FACTORS INFLUENCING DIGITAL TECHNOLOGY SKILLS IN THE DEVELOPING COUNTRY

Manassanun Doungpitak [*], Thoedsak Chomtohsuwan [**], Tanpat Kraiwanit [*], Kris Jangjarat [*], Veraphong Chutipat [***]

[*] Faculty of Economics, Rangsit University, Pathum Thani, Thailand
[**] *Corresponding author,* Faculty of Economics, Rangsit University, Pathum Thani, Thailand
Contact details: Faculty of Economics, Rangsit University, 52/347 Phahon Yothin Road, Muang Eke, Pathum Thani 12000, Thailand
[***] College of Social Innovation, Rangsit University, Pathum Thani, Thailand

How to cite this paper: Doungpitak, M., Chomtohsuwan, T., Kraiwanit, T., Jangjarat, K., & Chutipat, V. (2023). Factors influencing digital technology skills in the developing country [Special issue]. *Corporate & Business Strategy Review, 4*(2), 251–259. https://doi.org/10.22495/cbsrv4i2siart4

ISSN Online: 2708-4965
ISSN Print: 2708-9924

Received: 13.08.2022
Accepted: 24.05.2023

JEL Classification: I25, I21, O33
DOI: 10.22495/cbsrv4i2siart4

Abstract

The fast growth of science and technology, particularly in the field of information technology (IT), has been of immense value to many countries (Vargo et al., 2021). Consequently, digital skills are crucial in the digital age. This study attempts to investigate the elements that influence Thai citizens' digital technology proficiency. To analyse the data, a linear regression analysis was undertaken. Age, education level, the average cost of digital devices in use, the primary reason for deciding to purchase a digital device, Internet package influencing digital device usage and access, speed, and availability of Internet network connectivity, stability of the Internet network, and the speed and stability of the Internet network being proportional to the cost of the Internet were found to influence the digital technology skills of Thai citizens. The study suggests, based on its results, that the government and relevant sectors should provide training in digital skills that is appropriate for people of diverse ages, as age is a crucial determinant of digital abilities.

Keywords: Digital Technology, Skill, Thai

Authors' individual contribution: Conceptualization — M.D., T.C., T.K., K.J., and V.C.; Methodology — M.D., T.C., T.K., K.J., and V.C.; Software — M.D., T.K., and K.J.; Formal Analysis — M.D. and T.K.; Investigation — M.D.; Resources — M.D., T.C., T.K., K.J., and V.C.; Writing — Original Draft — M.D., T.C., T.K., K.J., and V.C.; Writing — Review & Editing — M.D., T.C., T.K., K.J., and V.C.; Visualisation — M.D., T.C., T.K., K.J., and V.C.; Supervision — M.D., T.K., and V.C.

Declaration of conflicting interests: The Authors declare that there is no conflict of interest.

1. INTRODUCTION

Many nations have greatly benefited from the rapid advancement of science and technology, particularly in the area of information technology (IT) (Apipunyo et al., 2021; Vargo et al., 2021; Limna, 2023; Siripipatthanakul et al., 2023). IT is a technology used to manage information, including access, storage, gathering, recording, and modification of data (Hangsakul, 2021). Information technology is crucial to knowledge management. This is due to the fact that it is a tool that supports and helps the knowledge management process, from knowledge generation through information storage and sharing, in order to work swiftly and efficiently. In addition, IT may aid organisations in preserving the many types of knowledge they have gathered (Arias-Pérez & Cepeda-Cardona, 2022; Singh, 2022).

Thanks to the widespread adoption of smartphones and the resulting access to information, social networks, and audiovisual entertainment, a substantial portion of the human population is now ubiquitously and continuously connected. Accelerating digital technological advancement has normalised the usage of gadgets and apps leveraging cloud computing, big data analysis, blockchains, and artificial intelligence (Economic Commission for Latin America and the Caribbean [ECLAC], 2021). Thus, information and communications technology (ICT) plays a vital role in life. Rapid development presents substantial obstacles, such as access to information resources and a lack of expertise and awareness of how to use ICT to explore and effectively use knowledge (Saiyasit & Suwanno, 2022). Each individual therefore cannot avoid employing information technology to adapt to the changing circumstances and digital literacy, including digital, is vital in the digital era. According to Leaning (2019), digital literacy was as essential as reading and writing in the 20th century, however, Killen (2018) argued that digital literacy was a crucial aspect of success in education, research, and future professional growth.

Digital literacy is defined as the ability to use digital tools for access, analysis, synthesis, management, integration, sharing, communication, information creation, and the creation of new knowledge, leveraging information literacy skills, learning skills, critical thinking skills, emotional skills, and social skills (Limna et al., 2023; Techataweewan & Prasertsin, 2018). Digital literacy includes cognitive skills, the ability to use software and operate digital devices, as well as digital access and IT competence (Chuenchom et al., 2021). There are many terms for digital literacy. For example, information literacy is the use of digital technology to discover, analyse, and synthesise resources, as well as to assess the dependability of these resources through proper referral techniques that adhere to laws and consider ethical issues. Computer literacy is the understanding of how to use computers, digital technology, and practical applications. Media literacy is the ability to use digital technologies to access, analyse, evaluate, and communicate information across a variety of digital platforms. Communication literacy is the ability to use digital technology to effectively communicate as individuals and collaborate in groups by using Internet publishing technologies and Web 2.0 tools and technologies. Visual literacy is the ability to read, interpret, and understand the information presented in images or graphics, communicate this information, and transform it into visual representations using digital technology. Technological literacy is the ability to use digital technology to improve learning, productivity, and efficiency (Eshet, 2004; Reddy et al., 2020).

