Iranian Journal of Applied Language Studies
University of Sistan and Baluchestan
Print ISSN: 2008-5494 Online ISSN: 2322-3650
Homepage: https://ijals.usb.ac.ir
Uppsala University

Exploring Technological Pedagogical Content Knowledge among Iraqi High School English Teachers: A Comparative Study during the COVID-19 Pandemic

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Abstract

This study investigates the technological pedagogical content knowledge (TPACK) of Iraqi English teachers in public and private high schools during the COVID-19 pandemic. It also examines the potential impact of gender and school type on participants' TPACK perceptions. The results, derived from a TPACK survey (Baser et al., 2015), indicate significant differences between public and private school Iraqi English teachers in terms of overall TPACK scores and perceptions of individual TPACK constructs of technological knowledge, technological content knowledge, technological pedagogical knowledge, and technological pedagogical content knowledge. However, no significant differences were observed in the constructs of content knowledge, pedagogical knowledge, and pedagogical content knowledge. Additionally, the study found no significant disparities between male and female Iraqi EFL teachers in overall TPACK scores or perceptions of individual TPACK constructs. These findings offer insights into TPACK in Iraqi public and private high schools and shed light on how male and female Iraqi EFL teachers perceive their competencies when utilizing information and communication technology in English language instruction. Considering these findings, it is recommended to implement training and professional development programs to support teachers in effectively integrating technology into language education, especially within their classrooms.

Keywords: TPACK perceptions, Iraqi English teachers, public and private high schools, COVID-19 pandemic, gender differences

Received: June 10, 2022 Revised: October 11, 2022 Accepted: February 19, 2023
Article type: Research Article DOI: 10.22111/IJALS.2023.45855.2356
Publisher: University of Sistan and Baluchestan

How to cite: Mashhadi, A., Kassim Kadhum, A., & Gooniband Shooshtari, Z., (2023). Exploring technological pedagogical content knowledge among Iraqi high school English teachers: A comparative study during the COVID-19 pandemic. *Iranian Journal of Applied Language Studies*, *15*(1), 141-154. https://doi.org/10.22111/10.22111/IJALS.2023.45855.2356

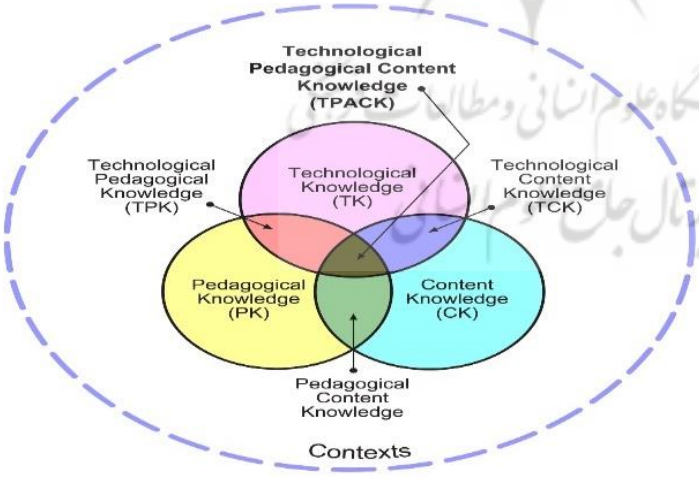
1. Introduction

The widespread development and adoption of information and communication technology (ICT) have revolutionized education as a whole, including English language instruction (Sharples, 2006). As ICT continues to play a prominent role in education, it is crucial for teachers to leverage these technological tools to enhance their professional development and effectively support student learning. One prominent framework for integrating technology in education is the Technological Pedagogical Content Knowledge (TPACK) model developed by Mishra and Koehler (2006). TPACK emphasizes the interconnected nature of technology, pedagogy, and content knowledge. Mishra and Koehler (2006) argue that educators need to possess three distinct forms of knowledge: technological knowledge (TK), pedagogical knowledge (PK), and content knowledge (CK). In this framework, knowledge refers to the information and skills necessary for effective teaching, technology encompasses various devices and tools integrated into the educational context, pedagogy involves the application of instructional strategies to facilitate learning, and content represents the subject matter taught to students (Peels, 2010; Mishra & Koehler, 2006).

