

Exploring Self-Perceived Digital Competence among Foreign Language Students at a Vietnamese University

Le-Anh-Phuong Nguyen

University of Social Sciences and Humanities, Vietnam National University Ho Chi Minh City
10-12 Dinh Tien Hoang Street, District 1, Ho Chi Minh City
Corresponding Authors Email: phuongnguyennvn@hcmussh.edu.vn

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Abstract

This study investigates foreign language students' self-perceived digital competence at a Vietnamese university, based on the six-domain structure of the national Digital Competence Framework. A total of 126 students participated in the survey, which measured competencies in information literacy, communication, digital content creation, digital safety, digital problem solving, and responsible use of artificial intelligence (AI). The findings indicate high levels of perceived competence, particularly in information and data literacy, and digital communication and collaboration. However, lower confidence was reported in areas such as screen time management, copyright understanding, and AI content evaluation. Comparative analysis showed no significant differences across gender, year of study, or faculty, but urban students reported significantly higher competence than rural students in several domains. These results highlight the need for targeted interventions to promote digital inclusion and suggest integrating ethical, critical, and AI-related digital skills into foreign language education.

Keywords: Digital Competence, Self-Perception, Foreign Language Education, Higher Education

Introduction

In the digital era, competence in using technology effectively, safely, and ethically has become an essential skill for learners across all disciplines (Redecker, 2017; Ng, 2012). Digital competence goes beyond technical know-how; it includes the ability to retrieve, evaluate, create, and communicate information using digital tools while understanding digital risks, responsibilities, and rights (Carretero et al., 2017). In language education, these competencies are especially relevant, as students increasingly rely on online platforms, AI-powered tools, and multimedia content for communication, collaboration, and creative expression (Nguyen & Habók, 2022).

In response to global digital transformations in education, the Vietnamese Ministry of Education and Training officially introduced the Digital Competence Framework for Learners

through Circular No. 02/2025/TT-BGDDT, issued in 2025. This framework defines six core areas of digital competence for students: (1) information and data literacy, (2) digital communication and collaboration, (3) digital content creation, (4) digital safety, (5) digital problem solving, and (6) responsible use of AI. The Circular serves as a national policy guide for integrating digital competence into general and higher education curricula (Vietnamese Ministry of Education and Training, 2025).

While the framework offers a solid foundation, few empirical studies have evaluated how university students—particularly those in foreign language departments—perceive their own digital competence. Foreign language learners are not only consumers of global digital content, but also active creators and communicators in online spaces, often using AI-assisted tools for translation and writing. As future professionals in global communication, these learners need digital skills not only to succeed academically, but also to navigate ethical and technological challenges in a fast-changing digital world.

This study is important because it provides local insights into how well students are prepared to engage with digital learning tools in alignment with national standards. The findings can inform curriculum development, teacher training, and educational policy aimed at fostering inclusive and future-ready digital education in Vietnam. Understanding students' self-perceived competence is therefore critical to designing inclusive and future-oriented digital curricula (Claro et al., 2018; Warschauer, 2004).

This study investigates the self-perceived digital competence of foreign language students at a Vietnamese university, drawing upon the six-domain structure of the national framework. The study also examines whether perceptions vary across demographic factors such as gender, year of study, faculty, and home residence.

Research Questions

This study seeks to address the following research questions:

RQ1. What is the level of digital competence self-perceived by foreign language students at a Vietnamese university?

RQ2. Are there significant differences in self-perceived digital competence based on gender, year of study, faculty, or home residence?

Literature Review

Digital competence has emerged as a critical component of 21st-century education, encompassing not only technical skills but also the ability to access, evaluate, create, and communicate digital information responsibly (Redecker, 2017; Carretero et al., 2017). In higher education, these skills are increasingly essential, as students are expected to participate in digitally mediated learning environments and utilize digital tools for academic and professional tasks (Ng, 2012).

Digital competence is widely acknowledged as a key skill for the 21st century, even though no single universal definition exists. The European Commission (Carretero et al., 2017) describes it as the confident, critical, and responsible use of digital technologies for learning, work, and social participation. Scholars further emphasize that it goes beyond technical ability, encompassing cognitive, ethical, and collaborative skills (Redecker, 2017). Overall, digital

competence is viewed as a multi-dimensional, essential survival skill in the digital age—enabling individuals to learn, work, create, and interact meaningfully and creatively in digital environments.

