

ENGLISH AS A FOREIGN LANGUAGE TEACHERS' PERCEIVED COMPETENCE LEVELS IN USING INFORMATION AND COMMUNICATION TECHNOLOGY

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ARTICLE INFO	ABSTRACT
Received: 09/01/2023 Revised: 14/02/2023 Published: 14/02/2023 KEYWORDS English language teaching Competence Teachers' perception Educational technology Information and communication technology (ICT)	This study sought to determine the English as a foreign language teachers' perceived competence levels in using information and communication technology, and the impacts of gender and age on their levels of information and communication technology competence. An adapted questionnaire based on Albirini's (2004) study was employed to collect data. The questionnaire had two parts: Part 1 - The demographic scale and Part 2 - the information and communication technology competence scale, which was composed of 18 four-point Likert items. The quantitative methods, descriptive and inferential statistics were used to analyze data collected from 112 teachers through an online survey via Google Forms. The results showed that although teachers were not competent in several specific skills, they generally had moderate levels of information and communication technology competence. In addition, the study indicated that age and gender influenced teachers' levels of information and communication technology competence. Finally, the findings in the study gave some implications for future studies of teachers' levels of information and communication technology competence.

NHẬN THỨC VỀ NĂNG LỰC SỬ DỤNG CÔNG NGHỆ THÔNG TIN VÀ TRUYỀN THÔNG CỦA GIÁO VIÊN GIẢNG DẠY TIẾNG ANH NHƯ MỘT NGOẠI NGỮ

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THÔNG TIN BÀI BÁO	TÓM TẮT
Ngày nhận bài: 09/01/2023 Ngày hoàn thiện: 14/02/2023 Ngày đăng: 14/02/2023 TỪ KHÓA Giảng dạy tiếng Anh Năng lực Nhận thức của giáo viên Công nghệ giáo dục Công nghệ thông tin và truyền thông (ICT)	Nghiên cứu này nhằm tìm hiểu nhận thức của giảng viên giảng dạy tiếng Anh như một ngoại ngữ về năng lực sử dụng công nghệ thông tin và truyền thông của họ, đồng thời nghiên cứu ảnh hưởng của giới tính và độ tuổi đến năng lực này. Phiếu khảo sát dựa theo nghiên cứu của Albirini (2004) có sự điều chỉnh được dùng làm công cụ thu thập số liệu. Phiếu khảo sát gồm 02 phần: Phần 1 điều tra thông tin cá nhân của giảng viên và Phần 2 gồm 18 nhận định với 4 mức lựa chọn theo thang đo Likert. Phương pháp phân tích định lượng, số liệu thống kê mô tả và suy diễn được sử dụng để phân tích dữ liệu thu thập được từ 112 giảng viên thông qua cuộc khảo sát trực tuyến bằng Google Form. Kết quả cho thấy, mặc dù giảng viên chưa thành thạo trong một số kỹ năng cụ thể, năng lực sử dụng công nghệ thông tin và truyền thông của họ nhìn chung là thành thạo. Ngoài ra, nghiên cứu cũng chỉ ra giới tính và độ tuổi có ảnh hưởng đáng kể đến năng lực sử dụng công nghệ thông tin và truyền thông của giảng viên. Cuối cùng, nghiên cứu đưa ra một số gợi ý cho các nghiên cứu về năng lực sử dụng công nghệ thông tin và truyền thông của giảng viên.

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1. Introduction

These days information and communication technology (ICT) has played essential roles in every sector of our daily life. It has made tremendous contributions to enhancing work performance and transforming conventional working habits into ICT-based procedures. Some benefits of using ICT can be noted such as saving time and effort, improving the efficiency of task execution, facilitating communications among people, and optimizing capital investments. In education, ICT has promoted innovations in teaching and learning methods, which has resulted in fruitful outcomes for stakeholders (education management agencies, educators, teachers, and students). For example, some studies have shown that using ICT appropriately can raise educational quality and connect learning to real-life situations [1], [2]. Concerning English language teaching, teachers have utilized ICT in their teaching practices and accredited that it is a valuable tool to enhance their teaching [3] - [5]. Ten years ago, for example, online instructions or blended learning using a learning management system (LMS) were not widespread in English education. However, such teaching and learning methods may be easily seen in most modern classes. Through ICT, online course materials and an abundant amount of free English resources can be accessible for teachers and students, which makes the instructions occur anytime and anywhere.