As depicted in Figure 1, in addition to the three knowledge forms, Koehler and Mishra (2009) point out that effective teaching with technology is heavily reliant on teachers' knowledge of, among all other contextual factors, technological content knowledge (TCK), pedagogical content knowledge (PCK), and technological pedagogical knowledge (TPK).

Figure 1

TPACK Framework



The concept of TPACK in English as a foreign language (EFL) teaching can be described as follows: a) establishing technology-enhanced learning environments for language learning, b) participating in digital language learning communities, c) providing students with access to digital language learning resources, and d) demonstrating intercultural communication through

technology (Bostancıoğlu & Handley, 2018). In other words, EFL TPACK specifies the knowledge that English teachers need to effectively use ICT in their classes.

According to Mishra and Koehler (2006), adopting TPACK as a framework to analyze teachers' understanding of ICT technologies might affect the kind of instruction and professional development opportunities created for them. In this sense, modern educational trends cannot be dissociated from the educational affordances of ICT. As a result, continued study on teachers' ICT knowledge and practices is required to propose new tactics that better educate them to effectively integrate technology into the teaching and learning process (Mishra & Koehler, 2006). This study follows the same research line and intends to investigate the perceived TPACK of male and female Iraqi EFL teachers in public and private high schools. The importance of technological literacy has become very important in the Iraqi education system, especially due to the outbreak of COVID-19 and the consequent shift from conventional learning to online learning, which in turn entails the need for more TPACK for teachers, among other competencies. Thus, it seems indispensable to provide empirical evidence demonstrating the links between Iraqi EFL teachers' knowledge of ICT and its actual use in education to make technology-enhanced teaching and learning a permanent component of pedagogy in the education system of Iraq. To address the research objectives, the following research questions were developed:

1. Do Iraqi EFL teachers in public and private high schools differ significantly in terms of their TPACK perceptions?
2. Does gender significantly affect Iraqi EFL teachers' perceptions of TPACK?

2. Review of the Related Literature

2.1. EFL Teachers' Professional Development through TPACK

The term professional development has been used in various contexts and conceptualizations (Hartono, 2016; Johnson, 2019). According to Guskey (2000), professional development for teachers involves a range of procedures, steps, and activities aimed at enhancing their professional knowledge, skills, and perspectives, enabling them to adapt their instruction to the diverse learning needs of their students. Professional development is recognized as a highly effective approach to empowering teachers, ensuring they stay updated with evolving student performance standards, adopt new teaching methods for different content areas, effectively utilize instructional technology, and adapt to changing school environments. In recent years, there has been an increased focus on the integration of technology in language teaching, raising concerns among researchers about how language teachers can use technology in an appropriate and pedagogically effective manner to convey linguistic content. This process encompasses teachers' TPACK, which involves their ability to conceptualize and implement effective teaching strategies that incorporate technology. Educational technologies can serve as a valuable source of professional development for teachers,

allowing them to engage in communities of practice within teacher education programs and keep pace with changes in student performance standards, emerging teaching strategies, and technological advancements (Hartono, 2016; Lawless & Pellegrino, 2007).

2.2. Studies on EFL Teachers' TPACK

This literature review aims to synthesize findings from various studies on EFL teachers' TPACK, providing insights into their perceived knowledge, confidence, and development in using technology for instructional and professional development purposes. For instance, Jamieson-Proctor et al. (2010) assessed the TPACK of pre-service teachers in Australia and found that while they had high confidence in TK, their TPACK confidence was relatively low, indicating a gap in their preparedness to integrate technology effectively. Cheng (2017) also reported varying levels of TPACK among native language teachers in Taiwan, with higher TK compared to PK and CK. In a similar research strand, Drajati et al. (2018) highlighted the influence of beliefs, attitudes, and resources on the TPACK development of English language teachers in Indonesia. In Iran, Nazari et al. (2019) found positive perceptions of TPACK among novice and experienced EFL teachers, with experienced teachers reporting higher levels. In another study, Sarıçoban et al. (2019) emphasized the need for targeted support and professional development to enhance TPACK among pre-service EFL teachers in Turkey. Van Loi (2021) also reported a moderate level of Vietnamese high-school teachers' perceptions of TPACK, with challenges related to limited access to technology. More recently, in a comparative study, Momenanzade (2022) reported that pre-service teachers (PSTs) in Iran and Oman possessed a generally high level of TPACK. Nonetheless, the TPACK perceptions of Iranian EFL PSTs significantly surpassed those of Omanis across all TPACK sub-domains. The findings also revealed that gender-based disparities were not observed among individuals from Oman, Iran, and all other participants collectively, irrespective of their nationalities.

