assumes that if organizations increase support and development of workers, those workers will increase their employability.

The concept of employability refers to how easy it is for someone to get a new job. Understood in this way, the concept of employability can be understood from the micro and macro perspectives of the labor market (Forrier & Sels, 2003). In a macro approach, employability is used to refer to government policies aimed at achieving full national employment. This also considers the health of the fetus (Anyfantis et al., 2021). In addition, employability is used as a measure of an organization's ambition to achieve flexibility in employment. In this sense, employability involves the managerial aspect of being able to match the labor demand side with the labor supply side. In other words, employability refers to the ability of companies to have the right number of workers with the right qualifications at any given time. To achieve this flexibility in organizations, it is argued that employees must have broader skills and knowledge (Berntson & Marklund, 2007). Employability can also be considered in relation to the individual. The first stage is when the individual, at any point in time, makes an effort to get a job and thus enter the labor market. During this period, employability refers to how individuals without stable employment in the labor market, such as the unemployed, disabled, or recent graduates, enter the labor market (Bricout & Bentley, 2000; Dan Finn, 2000; Harvey, 2010). In the second stage, individuals are primarily concerned with maintaining their employment, which requires being able to remain attractive to employers. Research shows that there is a link between the individualization of the labor market and workers' efforts to get hired (Jacobsson Kerstin & Garsten Christina, 2013). Finally, employability becomes even more important in the third stage. Some reasons that may cause workers to want to change jobs include career, income, family situation, organizational changes, and work environment.

According to Conservation of Resources (COR) theory (Hobfoll et al., 2018) and consistent with Vanhercke et al. (2014), we conceptualize employability as a personal resource. The COR theory states that individuals strive to acquire and maintain psychological resources to promote environmental control, resilience, and motivation. In short, employability creates a greater sense of confidence and control over the labor market through expertise acquired during working years

(Fugate et al., 2021; Rothwell & Arnold, 2007). The COR theory also states that existing resources are useful to acquire or develop further valuable resources (Halbesleben et al., 2014; Hobfoll et al., 2018). That is, resources such as employability can support the achievement of goals, such as maintaining a successful job search (Onyishi et al., 2015), and lead to higher-quality jobs (González-Romá et al., 2018). Rothwell & Arnold (2007) defined perceived employability as the perceived ability to achieve sustainable employment appropriate to one's qualifications. Perceived employability is also defined as an individual's perception or belief about the ease of finding a new job (Rothwell & Arnold, 2007). The perceived employability approach not only focuses on internal personal factors related to one's perception of one's own abilities and job search skills, but it also depends on external factors, such as individuals' perceptions of the impact of the job market, the importance of their degree, or the nature of the career they are pursuing (Botha, 2021).

In this study, employability is considered an individual's perception of the possibility of obtaining a new job. An individual with high employability thinks it will be easy to get a new job. For example, skills, attitudes, and contextual characteristics may be important determinants of perceived employability (Berntson & Marklund, 2007; Forrier & Sels, 2003).

2.3. Digital skills and perceived employability of young people

Several technological trends shape future job requirements. As artificial intelligence (AI) continues to develop, it will have far-reaching impacts on society and business. In the upcoming changes, many new ways in which firms can organize labor and capital can be anticipated (Rudko et al., 2021). As digital technology is rapidly evolving, the workforce needs to focus on job-transferable skills, as job stability can be maintained more by having employable skills that are transferable in the market, especially digital skills (Forrier & Sels, 2003).

Workers have high employability when they meet the requirements set forth by the business. Pirzada & Khan (2013) measured the relationship between digital skills and employability and compared the skills of employed and unemployed people. In this study, digital skills primarily refer to the skills needed to acquire, maintain, and excel in a job. The results show that all variables have a positive relationship with employability, more or less influencing the determination of the relationship between skills and work. However, communication skills and computer skills contribute more to increased employability. Particularly, the results of this study confirm that all mean variables are statistically significant in measuring the relationship between digital skills and employability. Most employers and students believe that communication skills are a priority in the workplace. Digital skills for life appear to guide education and training obligations. Skills training provides the foundation for enhancing advanced skills, thereby increasing employability.