Educational systems have paid much attention to seeking methods to apply ICT in teaching and learning English effectively. So far significant investments in ICT resources such as language labs, projectors, and interactive whiteboards have been made across several nations, enabling their integration into the instruction process [6]. In some cases, however, the use of these ICT facilities has not met the targeted outcomes and has not transformed conventional instructions. The use of ICT for administrative purposes rather than for teaching and learning activities has been uncovered among English as a foreign language (EFL) teachers [7]. In some other cases, they have used ICT to complement their traditional ways of teaching [7], [8], or used ICT at a limited level [9].

It has been argued that the effectiveness of using ICT in teaching depends on several personal and social factors rather than the availability of ICT facilities [10] - [12]. Social factors refer to the ones related to the institutions, the ICT facilities, ICT attributes, social norms, etc. By contrast, personal factors are those belonging to teachers' characteristics like age, gender, attitudes, teaching experience, and ICT competence. Among the personal factors, teachers' ICT competence has been claimed to be the second most crucial determinant for successful ICT adoption after teachers' attitudes. From the operational perspective, Aesaert et al. [13] argued that ICT competences comprised of higher-order learning processing competences in which technical skills and application skills are integrated. Technical and application skills refer to the use of basic software, such as saving a text, sending an e-mail, word processing, etc.. The higher-order learning processing skills refer to the ability to be creative and innovative, solve problems and think critically with a computer, such as communicating and searching, synthesizing and evaluating information in a digital context [14], [15]. From this definition, it can be seen that teachers' ICT competences are the composition of complex abilities.

Some studies argued that teachers' competence in using ICT were a significant predictor of their actual ICT use and successful teaching practices with ICT [16] - [18], [10]. Pelgrum [9] indicated that teachers' lack of knowledge and skills was the second most inhibiting obstacle to the use of computers in schools. Dinh [19] pointed out that the more EFL teachers' knowledge and skills, informed by the Technological Pedagogical Content Knowledge framework, the more likely it was that they would use ICT for classroom instructions. In his research, Salinas et al. [10] found that although there was a correlation between the teachers' knowledge of ICT and the advanced stage of ICT adoption, it was only statistically significant in the case of Ecuadorian teachers. The same study by Albirini showed that Syrian EFL teachers' little ICT competence, which was mediated through their attitudes towards the use of ICT in teaching English, could predict their actual use of computers in the classroom [20]. The past research also attempted to examine the relationships

between teachers' characteristics and their ICT competence [21], [22]. Vitanova et al. [22] indicated that gender and age had a significant relationship with the teacher's ICT competence. Specifically, he postulated that males were more likely to have higher ICT competence than females, and ICT competence decreased as age increased for teachers.

Wang and Dostál [23] claimed that ICT competence in education has drawn much attention from researchers, but teachers' ICT competence was rarely mentioned in studies in English education. Moreover, the research into teachers' ICT competence has received significant attention from researchers in global pedagogical settings, but few inquiries have been done to investigate EFL teachers' perceived ICT competence levels in Vietnam, especially in higher education settings. Therefore, this study sought to reveal the current levels of ICT competence as perceived by tertiary EFL teachers at a Vietnamese university. Especially, the present study addressed the following research questions:

1. *What are the Vietnamese tertiary teachers' perceptions of their ICT competence levels?*
2. *What are the relationships between the teachers' perceived ICT competence levels and gender and age?*