Overall, the studies reviewed in this literature review highlight the importance of assessing and enhancing EFL teachers' TPACK to promote effective technology integration in classrooms. The findings indicate that while some EFL teachers possess positive perceptions of their TPACK, there is a need for further professional development, particularly in areas such as technology integration, pedagogical strategies, and multimodal literacy. Pre-service teachers also require targeted interventions to enhance their TPACK confidence and readiness to integrate technology into their future classrooms. Moreover, the development of TPACK among EFL teachers is influenced by factors such as prior technology training, teaching experience, access to resources, and institutional support. To bridge the gap between teachers' current TPACK knowledge and effective technology integration, it is crucial to provide tailored professional development programs, support systems, and technology training within teacher education programs. By equipping EFL teachers with the necessary TPACK competencies, educational institutions can

foster the effective integration of technology, ultimately enhancing teaching and learning experiences in EFL classrooms.

3. Method

3.1. Research Design

This study employed a quantitative research design, utilizing a TPACK survey (Baser et al., 2015) on Google Forms to assess the TPACK perceptions of male and female Iraqi EFL teachers in public and private high schools. Additionally, it examined whether gender and school type significantly influenced the participants' perceptions of TPACK.

3.2. Participants

The study included 288 male and female Iraqi EFL teachers working in public and private high schools in Basrah, Iraq. They were invited to voluntarily complete a web-based TPACK survey (Baser et al., 2015) through an announcement. Demographic information such as gender and type of school was collected to evaluate the participants' perceptions of TPACK in relation to gender and school type.

3.3. Instrumentation

The study employed a TPACK survey developed and validated by Baser et al. (2015) (see Appendix) using Google Forms to assess the TPACK levels of male and female Iraqi EFL teachers in public and private high schools. Additionally, it examined any significant correlation between participants' TPACK and their gender and school type. The questionnaire consisted of two parts. The first part introduced the study, its purpose, the expected time to complete the questionnaire, and gathered participants' information on gender and school type. The second part comprised the TPACK-EFL questionnaire, consisting of 39 questions divided into seven sections: TK, CK, PK, PCK, TCK, TPK, and TPACK. The questionnaire underwent rigorous development, and its face and content validity were assessed by four experts in applied linguistics from Shahid Chamran University of Ahvaz, Iran. To ensure the reliability of survey items for the intended audience and context, a pilot study was conducted with 30 male and female Iraqi EFL teachers. The Cronbach's alpha analysis showed high internal consistency (α=0.940) in the intended context.

3.4. Procedure

After the pilot session, the link to the TPACK survey on Google Forms was shared with voluntary participants to assess their TPACK levels and explore whether gender and school type significantly influenced their perceptions of TPACK.

4. Results and Discussion

Descriptive statistics, including the mean and standard deviation scores of TPACK constructs, were examined for male and female Iraqi EFL teachers in public and private high schools (see Table 1).

Table 1

Mean and Standard Deviation Scores of TPACK Constructs for Male and Female Iraqi EFL Teachers in Public and Private High Schools

	TPACK perceptions of Iraqi EFL teachers in public schools			TPACK perceptions of Iraqi EFL teachers in private schools			TPACK perceptions of male Iraqi EFL teachers			TPACK perceptions of female Iraqi EFL teachers		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
TK	52.25	18.28	128	58.08	14.72	160	55.91	16.65	154	55.00	16.58	134
CK	33.49	8.85	128	33.05	10.19	160	33.43	9.06	154	33.07	9.92	134
PK	39.49	11.20	128	40.01	10.32	160	39.57	10.92	154	40.02	10.49	134
PCK	33.63	8.92	128	33.45	8.68	160	33.72	8.23	154	33.27	9.38	134
TCK	19.25	5.72	128	22.74	5.59	160	20.91	5.78	154	21.50	6.04	134
TPK	45.34	12.58	128	48.45	10.75	160	46.81	11.67	154	47.36	11.73	134
TPACK	24.17	8.02	128	26.58	7.22	160	24.94	7.57	154	26.17	7.75	134

To determine if there were significant differences in the overall TPACK perceptions between male and female Iraqi EFL teachers in public and private high schools, a test of Multivariate Analysis of Variance (MANOVA) was conducted. The results are presented in Table 2.