Numerous frameworks have been developed to conceptualize digital competence, including DigComp (Carretero et al., 2017), DigCompEdu (Redecker, 2017), and national-level frameworks such as Vietnam's Digital Competence Framework for Learners (Vietnamese Ministry of Education and Training, 2025). The Vietnamese framework identifies six core domains: information and data literacy, digital communication and collaboration, digital content creation, digital safety, digital problem solving, and responsible use of AI. These areas reflect both global standards and local educational priorities in the context of digital transformation.

Research on students' digital competence in language education contexts has emphasized the importance of digital tools for communication, content creation, and self-directed learning (Claro et al., 2018; Nguyen & Habók, 2022). However, critical gaps remain, especially in areas such as ethical use of AI, digital safety, and copyright awareness (Law et al., 2018; Luckin & Holmes, 2016; European Commission, 2022). The emerging use of AI tools in academic settings also raises concerns about students' ability to critically evaluate the reliability and appropriateness of AI-generated content.

Empirical findings on demographic differences are mixed. Some studies found limited gender-based differences in digital confidence (van Deursen & van Dijk, 2015), while others have pointed to persistent gaps based on students' residential backgrounds (Van Dijk, 2020; OECD, 2019). In the Vietnamese context, few studies have focused on digital competence in foreign language education, and even fewer have examined students' self-perceptions in relation to demographic factors. This study contributes to filling that gap.

Methodology

Participants

The study was conducted with 126 undergraduate students enrolled in the foreign language faculty of a Vietnamese university. Participants were selected from three language departments—coded as F01, F02, and F03. The sample included students from all four academic years, representing various levels of digital experience and academic progression.

Data Method

A structured questionnaire was designed based on the six domains of the Digital Competence Framework for Learners (Circular No. 02/2025/TT-BGDDT). The instrument included 24 items mapped to six areas: information and data literacy, digital communication and collaboration, digital content creation, digital safety, digital problem solving, and responsible AI use. To ensure reliability, Cronbach's α coefficients were calculated for each domain, ranging from 0.706 to 0.903, exceeding the commonly accepted threshold of 0.70 for internal consistency (Field, 2013).

Table 1

Validity and reliability indexes with Cronbach's α coefficient

Competence Domains	No. of Items	Cronbach's α
Information and data literacy	3	.741
Digital communication and collaboration	6	.750
Digital content creation	4	.706
Digital safety	4	.893
Digital problem solving	4	.868
Responsible use of AI	3	.903

Data Collection and Analysis

Data were collected through an anonymous online survey using a 5-point Likert scale. Descriptive statistics summarized students' self-perceived competence across six domains. To explore differences by gender, year of study, faculty, and home residence, independent samples t-tests and one-way ANOVA were conducted. Statistical significance was set at $p < .05$. These analyses helped identify group-level differences in students' digital competence.

Results*Descriptive Analysis*

Foreign language students' self-assessments of their digital competence—measured across 24 items—are categorized into six core domains: information and data literacy (3 items), digital communication and collaboration (6 items), digital content creation (4 items), digital safety (4 items), digital problem solving (4 items), and responsible use of AI (3 items). To minimize potential bias, all responses were collected using a 5-point Likert scale, as previously described.

Table 2 reveals that students reported high self-perceived competence in information and data literacy, especially in identifying academic information needs ($M = 4.71$, $SD = .45$) and organizing learning resources ($M = 4.65$, $SD = .48$). However, their perceived ability to evaluate the credibility of online sources was relatively lower ($M = 4.19$, $SD = .59$), suggesting a potential area for improvement.

Table 2

Students' self-perception of digital competence in the domain of information and data literacy

Information and data literacy	Mean	SD
I can identify my academic information needs and search effectively online.	4.71	.45
I know how to evaluate the credibility of online sources (e.g., translation tools, language learning websites).	4.19	.59
I can store and organize learning resources (e.g., videos, e-books, exercises) for later use.	4.65	.48

As shown in Table 3, students demonstrated high self-perceived competence across all six items of digital communication and collaboration. They rated highest in their ability to share digital content responsibly ($M = 4.73$, $SD = .46$), collaborate on group tasks ($M = 4.73$, $SD = .46$), and behave appropriately online ($M = 4.59$, $SD = .51$). Participating in online communities

scored $M = 4.63$ ($SD = .56$), while managing digital identity was rated $M = 4.52$ ($SD = .50$). The lowest mean was for clear communication via digital tools ($M = 4.51$, $SD = .52$), though still indicating a high level of confidence.