2. Methods

2.1. Participants

The participants were 112 EFL teachers from Thai Nguyen University. Most were females (88.4%) and the rest were males (11.6%). Their age ranged from 25 to 48 years old. Regarding educational level, the teachers possessing doctoral titles accounted for 19.6% compared to 80.4 % of the master's degree holders. None of them had bachelor's degrees. Regarding the English teaching experience at their current academic institutions, 34.8% of respondents had 6 to 10 years of teaching, and 42.9% of them had been teaching for 11 to 15 years. 16.1% of the teachers had 16 to 20 years of teaching experience, and the rest had a very long-time experience of teaching (21 to 25 years). A majority of teachers (88.4%) had attended ICT training programs (workshops/ seminars/ courses) while the others had not. Most teachers were favorable to adopt ICT in their teaching practices.

2.2. Data collection and analysis

2.2.1. Instrument

An adapted survey questionnaire based on Albirini's study [20] was used to obtain data for this inquiry. The questionnaire consisted of two parts: Part A – The demographic scale, collected teachers' demographic information including gender, age, year of teaching English, educational level, ICT training and income; Part B – The ICT competence scale, was composed of 18 items to gauge teachers' perceptions of their ICT competence levels. These 18 items were designed on a 4-point Likert scale format with values 1 = "No competence", 2 = "Little competence", 3 = "Moderate competence", and 4 = "Much competence". To ensure the validity and reliability of the instrument, the adapted questionnaire was submitted to two experts in the fields and 10 teachers to get their consultations and feedback on any points of misunderstanding or ambiguity. Taking into careful consideration, the researchers made some required changes to the items. In addition, a pilot survey was conducted before the official one. In the pilot phase, 42 randomly picked teachers completed the questionnaire. The calculation of Cronbach's alpha coefficient revealed that the adapted questionnaire had a very good Cronbach's alpha coefficient of over 0.85, which indicated that the survey items were reliable for the official survey [24], [25].

2.2.2. Data collection procedures and analysis

After obtaining permission from the leaders of the participating departments of English, the online survey questionnaire designed on Google Forms was administered to all 138 EFL teachers

via email in an attempt to allow all the teachers to express their perception of their ICT competence levels in teaching English. Some further measures (reminder emailing, telephoning, providing incentives, and sending reminder postcards) were employed to increase the response rate. After four weeks, 112 teachers completed the survey reaching a response rate of 81%, which was “a good response rate cutoff for maintaining representativeness” [25] (p. 276). The collected data were screened and cleaned before being entered into the Statistical Package for the Social Sciences Software (SPSS) version 25 for analysis. Descriptive statistics such as percentages, mean score and standard deviation were used to reveal teachers’ perceptions of their ICT competence levels in teaching English. Verbal interpretation for the scale range of the 4-point Likert scale was used to determine teachers’ perceived ICT competence levels, where 3.28-4 (Much competence), 2.52-3.27 (Moderate competence), 1.76-2.51 (Little competence), and 1.0-1.75 (No competence) [26]. An independent Sample T-test and a One-Way ANOVA were performed to uncover the differences in teachers’ perceived ICT competence levels in terms of age and gender.

3. Findings and discussions

3.1. English as a foreign language teachers’ perceived ICT competence

Table 1 shows the frequency of teachers’ responses to the 18-item ICT competence scale. As can be seen from Table 1, teachers’ ICT competence levels varied from little competence to much competence by their specific ICT knowledge and skills. Specifically, they were moderately competent or much competent in basic technical and application skills. By contrast, teachers perceived themselves as incompetent users of higher-order processing skills. Teachers were much competent in using the Internet for communication. They were moderately competent in using hardware products including printers and computer keyboards ($M = 3.0$, $SD = 0.7$), and using a word processing program ($M = 3.1$, $SD = 0.7$) and a presentation program ($M = 3.0$, $SD = 0.7$). Besides, teachers were moderately competent in creating and organizing files and folders ($M = 3.1$, $SD = 0.7$). Data from Table 1 also indicated that teachers possessed moderate ICT competence levels in using the Internet to access different types of information ($M = 3.2$, $SD = 0.8$), and in using social networks for educational purposes ($M = 3.0$, $SD = 0.8$).