One of the general skills considered important, especially in the current digital age, is technology application skills, or the ability to use computers and computer software to convert, securely store, protect, process, transmit, and restore information (Pitan, 2016). With the advancement of technology and the emergence of many applications and advanced machinery and equipment in every industry, workers are increasingly required to use technological skills. Gowsalya & Preetha (2021) affirmed that technology application skills have a great impact on career skills. Additionally, this result was also seen by Mohamad et al. (2018) when considering students'

awareness of required career skills. Technology application skills have become even more necessary and important for the perceived employability of students during the current 4.0 revolution (Berntson & Marklund, 2007).

Several other studies also suggest that the barrier to employment may be a lack of digital skills among individuals (Kee et al., 2023; Andreas & Koloba, 2015). Digital skills have a huge impact on employment, income, and, importantly, today's job market. Additionally, digital skill levels also increase workers' growth or job security (Räty et al., 2020). Digital skills are needed in every employment sector. Digital awareness is necessary for all employees, and technical skills are a requirement for those entering the labor market (Leahy et al., 2016).

With these meanings, the article raises research hypothesises including:

Hypothesis H1: Digital device operating skills have a positive influence on young people's perceived employability

Hypothesis H2. Information and data mining skills have a positive influence on young people's perceived employability.

Hypothesis H3. Communication and collaboration skills have a positive influence on young people's employability and perceived competence

Hypothesis H4. Digital content creation skills have a positive influence on young people's perceived employability

Hypothesis H5. Problem-solving skills have a positive influence on youth's perceived employability

Hypothesis H6. Safety and security skills have a positive influence on young people's perceived employability

3. RESEARCH METHODS

3.1. The scale

Digital Skills Scale

The digital skills scale is applied and adapted from previous research (Yen, 2021; UNESCO Institute for Statistics, 2018), including skills for digital device operating (4 items), information and data mining (4 items), communication and collaboration (5 items), digital content creation (4 items), problem-solving (4 items), and safety and security (4 items). To test the level of participants' digital skills, all responses on digital skills were measured on a 5-point Likert scale from 1 (very poor) to 5 (very good).

Table 1. Digital skills scale and scale origin

Encode	Skill	Origin of scale
KN1	**Digital equipment operating**	
KN11	Keyboard operation skills	
KN12	Skills in using Microsoft office	

KN13	Learn and adapt quickly to new technology (internet of things, artificial intelligence, robotics...)	Applying with adjustments from the scale of Yen, (2021; UNESCO Institute for Statistics, (2018)
KN14	Operate specialized digital technology, technology for a specific field	
KN2	**Information and data Mining**	
KN21	Skills to browse, search and filter information	
KN22	Information evaluation skills	
KN23	Data storage and retrieval skills	
KN24	Data, information and digital content management skills	
KN3	**Communication and collaboration**	
KN31	Communication and communication skills using digital technology	
KN32	Skills to share information and content via digital channels	
KN33	Skills for trading through digital channels	
KN34	Skills to engage in citizenship through digital technology	
KN35	Identity management skills	
KN4	**Digital content creation**	
KN41	Skills in creating and editing digital content	
KN42	Skills to convert and combine information and digital content	
KN43	Understand the licensing and copyright systems related to the digital content creation process.	
KN44	Programming skills	
KN5	**Problem solving**	
KN51	Troubleshooting/problem solving skills that arise when using digital technology	
KN52	Skills to identify technology issues and needs in the workplace	
KN53	Business and commercial thinking in a digital working environment	
KN54	Creative thinking and experimentation in the digital workplace	
KN6	**Safe and security**	
KN61	Equipment protection skills	
KN62	Personal data protection skills	
KN63	Health protection skills	
KN64	Environmental protection skills	

Perceived employability scale

The employability scale employed in this study was based on the scale developed by Berntson and Marklund (2007), consisting of five items. These indicators aim to clarify young people's perceptions of market demand, relationship networks, personal qualities, understanding of market information, and personal experience. Respondents marked their agreement on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Table 2. Perceived employability scale

Encode	Content	Origin of scale
PE1	My abilities are sought after in the labor market.	