Thailand, a middle-income developing country, is working to become a cutting-edge economic powerhouse by driving digital transformation and leveraging innovation. The country's digitization journey begins with the "Thailand 4.0" economic model, which focuses on significant advancements and digital improvements to improve the Thai people's quality of life, productivity, and efficiency. The digital economy is expected to play a critical role in all industrial sectors in Thailand, contributing 25% of Thailand's gross domestic product (GDP) by 2027 (Intaratat, 2021; Warr & Suphannachart, 2021). Thailand's primary driving force is the formulation of a five-year Digital Development Plan (2017–2022) in order to transition from an agricultural and industrial-based economy to a dynamic digital economy. This shift can occur through the implementation of four strategies: workforce development for the digital age, economic development for the digital age, community development for a digital society, and infrastructure development to support the digital society. This is done to quickly raise Thai people's digital literacy to correspond with the Thailand 4.0 model (Puncreobutr et al., 2022). According to a survey conducted by Salesforce (2022), Thailand ranks 3rd out of 19 nations for digital skill preparation in the workplace, with slightly more than half of respondents feeling prepared. Thailand scored 48 out of 100 on the Salesforce Global Digital Skills Index, while the global average was 33. The index measured the perceptions of 23,000 workers in 19 countries, including 1,400 respondents from Thailand, about their readiness to learn essential digital skills required by businesses now and over the next five years. Fifty-one percent (51%) of Thai respondents reported having digital skills for the job, compared to 40% of global respondents. Thirty-nine percent (39%) of Thai respondents indicated that they are actively studying and training in digital skills, while 43% anticipate doing so during the next five years (Salesforce, 2022).

Due to the importance of digital skills for the future of business and the need for employees to feel confident in their ability to adapt to the new business environment, examining the factors influencing the proficiency of digital technology skills may benefit all industries by accelerating the development of digital workers with high-level skills. Many studies have explored various factors influencing digital skills (Correa, 2016; Oggero et al., 2020; Spiteri & Rundgren, 2020); however, this issue has rarely been explored in Thailand. Hence, to fill a research gap, this study investigated the factors influencing the level of digital technology skills of Thai people. The factors included in this study are demographic factors, behaviour of Internet users in accessing digital technology, and satisfaction with Internet services. The examination was conducted through Thai residents who are 18 years old or older and able to access the Internet independently. Then linear regression analysis was used to analyse the data. The findings show that factors influencing the digital technology skills of Thai citizens include age, education level, the average cost of digital devices in use, the primary reason for deciding to purchase a digital device, Internet package influencing digital device usage and access, speed, and availability of Internet network connectivity, stability of the Internet network, and the speed and stability of the Internet network being proportional to the cost of the Internet.

There are three research questions:

RQ1: Do demographic factors influence the digital technology skills of Thai Internet users?

RQ2: Does Internet user behaviour in accessing digital technology affect the digital technology skills of Thai Internet users?

RQ3: Does Internet service satisfaction impact the digital technology skills of Thai Internet users?

To explain the framework of the paper, the investigation is separated into six sections.

Section 1 provides an overview of the significance of digital skills in the digital age and the overview of digital skills among Thai residents. Section 2 examines the relevant literature, while Section 3 discusses the research methodology. The research findings and discussion are presented in Sections 4 and 5, respectively. Section 6 contains the study's conclusions.

2. LITERATURE REVIEW

This literature review explains the study's framework in terms of the dependent variable (*Digital technology skills*) and independent variables (*Demographic factors, Internet user behaviour in accessing digital technology,* and *Satisfaction with Internet services*).

Digital technology skills or digital competence or digital literacy entail the management and upkeep of various digital devices and associated software in order to use the Internet and digital technology in a critical manner (Amhag et al., 2019). ICTs are prominent throughout all sectors, from huge multinational corporations to small and medium-sized businesses, governments, administrations, universities, educational institutions, social groups, and individuals (González et al., 2020). To be successful in a complex and integrated world that is undergoing fast technical, cultural, economic, informational, and demographic change (Kampylis et al., 2015), it is evident that individuals must be digitally proficient if they wish to use them for their professional growth. Competence involves the information, methods, attitudes, and values necessary to enhance problem-solving in a particular situation. Digital competency involves the secure and appropriate use of information society technologies (IST) for work, leisure, and communication (Cabezas-González & Casillas-Martín, 2018). After conducting a thorough review of the literature on the topic, this study defines this term as the proficient level of competence to search, analyse, access, communicate, and produce digital material utilising digital devices like computers and mobile phones. Ten of these digital skills are mentioned in the methodology of this study.

The influence of any factors on digital technology competence was investigated in order to determine the appropriate variables for this study. A number of researchers study the relationship between demographic factors and digital skills. Hinojo-Lucena et al. (2019) analyzed the digital competence of permanent education teachers and determined the factors that have an impact on its development. The findings found that certain socio-demographic factors have a significant impact on the acquisition of digital competence. Age, teaching experience and the area of communication and collaboration weigh on the area of information and data literacy. Many scholars agree that there is a relationship between age and digital skills. The studies by Maderick et al. (2016) and Mirke and Cakula (2019) show similar results that there is a tendency for digital competence to be lower in the adult population than in youngsters. This is in line with Instefjord and Munthe (2016), who indicate that older teachers have the added difficulty of lacking technological skills.