Table 1. Distribution of participants’ responses on ICT competence

ICT competence items	M	SD	Frequency (%)			
			1	2	3	4
1. Use a printer	3.0	0.7	0.0	24.1	50.9	25.0
2. Use a computer keyboard	3.0	0.7	0.0	21.4	55.4	23.2
3. Install new software on a computer	2.5	0.8	10.7	38.4	41.1	9.8
4. Operate a word processing program (e.g., Word)	3.1	0.7	0.0	17.9	52.7	29.5
5. Operate a presentation program (e.g., PowerPoint)	3.0	0.7	0.0	21.4	53.6	25.0
6. Operate a spreadsheet program (e.g., Excel)	2.5	0.9	12.5	35.7	40.2	11.6
7. Operate a database program (e.g., Access)	1.4	0.8	71.4	15.2	11.6	1.8
8. Operate a graphics program (e.g., Photoshop)	1.4	0.7	74.1	15.2	8.9	1.8
9. Use ICT applications for grade keeping	2.5	0.9	13.4	34.8	40.2	11.6
10. Evaluate educational software	2.0	0.9	37.5	31.3	26.8	4.5
11. Create and organize computer files and folders	3.1	0.7	0.9	19.6	49.4	30.4
12. Solve simple problems in operating ICT applications	2.4	0.8	11.6	48.2	28.6	11.6
13. Remove computer viruses	2.4	0.9	23.2	30.4	33.9	12.5
14. Use the Internet for communication (e.g., email and chat room)	3.4	0.7	0.0	10.7	43.8	45.5
15. Use the World Wide Web to access different types of information	3.2	0.8	1.8	16.1	42.9	39.3
16. Use a learning management system (e.g., Google Classroom and Edmodo)	2.7	0.8	4.5	38.4	41.1	16.1
17. Use ICT applications to create games (e.g., Quizizz and Kahoot)	2.2	0.9	27.7	33.0	28.6	10.7
18. Use a social network for educational purposes (e.g., Facebook, Zalo, Twitter)	3.0	0.8	1.8	26.8	46.4	25.0

Scale: 1 = No competence 2 = Little competence 3 = Moderate competence 4 = Much competence

However, respondents reported that they were not competent in operating database management programs ($M = 1.4$, $SD = 0.8$) or graphic programs ($M = 1.4$, $SD = 0.7$). Regarding the other ICT knowledge and skills including installing new software, operating a spreadsheet program, using ICT applications for grade keeping, evaluating educational software, solving simple problems in operating ICT applications, removing computer viruses, using a learning management system, and using ICT applications to create games, teachers reported that they were little competent as illustrated by the mean scores ranging from 2.0 to 2.5 and the standard deviations ranging from 0.8 to 0.9.

On average, the respondents reported that they had moderate competence in using ICT. The overall mean score of teachers' responses on the ICT competence scale was 2.6 with a standard deviation of 0.6 (see Table 2).

Table 2. Distribution of mean scores on the ICT competence scale

Scale	<i>M</i>	<i>SD</i>	Frequency (%)			
			1	2	3	4
ICT competence	2.6	0.6	16.2	26.6	38.6	18.6

Scale: 1 = No competence 2 = Little competence 3 = Moderate competence 4 = Much competence

3.2. The relationships between teachers' perceived ICT competence levels and gender and age

To examine the differences in teachers' perceived ICT competence levels concerning gender, the overall ICT competence scores of teachers were subjected to an independent-sample t-test. Table 3 presents the results of the independent Samples t-test comparing the mean scores for respondents' ICT competence levels and gender. The results showed that there was a statistically significant difference in the mean scores for males ($M = 2.9$, $SD = 0.7$) and females ($M = 2.5$, $SD = 0.5$); $t(110) = 2.140$, $p = 0.035$. These results showed that male teachers were more competent in using ICT than female teachers.