PE2	I have a network that I can use to get a new (equivalent or better) job.	Applying the adjusted scale of Berntson & Marklund (2007)
PE3	I know other organizations/companies where I can get a job	
PE4	My personal qualities make it easy for me to get a new job (equivalent or better) in a different company/organization.	
PE5	My experience is in demand in the labor market	

3.2. Research sample

A quantitative research method is used in this study. To ensure the reliability of research data representative of the entire population (with 95% reliability) and the quality of research expressed through the allowable error level of +/- 5% as well as numerical requirements, the research sample size was determined. To determine the sample size for exploratory factor analysis (EFA) techniques, as announced by Wolf and colleagues (2013), the author distributed survey questionnaires to 650 young people (aged 18–30 years old), who are young workers employed in businesses operating in the five fields of information technology, banking and finance, logistics, tourism, and retail nationwide. The number of officially received and valid responses was 624, accounting for 96% of the total distributed. This sample size is also consistent with the calculation formula for research sample size when the overall research population is determined to be a finite number (Hair et al., 2010).

Table 3: Research sample size

No	Content	Number (people)	Ratio (%)
1	Gender		
	Female	434	69.6
	Male	190	30.4
2	Work experience		
	Less than 1 year	89	14.3
	From 1 year to less than 3 years	222	35.6
	From 3 years to less than 5 years	235	37.7
	From 5 years or more	78	12.5
3	Field of activity		
	Information technology	105	16.8
	Banking finance	109	17.5
	Logistics	172	27.6
	Tourism	149	23.9
	Retail	89	14.3
	total	624	100

3.3. Data analysis and processing methods

Collected data are processed using specialized software, SPSS Amos 26. Formal quantitative research techniques are employed as follows:

Testing the reliability of the scale using Cronbach's alpha coefficient: Researchers continue to use Cronbach's alpha coefficient to test the reliability of the scale, but with a sample size of 390. Coefficients of 0.6 or higher are acceptable. Additionally, to ensure reliability, the scales need to

ensure that the variable-total correlation coefficient is greater than 0.3; otherwise, it will be removed from the scale (Ngoc & Mong, 2008).

EFA exploratory factor analysis to test the values of the scale: Values to note and test when performing EFA exploratory factor analysis are: the loading factor of each item (factor loading) must be >= 0.5; the total variance extracted must be >= 50%; the KMO coefficient must be >= 0.5; and the Bartlett test must be statistically significant (i.e., Sig < 0.05) (Anderson & Gerbing, 1988).

CFA confirmatory factor analysis: model fit to market data is a necessary and sufficient condition for the set of observed variables to be unidimensional. Indicators include Chi-Square (CMIN) with P-value > 0.05; Chi-square adjusted for degrees of freedom (CMIN/df) < 2, in some cases CMIN/df may be less than 3; Comparative Fit Index (CFI) >= 0.9; Tucker-Lewis Index (TLI) >= 0.9; Goodness of Fit Index (GFI) >= 0.9; RMSEA index: less than 0.08 or 0.05 is considered very good; the composite reliability of each factor and the average variance extracted (AVE), including the factor loading of each observation > 0.5 (Hair et al., 2010); composite reliability (CR) > 0.7; AVE > 0.5.

SEM linear structural model analysis: The SEM model can examine complex relationships in the research model. The indices used in SEM are similar to those used in those used in running CFA, including: CMIN, RMSEA; CMIN/df < 2, CFI >= 0.9; TLI >= 0.9; and GFI >= 0.9.

4. RESEARCH RESULTS

4.1. Cronbach's Alpha test results

Cronbach's alpha test results show that the scales used in the research model all reach the threshold of 0.7 or higher. Furthermore, the observed variables all have corrected item-total correlation values greater than 0.3. This indicates that the observed variables exhibit quality (Hair et al., 2010).