The activities that Internet users engage in and their personal empowerment are indicators of their Internet competency. That is the degree of Internet knowledge, Internet proficiency, and Internet attitudes. Researchers discovered a correlation between Internet access and digital competence. Hampton et al. (2021) discovered that rural students with a broadband Internet connection may engage in a wider variety of online media activities, which promotes the development of digital skills. Students' digital abilities provide a more persuasive argument for how Internet access and digital media generally help academic success. Digital skills surpass any negative correlation between time spent on social media, video games, and other digital media and educational outcomes. The study by Mota and Cilento (2020) indicates that technical Internet abilities are essential for Internet usage. According to prior research, Internet usage patterns and satisfaction with Internet services are included in the investigation.

3. RESEARCH METHODOLOGY

In this study, *Digital technology skills*, a dependent variable, are defined as the proficient level of capability to search, analyze, access, communicate, and create digital material using digital devices such as computers and mobile phones, including ten skills:

1) online learning and working skills;
2) ability to use email;
3) Microsoft (MS) Office skills;
4) graphic design skills;
5) ability to access social media platforms like Facebook, TikTok, and YouTube;
6) ability to sell products online or conduct internet marketing;
7) ability to fix the digital device or website crashing issues independently;
8) configuring apps or devices passwords;
9) ability to do password rotation;
10) advanced technology literacy, for example, creating digital media such as online or print advertisements and coding.

The independent variables are classified into three groups:

1) *Demographic factors* (gender, age, education level, occupation, domicile, and monthly income);

2) *Internet user behaviour in accessing digital technology* (average cost of digital devices in use, primary reason for deciding to purchase a digital device, frequency of Internet access, and monthly Internet service package);

3) *Satisfaction with Internet services* (current Internet package influencing digital device usage and access, speed and availability of Internet network connectivity, stability of the Internet network, current Internet service package being adequate for current use, and the speed and stability of the Internet network being proportional to the cost of the Internet).

This study uses quantitative methods, including descriptive statistics and linear regression analysis, to answer these questions. The data was collected from 485 Thai residents who are 18 years old or older and able to access the Internet independently. The samples were chosen using a method of convenience sampling. The demographic characteristics of the samples are shown in Table 1.

According to Sitthipon et al. (2022), a common questionnaire has a 95% confidence level. Consequently, a minimum of 385 samples must be gathered using convenience sampling with a sample error of 5% and a precision level of 95% at p = 0.5. Therefore, the sample size of 485 is sufficient, since it exceeds the minimum of 385 samples. The data were gathered through online closed-ended questionnaires between January and April 2022. The questionnaire was created using valid and trustworthy research data. Following the recommendations of Limsangpetch et al. (2022), the questionnaire was piloted on 30 participants (pre-testing) to create a dedicated questionnaire. Cronbach's alpha coefficients of 0.70 are necessary to overcome all quantitative constraints (Taber, 2018), and this questionnaire's Cronbach's alpha coefficient is 0.824. The questionnaire can therefore be used for data collection. Afterward, the questionnaire was sent over other internet channels, including email, LINE, and Messenger. Before filling out the questionnaire, respondents were asked for permission to publish their replies. If they did not provide consent, they may decide not to participate in the poll.

The analysis consisted of two parts: 1) a self-assessment of digital technology skills and 2) an investigation of the factors that influence Thais' digital technology skills. In the first section, each respondent evaluated 10 digital technology skills on a 5-point Likert scale (1 represents the lowest level of skill, while 5 represents the highest level of expertise). Respondents were required to evaluate 10 skills independently. For instance, participants will receive a score of 5 if they can make pivot tables, employ complicated formulas and statistics, and implement data validation in MS Excel. In contrast, if they are incapable of using any MS Office program, they may receive a score of 1. In the second section, the model's assumptions were tested using linear regression via IBM SPSS Statistics. In this process, three groups of independent variables were included with a dependent variable, which is ten digital technology skills.

This research consists of a self-administered questionnaire. Consequently, a qualitative approach, such as in-depth interviews and focus groups, should be considered as an alternative, as it might give greater information for future study.

Table 1. Demographic characteristics of samples

Demographic characteristics	*No.*	*%*
Gender		
Male	222	45.8
Female	251	51.8
Unspecified	12	2.4
Age		
18–25 years old	308	63.5
26–30 years old	21	4.3
31–35 years old	22	4.5
36–40 years old	33	6.8
41–45 years old	50	10.3
46–50 years old	19	3.9
51–55 years old	17	3.5
56–60 years old	11	2.3
Over 60 years old	4	0.8
Education level		
Elementary school (Grades 1–6)	2	0.4
Junior high school (Grades 7–9)	9	1.9
High school (Grades 10–12)	33	6.8
Vocational certificate	9	1.9
High vocational certificate/Vocational diploma	20	4.1
Bachelor's degree	341	70.3
Master's degree	58	12
Higher than a master's degree	13	2.7
Occupation		
Student	295	60.8
Agriculture/Farming	3	0.6
Daily hire employee	2	0.4
Private company employee	84	17.3
State enterprise/Government officials	31	6.4
Freelance	25	5.2
Business owners	36	7.4
Unemployment	9	1.9
Domicile		
Central	133	27.4
North-Eastern	80	16.5
Northern	35	7.2
Southern	35	7.2
Bangkok Metropolitan Region	202	41.6
Monthly income		
Less than 10,000 baht	86	17.7
10,000–19,999 baht	90	18.6
20,000–29,999 baht	74	15.3
30,000–39,999 baht	53	10.9
40,000–49,999 baht	35	7.2
More than 50,000 baht	147	30.3