Table 3. Comparison of ICT competence scores in terms of gender

Levene's Test for Equality of Variances		<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i> (110)	<i>p</i>
Gender	Male	13	2.902	0.728	2.140	.035
	Female	99	2.557	0.520		

To examine the difference in teachers' perceived ICT competence levels in terms of age, a OneWay ANOVA test was conducted. The Levene value showed equal variances between groups ($p = 0.76$). The results indicated that there was a statistically significant effect of age on teachers' ICT competence at the $p < 0.05$ level for three age groups, $F(2,109) = 4.97$, $p = 0.009$. Table 4 shows the comparison of mean scores for three age groups. It can be seen that the mean scores for the two age groups 20 - 29 and 30 - 39 were about the same with mean scores of 2.8 and 2.7, respectively, and higher than the mean score for the age group 40 - 49 ($M = 2.4$). These results suggest that age does influence teachers' ICT competence. Specifically, our results suggest that when teachers get older, their competence in using ICT decreases.

Table 4. Comparison of ICT competence scores in terms of age

	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SE</i>	95% <i>CI</i>	<i>Min</i>	<i>Max</i>
Age group	20 - 29	4	2.763	0.535	[1.9, 3.6]	2.22	3.28
	30 - 39	75	2.696	0.061	[2.6, 2.8]	1.61	4.00
	40 - 49	33	2.350	0.096	[2.2, 2.6]	1.56	3.56
	Total	112	2.597	0.052	[2.5, 2.7]	1.56	4.00

3.3. Discussion

The findings of this study demonstrated that Vietnamese EFL teachers had moderate ICT competence levels, which was inconsistent with Albirini's study [20], which reported that teachers had little competence in using computers. These contradictory findings might be

attributed to the differences in teachers' pedagogical settings or the prevalence of ICT facilities these days compared to the time when Albirini conducted his study. However, the findings support Malinina's argument that foreign language teachers have above the basic or intermediate level of knowledge of ICT applications [27]. The present findings also align with those in a recent study conducted by Le et al. that Vietnamese teacher students have good skills in using computers, the Internet, and applications [28]. The moderate level of ICT competence suggested that EFL teachers from Thai Nguyen University had adequate ICT knowledge and skills to adopt ICT in their instruction.

Concerning the relationships between gender and age and teachers' levels of ICT competence, the results indicated that gender and age affected teachers' perceived competence levels in using ICT. These results are similar to the findings in Vitanova et al.'s research [22]. Vitanova et al.[22] found that men were more likely to have higher ICT competence than women, and the ICT competence score decreased as age increased. However, our findings are not in line with Fuente and Biñas' claim that age and gender had no significant effect on Filipino teachers' ICT competence [21].

4. Conclusions and implications

This study investigated tertiary EFL teachers' perceived ICT competence, which contributes to the literature on teachers' ICT competence given the perspective that there were few studies conducted specifically in Vietnam on the assessment of teachers' ICT competence. The results showed that teachers have possessed adequate ICT knowledge and skills to adopt ICT in teaching English. Therefore, stakeholders should encourage and make it mandatory for teachers to use ICT in their instruction so that more effective teaching and learning can be obtained. The findings of this study also showed that female teachers were not as competent in using ICT as male ones, and the senior teachers had a lower level of ICT competence compared to younger generations. It is therefore recommended that more attention to fostering ICT competence for these groups of teachers should be paid.