Table 4. Results of Cronbach's Alpha coefficient test

The scale	Number of observed variables		Cronbach's Alpha
	Before	After	
Digital equipment operating	4	4	.786
Information and data mining	4	4	.795
Communication and collaboration	5	5	.875
Digital content creation	4	4	.871
Problem solving	4	4	.772
Safe and security	4	4	.750
Perceived employability	5	5	.746

4.2. Results of exploratory factor analysis (EFA)

Exploratory factor analysis (EFA) yields the following results: The KMO value of 0.783 is deemed appropriate; Bartlett's sig test is 0.000, which is less than 0.05, indicating that the variables participating in EFA are correlated with each other. Moreover, the results of the rotation matrix analysis reveal that, out of the initial 25 factors, 6 factors were ultimately extracted. The eigenvalue of the 6th factor is 1.541, which exceeds 1; the total variance extracted is 60.341%, surpassing

50%. Thus, the six extracted factors explain 60.341% of the variation in the 25 observed variables participating in EFA (Hair et al., 2010).

The factor loading coefficients of the independent variables all exceed 0.6, and there are no inadequate variables. However, the observed variable PE5 (which belongs to the dependent variable) fails to demonstrate convergent validity and is situated separately in another factor. The loading factor of PE5 attains a value of 0.464, which is less than 0.5. Consequently, PE5 was eliminated from the research model and not used in the subsequent steps. Therefore, out of the 30 observed variables, PE5 is excluded, leaving 29 observed variables to be utilized in the research model.

Table 5: Rotated Component Matrix [a]

	Component					
	1	2	3	4	5	6
KN35	.896					
KN34	.859					
KN33	.848					
KN32	.782					
KN31	.630					
KN41		.865				
KN42		.859				
KN43		.845				
KN44		.809				
KN52			.782			
KN51			.756			
KN54			.754			
KN53			.734			
KN24				.806		
KN22				.722		
KN23				.719		
KN21				.628		
KN11					.765	
KN14					.729	
KN12					.699	
KN13					.672	
KN64						.750
KN62						.692
KN61						.642
KN63						.618

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

4.3. Confirmatory factor analysis (CFA)

To assess how well the model aligns with market information, we utilize the following indices: Chi-square adjusted degrees of freedom (CMIN/df) < 3; Tucker & Lewis (TLI) index > 0.9; Comparative Fit Index (CFI) > 0.9; and Root Mean Square Error of Approximation (RMSEA) index < 0.08. These indices, as presented in Table 6, all meet the specified criteria, indicating that the research model can be deemed suitable for market data.

Table 6. Indicators to evaluate the model's fit with market data

Indicators	Value
CMIN/df	2,477
TLI	0.916
CFI	0.927
GFI	0.926
RMSEA	0.048

Evaluate scale reliability

The reliability of the scale is evaluated using three indicators: composite reliability (CR), total variance extracted (AVE), and Cronbach's alpha coefficient.

Table 7: Composite reliability and total variance extracted concepts

Concept	Composite reliability (CR)	Total variance extracted (AVE)
Digital Device Operation	0.725	0.541
Information and Data Mining	0.702	0.593
Communication and collaboration	0.831	0.616
Digital content creation	0.824	0.600
Problem solving	0.846	0.607
Safe and security	0.815	0.522

The combined reliability values and extracted variance of the scales all meet the requirements of CR > 0.7 and AVE > 0.5. Therefore, the results presented in Table 7 confirm that the measurement scales meet the criteria. Additionally, the results of CFA testing using AMOS 20 indicate that all observed variables have weights with values greater than 0.5, and p-values are all less than 0.05, signifying their statistical significance. Furthermore, the AVE values fulfill the requirements. Based on these results, it can be concluded that the scale demonstrates convergent validity. The correlation coefficients between pairs of concepts are all less than 1 and statistically significant ($p < 0.05$), indicating that they are all different from 1. When comparing the square root value of AVE with other systems, it can be observed that the AVE of each concept is larger than the square of the correlation coefficients between that concept and the remaining concepts. Therefore, it can be concluded that the concepts or scales achieve discriminant validity.