4. RESULTS

Table 2 displays the findings of Thais' self-assessment of their digital technology skills. The mean for the "ability to use email" is the greatest at 4.5300, whilst the mean for "ability to do password rotation" is the lowest at 3.0890. This suggests that Thai residents are especially prone to use email. Although Thais score the lowest on the ability to do password rotation, the score is average. This suggests they have moderate abilities in changing passwords regularly on digital devices. "Ability to access social media platforms", "Microsoft Office skills", and "Configuring apps or devices passwords" all receive high marks of 4.3540, 4.1988, and 4.0331, respectively. This implies that Thai citizens have a high level of proficiency with these digital technologies. "Graphic design skills", "Ability to sell products online or conduct internet marketing", "Ability to fix digital device or website crashing issues independently", and "Advanced technology literacy" had respective scores of 3.7101, 3.6439, 3.4431, and 3.3313. This indicates that these skills of Thais are mediocre.

Table 2. Digital technology skills of Thais

Digital technology skills	*Mean*	*Std. deviation*
Online learning and working skills	4.3602	0.7105
Ability to use email	4.5300	0.6761
Microsoft Office skills	4.1988	0.8557
Graphic design skills	3.7101	0.9973
Ability to access social media platforms	4.3540	0.7546
Ability to sell products online or conduct internet marketing	3.6439	1.0414
Ability to fix digital device or website crashing issues independently	3.4431	0.9929
Configuring apps or devices passwords	4.0331	0.8966
Ability to do password rotation	3.0890	1.25501
Advanced technology literacy	3.3313	1.2197

The correlation coefficient (R) and coefficient of determination (R^2) for the regression model that runs demographic factors against a dependent variable are shown in Table 3. A coefficient of 0.280 (R = 0.280) indicates a slight positive correlation between demographic factors (gender, age, level of education, occupation, domicile, and monthly income) and digital technology skills. A coefficient of determination of 0.079 (R^2 = 0.079) indicates that demographic variables explain 7.9% of the variance in digital technology skills. In other words, demographic characteristics do not accurately predict the proficiency level of digital technology skills, as there is 92.1% (100% – 7.9%) of the variation is caused by factors other than the predictors included in this model.

Table 4 demonstrates the statistical significance of each demographic factor, which examines whether the coefficients (unstandardized or standardized) in the population are equal to 0. If the p-value is less than 0.05 ($p < 0.05$), the coefficients are statistically significantly different from 0, suggesting that each explanatory variable is required in the model if the others are already included. The results indicate that only age (p = 0.002) and education (p = 0.009) are statistical significance and can be used to predict the dependent variable, digital technology skills. The equation is as follows:

$$Digital\ technology\ skills = 3.811 - 0.064(Age) + 0.063(Education) \quad (1)$$

Table 3. Model summary of running demographic factors against a dependent variable

Model	*R*	*R-square*	*Adjusted R-square*	*Std. error of the estimate*	*Durbin–Watson*
1	0.280	0.079	0.067	0.57634	2.053

Note: Predictors: (Constant), gender, age, education level, occupation, domicile, monthly income. Dependent variable: Digital technology skills.

Table 4. Coefficients of the model running demographic factors against a dependent variable

Model		*Unstandardized coefficients*		*Standardized coefficients*	*t*	*Sig.*
		B	*Std. error*	*Beta*		
1	(Constant)	3.811	0.177		21.538	0.000
	Gender	-0.075	0.050	-0.068	-1.486	0.138
	Age	-0.064	0.020	-0.226	-3.147	0.002
	Education level	0.063	0.024	0.120	2.619	0.009
	Occupation	-0.024	0.019	-0.087	-1.263	0.207
	Domicile	-0.017	0.023	-0.036	-0.759	0.448
	Monthly income	0.017	0.016	0.055	1.097	0.273

Note: Dependent variable: Digital technology skills.

Table 5 demonstrates a model summary of running factors related to the behaviour of Internet users in accessing digital technology against a dependent variable. A coefficient of 0.179 (R = 0.179) indicates a weak positive relationship between factors related to the behaviour of Internet users in accessing digital technology (average cost of digital devices in use, primary reason for deciding to purchase a digital device, frequency of Internet access, and monthly Internet service plan) and digital technology skills. A coefficient of determination of 0.032 (R^2 = 0.032) indicates that

these independent variables explain 3.2% of the variance in digital technology skills. This means that such variables do not accurately predict the proficiency level of digital technology skills, as there are 96.8% (100% – 3.2%) of the variation is caused by factors other than the predictors included in this model.