Table 2

Results of MANOVA for Male and Female Iraqi EFL Teachers in Public and Private High Schools

	TPACK perceptions of Iraqi EFL teachers in public and private schools					TPACK perceptions of male and female Iraqi EFL teachers				
	Value	Hypothesis df	Error df	F	P	Value	Hypothesis df	Error df	F	P
Pillai's Trace	0.133	7.000	280.00	6.146	0.000	0.300	7.000	280.00	1.234	0.284
Wilks' Lambda	0.867	7.000	280.00	6.146	0.000	0.970	7.000	280.00	1.234	0.284
Hotelling's Trace	0.154	7.000	280.00	6.146	0.000	0.031	7.000	280.00	1.234	0.284
Roy's Largest Root	0.154	7.000	280.00	6.146	0.000	0.031	7.000	280.00	1.234	0.284

As shown in Table 2, the p-values of all test statistics for MANOVA indicated a significant difference between Iraqi EFL teachers in public and private high schools in terms of their overall TPACK perceptions. However, there was no significant difference in the overall TPACK perceptions between male and female Iraqi EFL teachers. Further investigation into the perceptions of individual TPACK constructs (i.e., TK, CK, PK, PCK, TCK, and TPK) among male and female Iraqi EFL teachers in public and private high schools was conducted using the test of between-subjects effects. The results are presented in Table 3.

Table 3

Results of the Test of Between-Subjects Effects for Male and Female Iraqi EFL Teachers in Public and Private High Schools

	TPACK perceptions of Iraqi EFL teachers in public and private schools					TPACK perceptions of male and female Iraqi EFL teachers				
	Sum of Squares	df	Mean Square	F	P	Sum of Squares	df	Mean Square	F	P
TK	2418.025	1	2418.025	9.020	0.003	60.066	1	60.066	0.217	0.641
CK	13.514	1	13.514	0.151	0.698	11.336	1	11.336	0.126	0.723
PK	19.717	1	19.717	0.171	0.679	15.058	1	15.058	0.131	0.718
PCK	3.071	1	3.071	0.040	0.824	14.584	1	14.584	0.189	0.664
TCK	868.003	1	868.003	27.171	0.000	25.101	1	25.101	0.719	0.397
TPK	686.136	1	686.136	5.097	0.025	21.990	1	21.990	0.161	0.689
TPACK	412.271	1	412.271	7.157	0.008	107.277	1	107.277	1.829	0.177

The results of the test of between-subjects effects, as shown in Table 3, revealed a significant difference between Iraqi EFL teachers in public and private high schools in terms of the TPACK constructs of TK (p=0.003, F=9.020), TCK (p=0.000, F=27.171), TPK (p=0.025, F=5.097), and TPACK (p=0.008, F=7.157). However, no significant difference was found in the perceptions of CK (p=0.698, F=0.151), PK (p=0.679, F=0.171), and PCK (p=0.824, F=0.040) among Iraqi EFL teachers in public and private high schools. Regarding the perceptions of male and female Iraqi EFL teachers of individual TPACK constructs, the results of between-subjects effects showed no significant difference in terms of TK (p=0.641, F=0.217), CK (p=0.723, F=0.126), PK (p=0.718, F=0.131), PCK (p=0.664, F=0.189), TCK (p=0.397, F=0.719), TPK (p=0.689, F=0.161), and TPACK (p=0.177, F=1.829). The major findings from the data analysis are discussed below, along with conclusions, pedagogical implications, limitations, and suggestions for further research.