4.4. Structural Linear Model (SEM)

A model is considered suitable for market data when it ensures TLI, CFI ≥ 0.9, CMIN/df ≤ 3, and RMSEA ≤ 0.08. Thus, we have the indexes (Table 8), TLI, CFI > 0.9, CMIN/df < 2, and RMSEA < 0.08. Therefore, the proposed model is suitable for market data.

Table 8: Indicators to evaluate the model's suitability

Evaluation indicators	Value
CMIN/df	2,256
TLI	0.918
CFI	0.928
GFI	0.921
RMSEA	0.045

Table 8 indicates that, utilizing the 95% confidence standard, the significance (sig) values of KN1, KN2, KN3, KN4, KN5, and KN6 are all less than 0.05. Hence, these relationships are deemed significant. Consequently, all six variables, including digital device operation, information and data mining, communication and collaboration, digital content creation, problem solving, and safety and security, impact perceived employability. Thus, all six initial hypotheses were accepted.

Table 9. Regression Weights: (Group number 1 - Default model)

			Estimate	SE	CR	P	Label
PE	<---	KN3	.079	.055	1,441	.040	
PE	<---	KN4	.008	.052	.165	.039	
PE	<---	KN5	.016	.077	.210	.033	
PE	<---	KN2	.024	.065	.376	.007	
PE	<---	KN1	.118	.080	1,466	.043	
PE	<---	KN6	.449	.134	3,352	***	

The standardized regression coefficient table also shows the order of impact of the variables. With an estimated coefficient of 0.227, KN6 has the strongest impact on PE. Next is KN1 with a coefficient of 0.076, KN3 with a coefficient of 0.072, KN2 with a coefficient of 0.19, KN5 with a coefficient of 0.11, and finally KN4 with a coefficient of 0.08. Besides, the $R^{2\ value}$ of PE is 0.623 = 62.3%, so the independent variables affect 62.3% of the variation in FE.