Table 6 shows the test of the significance of the coefficients of factors related to the behaviour of Internet users in accessing digital technology. The results show that only the average cost of digital devices in use (p = 0.004) and the primary reason for deciding to purchase a digital device (p = 0.042) are statistical significance and can be used to predict digital technology skills. The equation is as follows:

$$Digital\ technology\ skills = 3.811 + 0.084(Cost) - 0.053(Decision\_making) \quad (2)$$

Table 5. Model summary of running factors related to the behaviour of Internet users in accessing digital technology against a dependent variable

Model	*R*	*R-square*	*Adjusted R-square*	*Std. error of the estimate*	*Durbin–Watson*
1	0.179	0.032	0.024	0.58949	1.947

Note: Predictors: (Constant), the average cost of digital devices in use, the primary reason for deciding to purchase a digital device, frequency of Internet access, and monthly Internet service package. Dependent variable: Digital technology skills.

Table 6. Coefficients of the model running factors related to the behaviour of Internet users in accessing digital technology against a dependent variable

Model		*Unstandardized coefficients*		*Standardized coefficients*	*t*	*Sig.*
		B	*Std. error*	*Beta*		
1	(Constant)	3.811	0.177		21.538	0.000
	Cost of devices	0.084	0.029	0.142	2.874	0.004
	Decision-making in purchasing a device	-0.053	0.026	-0.092	-2.041	0.042
	Frequency of Internet access	0.041	0.033	0.057	1.229	0.220
	Internet package	-0.027	0.044	-0.029	-0.610	0.542

Note: Dependent variable: Digital technology skills.

Table 7 demonstrates a model summary of running factors related to satisfaction with Internet services against a dependent variable. A coefficient of 0.415 (R = 0.415) shows a moderate positive relationship between factors related to satisfaction with Internet services (current Internet package influencing digital device usage and access (*S1*), speed and availability of Internet network connectivity (*S2*), stability of the Internet network (*S3*), current Internet service package being adequate for current use (*S4*), and the speed and stability of the Internet network being proportional to the cost of the Internet (*S5*)) and digital technology skills. A coefficient of determination of 0.173 ($R^2 = 0.173$) indicates that these independent variables explain 17.3% of the variance in digital technology skills. This means that such variables do not accurately predict the proficiency level of digital technology skills, as there is 82.7% (100% – 17.3%) of the variation is caused by factors other than the predictors included in this model.

Table 8 shows the test of the significance of the coefficients of factors related to satisfaction with Internet services. The results show that *S1* (p = 0.002), *S2* (p = 0.027), *S3* (p = 0.008), and *S5* (p = 0.010) are statistical significance and can be used to predict digital technology skills. The equation is as follows:

$$Digital\ technology\ skills = 2.225 + 0.111(S1) + 0.086\ (S2) + 0.083\ (S3) + 0.102\ (S5) \quad (3)$$

Table 7. Model summary of running factors related to satisfaction with Internet services against a dependent variable

Model	*R*	*R-square*	*Adjusted R-square*	*Std. error of the estimate*	*Durbin–Watson*
1	0.415	0.173	0.164	0.54558	1.831

Note: Predictors: (Constant), current Internet package influencing digital device usage and access (S1), speed and availability of Internet network connectivity (S2), stability of the Internet network (S3), current Internet service package being adequate for current use (S4), and the speed and stability of the Internet network being proportional to the cost of the Internet (S5). Dependent variable: Digital technology skills.

Table 8. Coefficients of the model running factors satisfaction with Internet services against a dependent variable

Model		*Unstandardized coefficients*		*Standardized coefficients*	*t*	*Sig.*
		B	*Std. error*	*Beta*		
1	(Constant)	2.225	0.175		12.740	0.000
	S1	0.111	0.036	0.141	3.096	0.002
	S2	0.086	0.039	0.117	2.225	0.027
	S3	0.083	0.031	0.130	2.656	0.008
	S4	0.028	0.043	0.038	0.641	0.522
	S5	0.102	0.040	0.149	2.583	0.010

Note: Dependent variable: Digital technology skills.

Table 9 shows the model summary of running statistical significance factors against a dependent variable. The best model that can explain a dependent variable with the highest percentage is Model 7, with a coefficient of determination of 0.281 ($R^2 = 0.281$). This means that independent variables in Model 7 (the speed and stability of the Internet network being proportional to the cost of the Internet, age, speed, and availability of Internet network connectivity, current Internet package influencing digital device usage and access, cost of devices, stability of the Internet network, education level) explain 28.1% of the variance in digital technology skills. This means that these predictors have a slight accuracy in predicting the proficiency level of digital technology skills, as there is 71.9% (100% – 28.1%) of the variation is caused by factors other than the predictors included in this model. Since the value of the Durbin–Watson statistic is 1.998, which is close to 2.00, there is no autocorrelation detected in the sample.

Table 9. Model summary of running statistical significance factors against a dependent variable

Model	*R*	*R-square*	*Adjusted R-square*	*Std. error of the estimate*	*Durbin–Watson*
1	0.530[a]	0.281	0.270	0.50972	1.998

Note: Dependent variable: Digital technology skills. a) Predictors: (Constant), S5, age, S2, S1, cost of devices, S3, education level.