4. Discussion and Conclusions

4.1. Major Findings

In the past two decades, there has been a growing focus on the development and research of technology-oriented pedagogies, leading to the emergence of various theories and models. One prominent model is TPACK, which emphasizes the importance of understanding the complex relationships among technology, pedagogy, and content. TPACK enables teachers to create relevant and context-specific teaching strategies, recognizing that technology is effective when integrated with sound teaching practices (Mishra & Koehler, 2006). This study aimed to examine whether there were significant differences in TPACK perceptions among Iraqi high school English teachers based on school type and gender.

Regarding the first research question, which explored differences in TPACK perceptions between Iraqi EFL teachers in public and private high schools, the results revealed a significant difference between the participants in overall TPACK and the individual constructs of TK, TCK, TPK, and TPCK, but not in CK, PK, and PCK. Several reasons may explain why Iraqi EFL teachers

in private high schools had higher perceptions of TK, TCK, TPK, and TPCK compared to those in public schools, while there were no significant differences in CK, PK, and PCK constructs. First, private schools often have better ICT infrastructure due to their ability to acquire modern technology tools and resources using funds generated from student fees. This allows EFL teachers in private schools to develop and enhance their TK. Second, private schools frequently organize technology workshops and professional development programs, facilitating the development of IT literacy and skills among teachers. Third, the supportive environment in private high schools encourages effective technology integration in the classroom, with school administrators and colleagues offering assistance and encouragement to EFL teachers. This support positively influences teachers' perceptions of their TK and skills. Fourth, students in private high schools tend to come from families with higher socioeconomic backgrounds and exhibit higher levels of motivation and engagement, creating an environment conducive to technology experimentation. Lastly, parents' demands for technology-enhanced educational practices in private schools drive the need for EFL teachers to stay updated on technology innovations and adoption practices.

Based on the data collected, Iraqi EFL teachers in public and private schools did not differ significantly in the constructs of CK, PK, and PCK. Several factors contribute to this finding. In Iraq, the qualifications and certification requirements for EFL teachers are generally standardized across both public and private schools, ensuring a similar foundational level of CK and pedagogical training. Additionally, the English language curriculum used in both school types is often based on national or international standards, ensuring similar content coverage and teaching methodologies. Therefore, perceived CK, PK, and PCK may not differ significantly as teachers are guided by a common curriculum framework. While private schools may offer additional professional development opportunities related to technology integration, both public and private schools likely provide similar training programs focused on CK, pedagogical approaches, and subject-specific teaching strategies. These professional development opportunities contribute to similar levels of perceived CK, PK, and PCK among EFL teachers in both public and private schools. Although private schools generally have better access to technology resources, the availability of textbooks, reference materials, and educational resources may not significantly differ between public and private schools.

Regarding the second research question, which aimed to explore differences between male and female Iraqi EFL teachers in terms of their TPACK perceptions, the results showed no significant differences in the overall TPACK score or in any of the individual constructs of TK, CK, PK, PCK, TCK, TPK, and TPCK when examined separately. These findings align with the research conducted by Atar et al. (2019), Jang and Chang (2016), Liu et al. (2015), and Momenanzade (2022), which also reported no significant gender differences in teachers' perceived overall TPACK. However, these findings contradict previous research conducted by Cheng (2017), Koh et al. (2014), and Roig-Vila et al. (2015), which indicated that female teachers generally exhibited lower levels of confidence in technology-related knowledge compared to male teachers. Similarly, the results differ

from Lin et al. (2013), who found that female teachers had higher levels of PK but lower levels of TK. Scherer et al. (2017) also found that males reported higher competency levels than females for all T-factors. Öz (2015) reported significant differences between male and female perceptions of TK and PK, with TK perceptions being significantly higher in males and PK perceptions being significantly higher in females. Sarçoban et al. (2019) found that males perceived themselves to have significantly higher confidence levels in TK than females.