This study retained some limitations in terms of the methodology, sample size and scope. Methodologically, using quantitative research to investigate the teachers' perceived ICT competence levels which consists of complex abilities would not provide an in-depth insight into the phenomenon. Therefore, it is suggested that a mixed method approach combining quantitative and qualitative techniques should be employed for the studies of teachers' ICT competence. Besides, this study focused on the impacts of only gender and age which also failed to provide a comprehensive view of the teachers' ICT competence concerning other factors such as teaching experience, ICT training, educational level, teachers' beliefs, ICT access and ICT attributes. Therefore, it is suggested that studies with extended scopes should be carried out to fulfill this limitation. Finally, the main limitation of this study is its sample size of teachers. Further studies need to include larger samples of teachers at all levels of foreign language instruction to ensure a more complete understanding of the current situation and analysis of what work still needs to be done.

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REFERENCES

- [1] D. L. Lowther, F. A. Inan, J. Daniel Strahl, and S. M. Ross, "Does technology integration 'work' when key barriers are removed?," *EMI. Educ. Media Int.*, vol. 45, no. 3, pp. 195–213, 2008, doi: 10.1080/09523980802284317.

- [2] T. Van Weert and A. Tatnall, *Information and Communication Technologies and Real-Life Learning*. New York: Springer, 2005.
- [3] C. Player-Koro, "Factors Influencing Teachers' Use of ICT in Education," *Educ. Inq.*, vol. 3, no. 1, pp. 93–108, 2012, doi: 10.3402/edui.v3i1.22015.
- [4] J. S. Fu, "ICT in Education: A Critical Literature Review and Its Implications," *Int. J. Educ. Dev. using Inf. Commun. Technol.*, vol. 9, no. 1, pp. 112–125, 2013.
- [5] M. M. Yunus, "Malaysian ESL teachers' use of ICT in their classrooms: Expectations and realities," *ReCALL*, vol. 19, no. 1, pp. 79–95, 2007, doi: 10.1017/S0958344007000614.
- [6] F. Tilya, "IT and Educational Policy in the Sub-Saharan African Region," in *International Handbook of Information Technology in Primary and Secondary Education*, J. Voogt and G. Knezek, Eds. New York: Springer New York, 2008, pp. 1145–1159.
- [7] A. Mwalongo, "Teachers' perceptions about ICTs for teaching, professional development, administration and personal use," *Int. J. Educ. Dev. using ICT*, vol. 7, no. 3, pp. 36–49, 2012.
- [8] S. Thorvaldsen, L. Vavik, and G. Salomon, "The Use of ICT Tools in Mathematics: A Case-control Study of Best Practice in 9 th Grade Classrooms," *Scand. J. Educ. Res.*, vol. 56, no. 2, pp. 213–228, 2012, doi: 10.1080/00313831.2011.581684.
- [9] W. J. Pelgrum, "Obstacles to the integration of ICT in education: Results from a worldwide educational assessment," *Comput. Educ.*, vol. 37, no. 2, pp. 163–178, 2001, doi: 10.1016/S0360-1315(01)00045-8.
- [10] Á. Salinas, M. Nussbaum, O. Herrera, M. Solarte, and R. Aldunate, "Factors affecting the adoption of information and communication technologies in teaching," *Educ. Inf. Technol.*, vol. 22, no. 5, pp. 2175–2196, 2016, doi: 10.1007/s10639-016-9540-7.
- [11] Y. Zhao and K. A. Frank, "Factors Affecting Technology Uses in Schools: An Ecological Perspective," *Am. Educ. Res. J.*, vol. 40, no. 4, pp. 807–840, 2003, doi: 10.3102/00028312040004807.
- [12] C. P. Lim, Y. Zhao, J. Tondeur, C. S. Chai, and C. C. Tsai, "Bridging the gap: Technology trends and use of technology in schools," *Educ. Technol. Soc.*, vol. 16, no. 2, pp. 59–68, 2013.
- [13] K. Aesaert, J. Van Braak, D. Van Nijlen, and R. Vanderlinde, "Primary school pupils' ICT competences: Extensive model and scale development," *Comput. Educ.*, vol. 81, pp. 326–344, 2015, doi: 10.1016/j.compedu.2014.10.021.
- [14] The European Commission, *Key competences for lifelong learning - Publications Office of the EU*. Luxembourg: Publications Office of the European Union, 2019.
- [15] M. Claro, D. D. Preiss, E. San Martín *et al.*, "Assessment of 21st century ICT skills in Chile: Test design and results from high school level students," *Comput. Educ.*, vol. 59, pp. 1042–1053, 2012, doi: 10.1016/j.compedu.2012.04.004.
- [16] G. Knezek and R. Christensen, "Impact of new information technologies on tourism industry and businesses," *Educ. Inf. Technol.*, vol. 7, no. 4, pp. 365–376, 2002, doi: 10.1108/eb058151.
- [17] G. W. Latio, "Examination of Factors that Influence Computer Technology Use for Classroom Instruction by Teachers in Ohio Public High Schools," Ph.D dissertation, Grad. Scho., Ohio Uni., Ohio, 2009.
- [18] N. S. Lengkanawati, "EFL Teachers' Competence in the Context of English Curriculum 2004: Implications for EFL Teacher Education," *TEFLIN J. - A Publ. Teach. Learn. English*, vol. 16, no. 1, pp. 79–91, 2005, doi: 10.15639/teflinjournal.v16i1/79-92.
- [19] T. B. H. Dinh, "Factors influencing English as a foreign language (EFL) teachers' use of information and communication technology (ICT) in classroom practice: A mixed methods study at Hanoi University, Vietnam," Ph.D dissertation, Scho. Educ., RMIT Uni., Melbourne, 2015.
- [20] A. Albirini, "An Exploration of the Factors Associated with the Attitudes of High School EFL Teachers in Syria toward Information and Communication Technology," Ph.D dissertation, Grad. Scho., Ohio Uni., Ohio, 2004.
- [21] J. A. Dela Fuente and L. C. Biñas, "Teachers' Competence in Information and Communications Technology (ICT) as an Educational Tool in Teaching: An Empirical Analysis for Program Intervention," *J. Res. Educ. Sci. Technol.*, vol. 5, no. 2, pp. 61–76, 2020.
- [22] V. Vitanova, T. Atanasova-Pachemska, D. Iliev, and S. Pachemska, "Factors Affecting the Development of ICT Competencies of Teachers in Primary Schools," *Procedia - Soc. Behav. Sci.*, vol. 191, pp. 1087–1094, 2015, doi: 10.1016/j.sbspro.2015.04.344.
- [23] X. Wang and J. Dostál, "Study of future EFL teachers' ICT competence and its development under the