Table 10 shows the test of the significance of the coefficients of factors. The results show that *S5* (p = 0.002), age (p = 0.000), *S2* (p = 0.013), *S1* (p = 0.000), cost of devices (p = 0.000), *S3* (p = 0.000), and education level (p = 0.014) are statistical significance and can be used to predict digital technology skills. The equation is as follows:

$$Digital\ technology\ skills = 1.829 + 0.096(S5) - 0.089\ (Age) + 0.089\ (S2) + 0.125\ (S1) + 0.088(Cost) + 0.118(S3) + 0.052(Edication) \quad (4)$$

Table 10. Coefficients of the model running significant factors against a dependent variable

Model		*Unstandardized coefficients*		*Standardized coefficients*	*t*	*Sig.*
		B	*Std. error*	*Beta*		
1	(Constant)	1.829	0.199		9.184	0.000
	S5	0.096	0.032	0.140	3.049	0.002
	Age	-0.089	0.011	-0.317	-7.826	0.000
	S2	0.089	0.036	0.121	2.494	0.013
	S1	0.125	0.033	0.158	3.758	0.000
	Cost of devices	0.088	0.024	0.147	3.619	0.000
	S3	0.118	0.029	0.185	4.014	0.000
	Education level	0.052	0.021	0.100	2.475	0.014

Note: Dependent variable: Digital technology skills.

5. DISCUSSION

This study seeks to find if demographic factors, the behaviour of Internet users in accessing digital technology, and satisfaction with Internet services influence Thais' digital skills. According to the findings, demographic factors, age, and education level have an influence on the digital skills of Thai citizens. Many studies indicate that demographic factors such as age and education have an influence on digital competence. Age may have an influence on digital competence (Guillén-Gámez et al., 2021) in specific events. For instance, older adults are less likely than younger adults to access the Internet, and this is related to poorer digital skills (Government Office for Science, 2017). Internet use is also positively correlated with education level. According to Dutton and Blank (2013), 40% of those with no credentials have used the Internet, compared to 95% of those with advanced degrees. This may suggest that individuals with a limited educational background are more likely to have less digital competence than those with a greater educational background. Factors related to access to digital devices, the average cost of digital devices in use, and the primary reason for deciding to purchase a digital device, are associated with digital technology skills. These may reflect the financial status and socio-economic status of an individual. Kozlov et al. (2019) discovered that socioeconomic constraints impede the advancement of digital competencies. According to Heinz (2016), the socioeconomic status of children has a direct impact on their access to digital devices at school and on the usability of such electronic devices in their homes. The particular student's expertise with such digital technologies also plays a significant influence in achieving beneficial outcomes from them. The implementation of these technologies in classrooms and the satisfaction of other external demands will have a beneficial effect on their adoption of these new technologies. Current Internet package influencing digital device usage and access, speed, and availability of Internet network connectivity, stability of the Internet network, and the speed and stability of the Internet network being proportional to the cost of the Internet are all significant to digital technology skills of Thai citizens can be recognised as Internet service quality. If Internet services are of high quality and adhere to the requirements and expectations of users, Internet access may increase, and this is related to the development of digital skills. To benefit from online resources, students require access to Internet-enabled devices that are suitable for learning (Frenette et al., 2020). Hence, slow Internet connections or limited access can contribute to students falling behind academically, including in digital skills (Bahinting, 2022).

6. CONCLUSION

Technology today plays an important role in several aspects of daily life. To effectively manage global digitalization, Thailand must prepare its citizenry for these changes. In this digital age, digital technology skills are vital. This study investigates factors affecting Thais' digital technology skills, and the findings reveal that age, education level, the average cost of digital devices in use, the primary reason for deciding to purchase a digital device, Internet package influencing digital device usage and access, speed, and availability of Internet network connectivity, stability of the Internet network, and the speed and stability of the Internet network being proportional to the cost of the Internet show positive statistical significance to digital technology skills of Thai citizens. The findings may be useful for policymakers and the Thai government in enhancing Thai citizens' digital skills. The recommendations based on the findings are as follows. The government and related sectors should provide training in digital skills that suit people of different ages as this factor is significant to digital skills. For example, digital skills should be included in the school curriculums for children aged 6–18 years, while free digital training and short courses should be provided for adults and older adults. The limitation of this study is that digital skills were evaluated by the participants themselves, which may not be accurate as there may have a bias when doing self-assessments. Hence, for future studies, more reliable measurements should be conducted to evaluate digital skills.