While gender differences have no biological roots, several factors explain the absence of significant differences between male and female Iraqi EFL teachers in the overall TPACK score and all constructs of TK, CK, PK, PCK, TCK, TPK, and TPCK. Both male and female teachers in Iraq are expected to adhere to the same curriculum and educational standards, providing a framework for content, pedagogy, and technology integration strategies. This common curriculum ensures that both genders develop similar levels of CK, PK, and PCK. Additionally, both male and female EFL teachers have equal access to technology resources, allowing them to develop their TK, TCK, TPK, and TPCK through hands-on experience. Similarly, both genders undergo similar pedagogical training and professional development programs, focusing on enhancing teaching skills, including technology integration. Consequently, both male and female teachers develop similar levels of PK, PCK, TPK, and TPCK. Moreover, there has been a gradual cultural shift toward recognizing and valuing gender equality in the workplace, including the teaching profession. This shift is reflected in the professional ethos of EFL teachers, emphasizing equal opportunities for professional growth and development. Therefore, it is crucial to acknowledge that individual differences, such as personality, teaching style, and interests, can play a more significant role in shaping teachers' TPACK than gender alone. The impact of these individual differences may outweigh any potential gender-based variations in TPACK perceptions and skills.

4.2. Pedagogical Implications

Teaching a language or any other subject goes beyond having knowledge of the content. Teachers must possess expertise in the subject they teach and be familiar with the best pedagogical approaches to support their students' learning. Furthermore, in today's educational landscape, teachers are increasingly expected to integrate technology into their teaching practices. As one of the most notable models proposed to guide educational technology, the TPACK framework should be considered in theory and practice by the ELT research community, curriculum development centers, and teacher education institutions. The present study enhances our understanding of TPACK in Iraqi public and private high schools, providing valuable insights into the perceptions of male and female Iraqi EFL teachers regarding their competencies in teaching English using ICTs. These findings have important pedagogical implications for teacher educators, highlighting the need to avoid a one-size-fits-all approach and instead provide customized and needs-based instruction for teachers. Additionally, policymakers should consider localized decisions based on

the needs, preferences, and proficiencies of both in-service and pre-service Iraqi EFL teachers. Based on the above findings, training and professional development programs focused on technology use, particularly in language education, can be designed to assist teachers in effectively integrating ICTs in their classrooms. It is recommended to establish training workshops where pre-service and in-service Iraqi EFL teachers can share their experiences and learn about effective ICT adoption practices.

4.3. Limitations and Suggestions for Further Research

The primary limitation of this study lies in the fact that it assessed the perceptions of male and female Iraqi EFL teachers (i.e., perceived TPACK) solely through questionnaires, without evaluating their actual competence in TPACK. In addition to self-assessment instruments, it is recommended to employ other methods to assess teachers' TPACK, such as performance assessments, classroom observations, student evaluations, or a combination of these methods. This approach would provide a more diverse and comprehensive perspective on teachers' TPACK. Future research could address this limitation by complementing the study with qualitative evidence derived from performance-based assessments and observation tools.

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Iraqi English as a Foreign Language Teachers' Perceived Technological Pedagogical Content Knowledge (TPACK) Questionnaire

Dear respondent,

This questionnaire is devised with the aim of looking into your actual teaching practices with the help of technology as an English teacher. To that end, your careful completion of the questionnaire will definitely contribute to obtaining real data which is crucial for more accurate findings. Hence, please check the box which best describes your actual teaching practices. The information will be kept confidential and will be used just for research purposes. Thank you very much in advance for your time and cooperation.