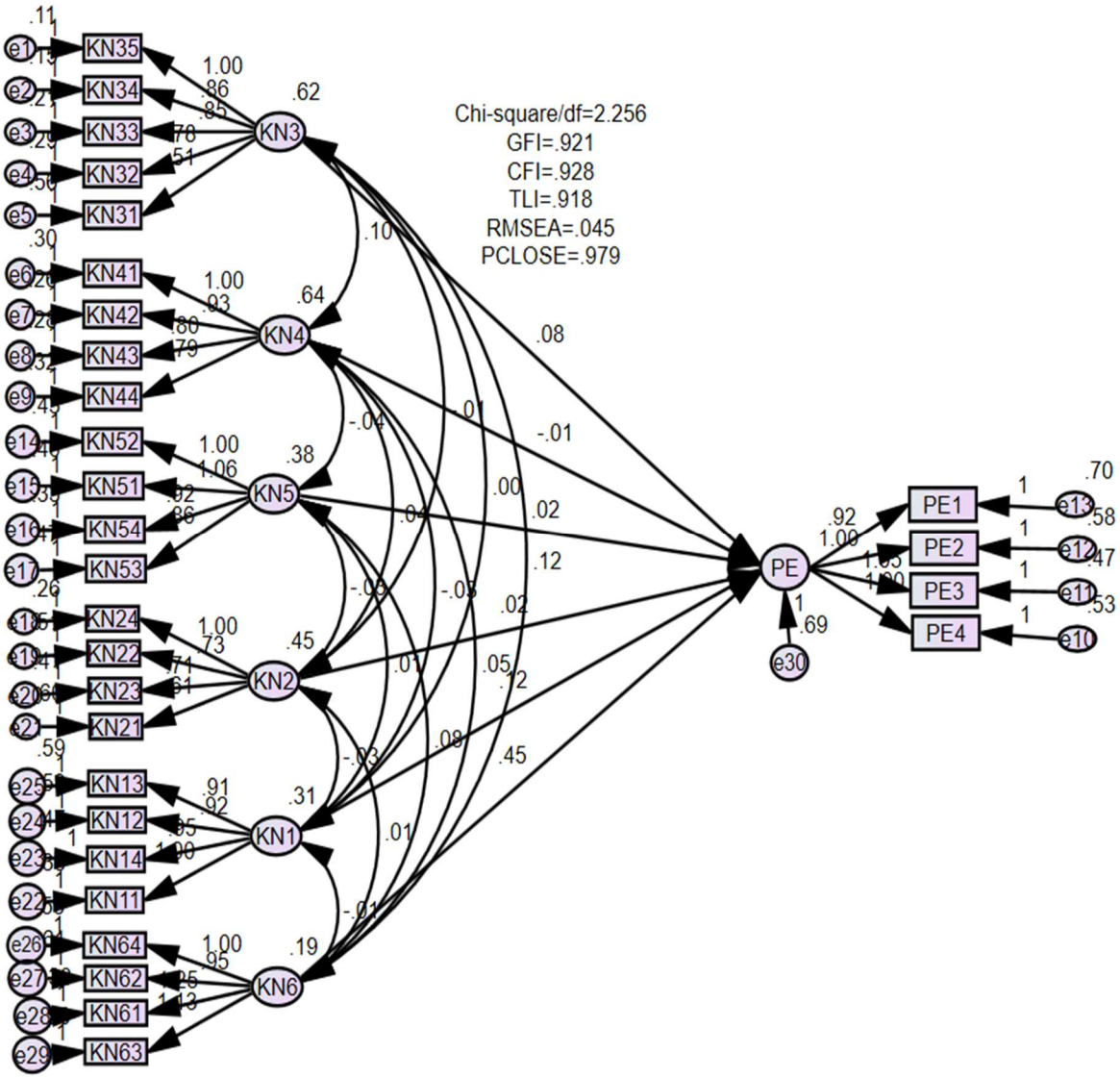

Figure 1: SEM linear structure diagram

5. DISCUSSION

The impact of digital skills on perceived employability is an important topic in the context of Industry 4.0 and the development of information technology. Mastering digital skills not only affects the ability to find a job but also shapes an individual's success in the modern work environment.

Research results show that the digital skills framework has an impact on the perceived employability of Vietnamese youth (Yen, 2021; UNESCO, 2018; Clarke, 2018). This research result also agrees with the research results of many previous works (Berntson & Marklund, 2007; Leahy et al., 2016; Gowsalya & Preetha, 2021). Based on the research results, some policy implications can be given, such as:

Firstly, safety and security skills are the skill group that has the strongest impact on the perceived employability of Vietnamese youth. This means both workers and businesses value this skill. Information needs to be kept confidential, especially information related to customer data, financial information, technological secrets, and business information. Workers need to master this skill. Businesses need to apply security measures such as data encryption, restricting access, and ensuring that employees are trained on information security rules. This skill helps employees avoid the risk of losing personal information, avoid identity theft, and ensure privacy. With the popularity of the internet and the development of digital technology, protecting personal information, data, and systems has become an important issue. Vietnamese youth realize that having information security and safety skills will create trust and meet social needs for protecting personal information and avoiding cybersecurity breaches.

Next, digital device operating skills have the second most influential level among the six groups of factors affecting employability, according to young people's perceptions. These skills are the most basic, helping young people perform necessary activities on computers. Digital operations skills, such as the ability to work with computers, software, information technology, and networks, are increasingly becoming a necessity in many occupations. Vietnamese youth realize that possessing these skills will increase their ability to find a job and improve their opportunities in the labor market. In a competitive recruitment environment, possessing digital operations skills puts Vietnamese youth in an advantageous position compared to candidates who do not have these skills. Being able to work effectively with digital technology helps young people stand out and make a positive impression on employers.