REFERENCES

1. Amhag, L., Hellström, L., & Stigmar, M. (2019). Teacher educators' use of digital tools and needs for digital competence in higher education. *Journal of Digital Learning in Teacher Education, 35*(4), 203–220. https://doi.org/10.1080/21532974.2019.1646169
2. Apipunyo, P. N., Wirojano, P. W., Aphayo, P. S. T., & Sritho, C. (2021). Promoting skills of information technology for Sangha Government in Kalasin Province. *Dhammathas Academic Journal, 21*(3), 37–48. https://so06.tci-thaijo.org/index.php/dhammathas/article/view/250407
3. Arias-Pérez, J., & Cepeda-Cardona, J. (2022). Knowledge management strategies and organizational improvisation: What changed after the emergence of technological turbulence caused by artificial intelligence? *Baltic Journal of Management, 17*(2), 250–265. https://doi.org/10.1108/BJM-01-2021-0027
4. Bahinting, M. A. (2022). Stronger than the Internet connectivity: A phenomenology. *Psychology and Education, 2*(6), 465–476. https://doi.org/10.5281/zenodo.6791820
5. Cabezas-González, M., & Casillas-Martín, S. (2018). Socijalni pedagozi: Istraživanje digitalne kompetencije iz perspektive spolnih razlika [Social educators: A study of digital competence from a gender differences perspective]. *Croatian Journal of Education, 20*(1), 11–42. https://doi.org/10.15516/cje.v20i1.2632
6. Chuenchom, S., Jairak, K., & Kowan, U. (2021). Digital literacy skill development of Chiang Mai Rajabhat University students for improving learning quality. *Journal of Information Science, 39*(2), 16–33. https://doi.org/10.14456/jiskku.2021.8
7. Correa, T. (2016). Digital skills and social media use: How Internet skills are related to different types of Facebook use among 'digital natives'. *Information, Communication & Society, 19*(8), 1095–1107. https://doi.org/10.1080/1369118X.2015.1084023
8. Dutton, W. H., & Blank, G. (2013). *Cultures of the Internet: The internet in Britain* (Oxford Internet Survey 2013 Report). Oxford Internet Institute, University of Oxford. https://www.researchgate.net/publication/258438687_Cultures_of_the_Internet_The_Internet_in_Britain_Oxford_Internet_Survey_2013_Report
9. Economic Commission for Latin America and the Caribbean (ECLAC). (2021). *Digital technologies for a new future*. United Nations. https://www.cepal.org/sites/default/files/publication/files/46817/S2000960_en.pdf
10. Eshet, Y. (2004). Digital literacy: A conceptual framework for survival skills in the digital era. *Journal of Educational Multimedia and Hypermedia, 13*(1), 93–106. https://www.learntechlib.org/primary/p/4793/
11. Frenette, M., Frank, K., & Deng, Z. (2020). School closures and the online preparedness of children during the COVID-19 pandemic. *Economic Insights, 2020001*(103). https://files.eric.ed.gov/fulltext/ED605398.pdf
12. González, M. C., Martín, S. C., & Andrade, A. V. B. (2020). The self-perceived digital competence of social educators in Spain: Influence of demographic and professional variables. *International Journal on Advanced Science Engineering and Information Technology, 10*(6), 2251–2260. https://doi.org/10.18517/ijaseit.10.6.9246
13. Government Office for Science. (2017). *Evidence from the lifetime learning in the digital age summit*. Crown. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/627690/Skills_and_lifelong_learning_-_learning_in_the_digital_age_-_CLEAN.pdf
14. Guillén-Gámez, F. D., Mayorga-Fernández, M. J., Bravo-Agapito, J., & Escribano-Ortiz, D. (2021). Analysis of teachers' pedagogical digital competence: Identification of factors predicting their acquisition. *Technology, Knowledge and Learning, 26,* 481–498. https://doi.org/10.1007/s10758-019-09432-7
15. Hampton, K. N., Robertson, C. T., Fernandez, L., Shin, I., & Bauer, J. M. (2021). How variation in internet access, digital skills, and media use are related to rural student outcomes: GPA, SAT, and educational aspirations. *Telematics and Informatics, 63,* Article 101666. https://doi.org/10.1016/j.tele.2021.101666
16. Hangsakul, K. (2021). เทคโนโลยีสารสนเทศเพื่อการบริหารการศึกษา [Information technology for educational administration]. *Journal of Educational Management and Research Innovation, 3*(1), 1–10. https://so02.tci-thaijo.org/index.php/jemri/article/view/250590/169036
17. Heinz, J. (2016). Digital skills and the influence of students' socio-economic background: An exploratory study in German elementary schools. *Italian Journal of Sociology of Education, 8*(2), 186–212. http://ijse.padovauniversitypress.it/system/files/papers/2016_2_9.pdf
18. Hinojo-Lucena, F. J., Aznar-Díaz, I., Cáceres-Reche, M. P., Trujillo-Torres, J. M., & Romero-Rodríguez, J. M. (2019). Factors influencing the development of digital competence in teachers: Analysis of the teaching staff of permanent education centres. *IEEE Access, 7,* 178744–178752. https://doi.org/10.1109/ACCESS.2019.2957438