Part I: Demographic Information

Gender: Male ☐ Female ☐

Type of school: Public ☐ Private ☐

Part II: Questionnaire Items

	How much can you do?								
Items	*Nothing*		*Very little*		*Some influence*		*Quite a bit*		*A great deal*
Technology Knowledge (TK)									
1. I can use basic technological terms (e.g., operating systems, wireless connection, virtual memory, etc.) appropriately.	1	2	3	4	5	6	7	8	9
2. I can adjust computer settings such as installing software and establishing Internet connection.	1	2	3	4	5	6	7	8	9
3. I can use computer peripherals such as a printer, headphones, and a scanner.	1	2	3	4	5	6	7	8	9
4. I can troubleshoot common computer problems (e.g., printer problems, Internet connection problems, etc.) independently.	1	2	3	4	5	6	7	8	9
5. I can use digital classroom equipment such as projectors and smart boards.	1	2	3	4	5	6	7	8	9
6. I can use office programs (i.e., Word, PowerPoint, etc.) with a high level of proficiency.	1	2	3	4	5	6	7	8	9
7. I can create multimedia (e.g., video, web pages, etc.) using text, pictures, sound, video, and animation.	1	2	3	4	5	6	7	8	9
8. I can use collaboration tools (wiki, Edmodo, 3D virtual environments, etc.) in accordance with my objectives.	1	2	3	4	5	6	7	8	9
9. I can learn software that helps me complete a variety of tasks more efficiently.	1	2	3	4	5	6	7	8	9
Content Knowledge (CK)									
10. I can express my ideas and feelings by speaking in English.	1	2	3	4	5	6	7	8	9
11. I can express my ideas and feelings by writing in English.	1	2	3	4	5	6	7	8	9
12. I can read texts written in English with the correct pronunciation.	1	2	3	4	5	6	7	8	9
13. I can understand texts written in English.	1	2	3	4	5	6	7	8	9
14. I can understand the speech of a native English speaker easily.	1	2	3	4	5	6	7	8	9
Pedagogy Knowledge (PK)									
15. I can use teaching methods and techniques that are appropriate for a learning environment.	1	2	3	4	5	6	7	8	9
16. I can design a learning experience that is appropriate for the level of students.	1	2	3	4	5	6	7	8	9
17. I can support students' learning in accordance with their physical, mental, emotional, social, and cultural differences.	1	2	3	4	5	6	7	8	9

18. I can collaborate with school stakeholders (students, parents, teachers, etc.) to support students' learning.	1	2	3	4	5	6	7	8	9
19. I can reflect the experiences that I gain from professional development programs to my teaching process.	1	2	3	4	5	6	7	8	9
20. I can support students' out-of-class work to facilitate their self- regulated learning.	1	2	3	4	5	6	7	8	9
Pedagogical Content Knowledge (PCK)									
21. I can manage a classroom learning environment.	1	2	3	4	5	6	7	8	9
22. I can evaluate students' learning processes.	1	2	3	4	5	6	7	8	9
23. I can use appropriate teaching methods and techniques to support students in developing their language skills.	1	2	3	4	5	6	7	8	9
24. I can prepare curricular activities that develop students ' language skills.	1	2	3	4	5	6	7	8	9
25. I can adapt a lesson plan in accordance with students' language skill levels.	1	2	3	4	5	6	7	8	9
Technological Content Knowledge (TCK)									
26. I can take advantage of multimedia (e.g., video, slideshow, etc.) to express my ideas about various topics in English.	1	2	3	4	5	6	7	8	9
27. I can benefit from using technology (e.g., web conferencing and discussion forums) to contribute at a distance to multilingual communities.	1	2	3	4	5	6	7	8	9
28. I can use collaboration tools to work collaboratively with foreign persons (e.g., Second Life, wiki, etc.).	1	2	3	4	5	6	7	8	9
Technological Pedagogical Knowledge (TPK)									
29. I can meet students' individualized needs by using information technologies.	1	2	3	4	5	6	7	8	9
30. I can lead students to use information technologies legally, ethically, safely, and with respect to copyrights.	1	2	3	4	5	6	7	8	9
31. I can support students as they use technology such as virtual discussion platforms to develop their higher order thinking abilities.	1	2	3	4	5	6	7	8	9
32. I can manage the classroom learning environment while using technology in the class.	1	2	3	4	5	6	7	8	9
33. I can decide when technology would benefit my teaching of specific English curricular standards.	1	2	3	4	5	6	7	8	9
34. I can design learning materials by using technology that supports students' language learning.	1	2	3	4	5	6	7	8	9
35. I can use multimedia such as videos and websites to support students' language learning.	1	2	3	4	5	6	7	8	9
Technological Pedagogical Content Knowledge (TPACK)									
36. I can use collaboration tools (e.g., wiki, 3D virtual environments, etc.) to support students' language learning.	1	2	3	4	5	6	7	8	9
37. I can support students as they use technology to support their development of language skills in an independent manner.	1	2	3	4	5	6	7	8	9
38. I can use Web 2.0 tools (animation tools, digital story tools, etc.) to develop students' language skills.	1	2	3	4	5	6	7	8	9
39. I can support my professional development by using technological tools and resources to continuously improve the language teaching process.	1	2	3	4	5	6	7	8	9