Table 3

Students' self-perception of digital competence in the domain of digital communication and collaboration

Digital communication and collaboration	Mean	SD
I can communicate clearly with others using digital tools like email, messaging apps, or online learning platforms.	4.51	.52
I can share information or digital content (like documents, images, or videos) in a proper and responsible way online.	4.73	.46
I know how to take part in online communities or social projects using digital platforms in a responsible way.	4.63	.56
I can work together with others online using tools like shared documents, group chats, or video meetings.	4.57	.51
I know how to behave appropriately when communicating online, including respecting others and different cultures.	4.59	.51
I can manage and protect my digital identity (e.g., name, profile, personal data) across different platforms.	4.52	.50

According to Table 4, students expressed moderate to high self-perceived competence in digital content creation. They felt most confident in combining information from different sources to make new learning materials ($M = 4.31$, $SD = .46$) and creating digital content like presentations or videos ($M = 4.30$, $SD = .46$). Lower scores were found in understanding copyright rules ($M = 3.93$, $SD = .60$) and basic computer instructions ($M = 3.83$, $SD = .55$), indicating areas needing more support.

Table 4

Students' self-perception of digital competence in the domain of digital content creation

Digital content creation	Mean	SD
I can create digital content such as presentations, posters, or videos to share my ideas.	4.30	.46
I know how to combine information from different sources to make new learning materials.	4.31	.46
I understand the importance of copyright and can follow rules when using or sharing online content.	3.93	.60
I know basic ways to give instructions to a computer (e.g., coding or using software tools).	3.83	.55

Table 5 reveals that students reported moderate self-perceived competence in digital safety. The highest mean was in protecting devices and digital content ($M = 3.61$, $SD = .75$). Lower scores were observed in protecting personal data ($M = 3.48$, $SD = .82$), managing screen time ($M = 3.49$, $SD = .85$), and using technology in environmentally and socially respectful ways ($M = 3.48$, $SD = .77$). These results indicate areas needing greater emphasis in digital well-being education.

Table 5

Students' self-perception of digital competence in the domain of digital safety

Digital safety	Mean	SD
I know how to protect my devices and digital content from online threats.	3.61	.75
I understand how to protect my personal data and privacy when using the internet.	3.48	.82
I can manage screen time and avoid online risks that may affect my health or safety.	3.49	.85
I use technology in ways that are safe for the environment and respectful to society.	3.48	.77

In Table 6, students reported moderate confidence in digital problem solving. They felt most capable of updating their digital skills ($M = 3.76$, $SD = .60$) and using tools creatively ($M = 3.75$, $SD = .66$). Scores were similar for choosing the right tools ($M = 3.73$, $SD = .66$) and solving technical issues ($M = 3.72$, $SD = .63$), showing overall consistency across items.

Table 6

Students' self-perception of digital competence in the domain of digital problem solving

Digital problem solving	Mean	SD
I can solve simple technical problems when using digital devices or platforms.	3.72	.63
I can choose and use the right digital tools to solve problems in my learning.	3.73	.66
I use digital tools creatively to improve learning processes and outcomes.	3.75	.66
I know how to find ways to improve my digital skills and keep them up to date.	3.76	.60

Finally, Table 7 illustrates students' self-perceived competence in the responsible use of AI. They reported a high ethical awareness when using AI tools like ChatGPT and Google Translate ($M = 4.48$, $SD = .51$) and a solid understanding of AI's role in education and language learning ($M = 4.52$, $SD = .50$). However, they were slightly less confident in evaluating AI-generated content for academic suitability ($M = 4.26$, $SD = .74$).

Table 7

Students' self-perception of digital competence in the domain of responsible use of AI

Responsible Use of AI	Mean	SD
I understand how AI is used in education and language learning.	4.52	.50
I use AI tools (e.g., ChatGPT, Google Translate, Grammarly) ethically for learning purposes.	4.48	.51
I can evaluate whether AI-generated content is reliable and appropriate for academic work.	4.26	.74

Comparative Analysis by Demographic Factors

Students' perceived digital competence was compared across four demographic variables: gender, year of study, faculty and home residence. Table 8 through 11 provide visual summaries, and corresponding statistical means are included in Table 8 through 11.

Table 8 presents a comparative analysis of students' self-perceived digital competence by gender across six competence domains. The results of independent samples t-tests revealed no statistically significant differences between male and female students in any of the domains (all p-values > .05). For example, in the domain of information and data literacy, males scored $M = 4.49$ ($SD = .45$) and females scored $M = 4.53$ ($SD = .40$), $t(124) = 0.567$, $p =$

.572. Similarly, in digital communication and collaboration, males reported $M = 4.54$ ($SD = .34$), while females reported $M = 4.61$ ($SD = .34$), $t(124) = 1.070$, $p = .287$. These findings suggest that gender does not significantly influence students' self-perceptions of their digital competence.