- TPCK framework,” in *Lecture Notes in Computer Science*, vol. 11284 LNCS, pp. 156–165, 2018.
- [24] J. Pallant, *SPSS SURVIVAL MANUAL: A step step by step guide to data analysis using IBM SPSS*, 6th ed. New York: MacGraw-Hill Education, 2016.
- [25] J. F. Hair, W. C. Black, B. J. Babin, and R. E. Anderson, *Multivariate Data Analysis*, 8th ed. Hampshire: Cengage Learning EMEA, 2018.
- [26] J. L. Pimentel, “Some Biases in Likert Scaling Usage and its Correction,” *Int. J. Sci. Basic Appl. Res.*, vol. 45, no. 1, pp. 183–191, 2019. [Online]. Available: <http://gssrr.org/index.php?journal=JournalOfBasicAndApplied>. [Accessed October 15, 2022].
- [27] I. Malinina, “ICT Competencies of Foreign Languages Teachers,” *Procedia - Soc. Behav. Sci.*, vol. 182, pp. 75–80, 2015, doi: 10.1016/j.sbspro.2015.04.740.
- [28] T. N. Le, T. K. T. Dinh, P. L. Vu, and T. P. V. Nguyen, “ICT Competence of Pre-service Teachers in Vietnam: Structure and Impact Model,” *J. Educ. Soc. Res.*, vol. 12, no. 3, pp. 172–181, 2022.