19. Instefjord, E., & Munthe, E. (2016). Preparing pre-service teachers to integrate technology: An analysis of the emphasis on digital competence in teacher education curricula. *European Journal of Teacher Education, 39*(1), 77–93. https://doi.org/10.1080/02619768.2015.1100602
20. Intaratat, K. (2021). Digital skills scenario of the workforce to promote digital economy in Thailand under & post COVID-19 pandemic. *International Journal of Research and Innovation in Social Science, 5*(10), 116–127. https://doi.org/10.47772/IJRISS.2021.51002
21. Kampylis, P., Punie, Y., & Devine, J. (2015). *Promoting effective digital-age learning: A European framework for digitally-competent educational organisations*. European Union. https://doi.org/10.2791/54070
22. Killen, C. (2018). Collaboration and coaching: Powerful strategies for developing digital capabilities. In K. Reedy & J. Parker (Eds.), *Digital literacy unpacked* (pp. 29–44). Facet. https://doi.org/10.29085/9781783301997.005
23. Kozlov, A., Kankovskaya, A., Teslya, A., & Zharov, V. (2019). Comparative study of socio-economic barriers to development of digital competences during formation of human capital in Russian Arctic. *IOP Conference Series: Earth and Environmental Science, 302,* Article 012125. https://doi.org/10.1088/1755-1315/302/1/012125
24. Leaning, M. (2019). An approach to digital literacy through the integration of media and information literacy. *Media and Communication, 7*(2), 4–13. https://doi.org/10.17645/mac.v7i2.1931
25. Limna, P. (2023). Artificial intelligence (AI) in the hospitality industry: A review article. *International Journal of Computing Sciences Research, 7,* 1306–1317. https://doi.org/10.25147/ijcsr.2017.001.1.103
26. Limna, P., Kraiwanit, T., & Siripipatthanakul, S. (2023). The growing trend of digital economy: A review article. *International Journal of Computing Sciences Research, 7,* 1351–1361. https://doi.org/10.25147/ijcsr.2017.001.1.106
27. Limsangpetch, V., Phayaphrom, B., Siripipatthanakul, S., & Limna, P. (2022). Modelling knowledge management on business performance through mediating role of organisational innovation among IT staff in Bangkok, Thailand. *International Journal of Behavioral Analytics, 2*(2), 1–17. https://ssrn.com/abstract=4036591
28. Maderick, J. A., Zhang, S., Hartley, K., & Marchand, G. (2016). Preservice teachers and self-assessing digital competence. *Journal of Educational Computing Research, 54*(3), 326–351. https://doi.org/10.1177/0735633115620432
29. Mirke, E., & Cakula, S. (2019). Adults' digital competence and readiness for online learning: Preliminary findings on Latvian adult learners' readiness to study online. *International Journal of Advanced Trends in Computer Science and Engineering, 8*(1), 22–27. https://doi.org/10.30534/ijatcse/2019/0581.12019
30. Mota, F. P. B., & Cilento, I. (2020). Competence for internet use: Integrating knowledge, skills, and attitudes. *Computers and Education Open, 1,* Article 100015. https://doi.org/10.1016/j.caeo.2020.100015
31. Oggero, N., Rossi, M. C., & Ughetto, E. (2020). Entrepreneurial spirits in women and men. The role of financial literacy and digital skills. *Small Business Economics, 55,* 313–327. https://doi.org/10.1007/s11187-019-00299-7
32. Puncreobutr, V., Waiyakarn, S., Tapaneeyakorn, W., & Chuepan, A. (2022). Factors influencing the development of digital literacy skills in Thailand according to the Thailand 4.0 policy. *Webology, 19*(2), 9273–9284. https://www.webology.org/data-cms/articles/20220505105337pmwebology%2019%20(2)%20-%20663%20pdf.pdf
33. Reddy, P., Sharma, B., & Chaudhary, K. (2020). Digital literacy: A review of literature. *International Journal of Technoethics, 11*(2), 65–94. https://doi.org/10.4018/IJT.20200701.oa1
34. Saiyasit, P., & Suwanno, P. (2022). Assessment of the current state and needs related to development of information and communication technology skills in 21st century learning management for municipal school teachers, the local administrative organization, Yala Province. *Library and Information Science Srinakharinwirot University, 14*(2), 24–34. https://so02.tci-thaijo.org/index.php/JLIS_SWU/article/view/249750
35. Salesforce. (2022). *Global digital skills index 2022*. https://public.tableau.com/app/profile/salesforceresearch/viz/DigitalSkillsIndex/CountryDB
36. Singh, S. (2022). The role of information technology in knowledge management. *Journal of Positive School Psychology, 6*(4), 1200–1204. https://journalppw.com/index.php/jpsp/article/view/3149
37. Siripipatthanakul, S., Limna, P., Sriboonruang, P., & Kaewpuang, P. (2023). Applying the TPB and the UTAUT models predicting intentions to use telemedicine among Thai people during the COVID-19 pandemic. *International Journal of Computing Sciences Research, 7,* 1362–1384. https://stepacademic.net/ijcsr/article/view/350
38. Sitthipon, T., Siripipatthanakul, S., Phayaphrom, B., Siripipattanakul, S., & Limna, P. (2022). Determinants of customers' intention to use healthcare chatbots and apps in Bangkok, Thailand. *International Journal of Behavioral Analytics, 2*(2), 1–15. https://ijbmcjournals.org/wp-content/uploads/2022/02/IJBA-Vol-2_2_17.pdf
39. Spiteri, M., & Rundgren, S.-N., C. (2020). Literature review on the factors affecting primary teachers' use of digital technology. *Technology, Knowledge and Learning, 25,* 115–128. https://doi.org/10.1007/s10758-018-9376-x
40. Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in Science Education, 48,* 1273–1296. https://doi.org/10.1007/s11165-016-9602-2
41. Techataweewan, W., & Prasertsin, U. (2018). Development of digital literacy indicators for Thai undergraduate students using mixed method research. *Kasetsart Journal of Social Sciences, 39*(2), 215–221. https://doi.org/10.1016/j.kjss.2017.07.001
42. Vargo, D., Zhu, L., Benwell, B., & Yan, Z. (2021). Digital technology use during COVID-19 pandemic: A rapid review. *Human Behavior and Emerging Technologies, 3*(1), 13–24. https://doi.org/10.1002/hbe2.242
43. Warr, P., & Suphannachart, W. (2021). Agricultural productivity growth and poverty reduction: Evidence from Thailand. *Journal of Agricultural Economics, 72*(2), 525–546. https://doi.org/10.1111/1477-9552.12412