Table 8

Students' self-perception of digital competence, by gender

Competence Domains	Male		Female		F	Sig.	t	Sig. (2-tailed)
	M	SD	M	SD				
Information and data literacy	4.49	.45	4.53	.40	1.105	.295	.567	.572
Digital communication and collaboration	4.54	.34	4.61	.34	.066	.797	1.070	.287
Digital content creation	4.10	.33	4.09	.40	3.700	.057	-.184	.854
Digital safety	3.62	.60	3.47	.73	3.572	.061	-1.082	.282
Digital problem solving	3.68	.50	3.77	.56	1.377	.243	.844	.400
Responsible use of AI	4.43	.53	4.41	.55	.441	.508	-.129	.897

Table 9 summarizes students' self-perceived digital competence based on their year of study across six competence domains. Overall, the mean scores were relatively consistent among students in Years 1 through 4. For instance, in information and data literacy, Year 1 students reported $M = 4.51$ ($SD = .42$), while Year 4 students reported $M = 4.57$ ($SD = .39$). In digital communication and collaboration, the scores ranged from $M = 4.57$, $SD = .32$ (Year 1) to $M = 4.62$, $SD = .34$ (Year 4). The lowest domain was digital safety, with scores ranging from $M = 3.45$, $SD = .70$ (Year 1) to $M = 3.67$, $SD = .59$ (Year 2). One-way ANOVA results showed no statistically significant differences across years of study in any domain, with p-values well above .05 in all cases. For example, $F(3, 122) = .282$, $p = .838$ for information literacy, and $F(3, 122) = 2.077$, $p = .107$ for digital problem solving. These results suggest that students' year of study does not significantly influence their self-perceived digital competence.

Table 9

Students' self-perception of digital competence, by year of study

Competence Domains	Year 1		Year 2		Year 3		Year 4		F	Sig.
	M	SD	M	SD	M	SD	M	SD		
Information and data literacy	4.51	.42	4.48	.50	4.50	.36	4.57	.39	.282	.838
Digital communication and collaboration	4.57	.32	4.58	.34	4.59	.38	4.62	.34	.135	.939
Digital content creation	4.09	.40	4.16	.39	4.03	.38	4.11	.35	.594	.620
Digital safety	3.45	.70	3.67	.59	3.47	.76	3.51	.71	.581	.628
Digital problem solving	3.90	.56	3.56	.49	3.73	.54	3.74	.53	2.077	.107
Responsible use of AI	4.34	.59	4.47	.51	4.47	.55	4.41	.52	.375	.771

Table 10 displays students' self-perceived digital competence by faculty (F01, F02, F03) across six domains. The reported mean scores across faculties were relatively similar. For instance, in information and data literacy, the mean ranged from $M = 4.50$, $SD = .45$ (F01) to $M = 4.55$, $SD = .38$ (F02). For digital communication and collaboration, F02 students had the highest mean ($M = 4.68$, $SD = .31$), while F03 reported the lowest ($M = 4.53$, $SD = .39$). The lowest overall scores were observed in digital safety, where F02 students reported $M = 3.48$ ($SD = .77$), and F01 and F03 students both reported $M = 3.53$. ANOVA results revealed no statistically significant differences among faculties in any domain, as all p -values exceeded .05. For example, $F(2, 123) = .214$, $p = .807$ for information literacy and $F(2, 123) = 2.248$, $p = .110$ for digital communication. These findings indicate that students' self-perceived digital competence did not significantly differ by faculty.

Table 10

Students' self-perception of digital competence, by faculty

Competence Domains	F01		F02		F03		F	Sig.
	M	SD	M	SD	M	SD		
Information and data literacy	4.50	.45	4.55	.38	4.51	.42	.214	.807
Digital communication and collaboration	4.57	.31	4.68	.31	4.53	.39	2.248	.110
Digital content creation	4.09	.39	4.12	.40	4.07	.36	.129	.879
Digital safety	3.53	.65	3.48	.77	3.53	.67	.073	.929
Digital problem solving	3.84	.56	3.65	.57	3.74	.49	1.267	.285
Responsible use of AI	4.37	.54	4.54	.55	4.36	.53	1.472	.233

Table 11 presents students' self-perceived digital competence based on their home residence (urban vs. rural). Significant differences were found in four of the six domains. Urban students consistently reported higher mean scores than rural students. The most pronounced difference was observed in information and data literacy ($M = 4.78$, $SD = .24$ for urban vs. $M = 4.23$, $SD = .37$ for rural), with a statistically significant result, $t(124) = 9.921$, $p < .001$. Similar significant gaps were observed in digital communication and collaboration ($t = 4.317$, $p < .001$), digital content creation ($t = 4.563$, $p < .001$), and responsible use of AI ($t = 2.347$, $p = .020$). No significant differences were found in digital safety or digital problem solving. These results suggest that students from urban areas perceive themselves as more digitally competent than those from rural areas, particularly in domains requiring active engagement, collaboration, and the use of AI tools.