Communication and collaboration skills have the third highest level of influence on the perceived employability of Vietnamese youth. The digital environment requires the ability to communicate through online channels such as email, text messages, online meetings, and other communication platforms. Vietnamese youth with good communication skills in the digital environment can convey opinions, ideas, and information clearly and effectively. Collaboration skills in the digital environment help young people adapt to working remotely, share information, work in groups, and contribute to projects effectively. Vietnamese youth who possess this skill can easily work with tools such as email, chat applications, project management platforms, and other online collaboration tools. At the same time, Vietnamese youth with communication and collaboration skills in the digital environment are often able to adapt quickly and come up with creative solutions to meet work needs.

Information and data mining skills have the fourth highest level of impact on the perceived employability of Vietnamese youth. Information and data mining skills play an important role in using, processing, and finding necessary information while helping to minimize misinformation and make accurate assessments. Possessing information and data mining skills creates a competitive advantage in the job search and recruitment process. Employers value the ability to gather and analyze information, and people with these skills are often selected. In a rapidly changing world with the digital economy and the 4.0 industrial revolution, information and data mining skills have become an important factor in adapting to the modern work environment.

Today's jobs require the ability to process information quickly and effectively, and people with these skills will have an advantage in adapting to and succeeding in their jobs.

Problem-solving skills have the fifth highest level of impact on the perceived employability of Vietnamese youth. This means that Vietnamese youth who possess this skill will have higher employability and more job options in information technology, software development, technology project management, and other fields related to digital technology. Young people who are able to solve problems using digital technology will be able to complete tasks faster and achieve better results. Vietnamese youth with problem-solving skills using digital technology will be better able to adapt to the rapid development of technology. In an increasingly digital world, the ability to work with digital technology will help young people adapt to new technologies, such as artificial intelligence (AI), blockchain, and many others. This creates a competitive advantage and the ability to adapt to the modern work environment. Digital problem-solving skills not only have a positive impact on domestic employability but also open up opportunities to compete in the international labor market. Possessing this skill will help Vietnamese youth become human resources with a highly technical team and the ability to work in a global information technology environment. This can provide opportunities to work at leading technology companies around the world, participate in international projects, and contribute to global technology development.

Finally, digital content creation skills have the lowest impact on the perceived employability of Vietnamese youth. Vietnamese youth with this skill will have higher employability and more job options in positions such as content writers, editors, graphic designers, social media managers, and many other fields related to digital content creation. Digital content creation skills require Vietnamese youth to be able to communicate effectively and convey messages creatively. Creating unique and impressive digital content requires creative thinking, the ability to analyze, and the ability to the ability to present ideas in an attractive way. This skill not only helps young people become an important resource for creative projects but also enhances general communication skills in all areas of work. Digital content creation skills open up opportunities for Vietnamese youth to explore and develop creative and entrepreneurial ideas in the field of digital content. With the ability to create engaging and impactful content, youth can build personal projects, websites, social media channels, or even startups in the field of digital content creation.

6. CONCLUSION

Digital technology is a huge force in the 4.0 Industrial Revolution, bringing many added values, improvements, and conveniences to people's lives. However, there are also negative impacts of digital technology on society and individuals.

The importance of digital technology in the lives of Vietnamese youth is undeniable. However, to use digital technology effectively and sustainably, Vietnamese youth need to have essential knowledge and skills, as well as the right awareness of using digital technology responsibly. Provide reasonable solutions and approaches. At the same time, maintaining and developing traditional and humane values is extremely important to help Vietnamese youth be able to adapt and develop in an advanced digital technology environment.

In summary, the research results on "the impact of digital skills on the perceived employability of Vietnamese youth" provide important information about the importance of digital skills in the recruitment process, evaluating the effectiveness of digital skills in finding jobs, and young people's awareness of the importance of digital skills. These results can support the development of policies and measures to enhance the digital skills of Vietnamese youth while helping them improve their ability to find jobs and develop their careers.

Acknowledgements:
The authors would like to thank University of Labour and Social Affairs, Vietnam; Posts and Telecommunications Institute of Technology, Vietnam; and other researchers and reviewers who supported us during the study time.

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