Table 11

Students' self-perception of digital competence, by home residence

Competence Domains	Urban		Rural		F	Sig.	t	Sig. (2-tailed)
	M	SD	M	SD				
Information and data literacy	4.78	.24	4.23	.37	33.682	.000	9.921	.000
Digital communication and collaboration	4.71	.28	4.46	.36	3.377	.069	4.317	.000
Digital content creation	4.23	.39	3.94	.31	7.594	.007	4.563	.000
Digital safety	3.52	.67	3.52	.73	1.021	.314	-.016	.987
Digital problem solving	3.69	.52	3.80	.56	.015	.902	-1.106	.271
Responsible use of AI	4.52	.55	4.30	.51	1.367	.245	2.347	.020

Discussion

This study explored foreign language students' self-perceived digital competence across six domains defined in the Vietnamese Digital Competence Framework for Learners. The findings provide a comprehensive picture of students' confidence in using digital tools for learning and communication, as well as areas requiring further development.

In response to RQ1 — What is the level of digital competence self-perceived by foreign language students? — the results reveal generally high levels of self-perceived competence. Students expressed the highest confidence in information and data literacy and digital communication and collaboration, particularly in identifying academic information needs ($M = 4.71$) and sharing content responsibly ($M = 4.73$). These findings are consistent with previous studies showing that university students tend to feel digitally capable in communication and information handling tasks (Nguyen & Habók, 2022; Claro et al., 2018; Ng, 2012).

In contrast, lower ratings were found in digital safety and content creation, especially in understanding copyright ($M = 3.93$) and screen time management ($M = 3.49$). This highlights areas of concern regarding students' critical digital literacy and digital well-being — issues also noted in studies by Law et al. (2018) and Warschauer (2004). Although students reported high awareness of ethical AI use ($M = 4.48$), their ability to assess the appropriateness of AI-generated content ($M = 4.26$) remained comparatively lower, reflecting global concerns about AI literacy in education (Luckin & Holmes, 2016; European Commission, 2022).

As for RQ2 — Are there significant differences based on gender, year of study, faculty, or home residence? — the analysis revealed no statistically significant differences across gender, year of study, or faculty, aligning with prior studies that found diminishing digital divides in institutional learning environments (van Deursen & van Dijk, 2015; Redecker, 2017). However, residential background emerged as a critical variable: students from urban areas consistently reported significantly higher competence in information and data literacy, digital communication and collaboration, digital content creation, and responsible use of AI ($p < .05$).

This result echoes long-standing concerns about unequal digital access between urban and rural populations (Van Dijk, 2020; OECD, 2019).

Overall, the results reinforce the importance of strengthening critical and ethical digital literacy, particularly for students from underserved backgrounds. Embedding AI literacy, copyright awareness, and digital safety into the language curriculum may help address observed gaps and promote equitable digital readiness across all demographic groups.

Conclusion

This study investigated foreign language students' self-perceived digital competence based on six core domains of the national Digital Competence Framework. Overall, students demonstrated high levels of digital confidence, especially in accessing and managing academic information, collaborating in digital environments, and using AI tools ethically. These findings suggest that digital tools are well-integrated into students' academic practices and daily learning behaviors. However, the study also uncovered important gaps in areas such as copyright knowledge, screen time management, and the ability to critically evaluate AI-generated content. These competencies are vital in today's digital learning environments and must be explicitly addressed in curriculum design.

While demographic variables such as gender, year of study, and faculty did not significantly influence perceived competence, residential background showed consistent disparities. Students from urban areas reported significantly higher self-perceived competence in multiple domains compared to their rural counterparts. This highlights the ongoing digital divide and the need for targeted interventions to support digital inclusion.

Future initiatives should focus on bridging these gaps through formal training in digital ethics, AI literacy, and digital well-being, ensuring that all students—regardless of background—are equipped for success in digitally mediated education.

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