



Examining EFL Teachers' Technological Pedagogical Content Knowledge (TPACK) and their Attitudes towards Online Teaching

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ABSTRACT

Technological Pedagogical Content Knowledge (TPACK) is a model of CALL competence to integrate technology into education. Cultivating attitudes of EFL teachers in light of online instruction and examining its relationship with TPACK seems to be a crucial aspect of current teaching practices. Thus, this correlational study attempted to explore the relationship between Iraqi EFL teachers' attitudes towards online instruction and TPACK components. Sixty teachers of English as a foreign language from Thi-Qar, selected via availability sampling, took part in the study. They responded to two questionnaires, one with 28 items on TPACK and the other containing 16 items on online teaching English. A series of Pearson correlation tests were conducted to examine the seven research hypotheses about the participants' attitudes towards online instruction and technological pedagogical content knowledge components, including CK, PK, TK, TCK, PCK, TPK, and TPACK. The findings demonstrated a range of low

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| | <p>to moderate positive associations between instructors' attitudes towards online instruction and TPACK domains. It was indicated that the teachers with positive attitudes were also positive about their perceived TPACK. The present research increases our understanding of TPACK in relation to online teaching in contexts where EFL is practiced.</p> <p>Keywords: attitude, online teaching, technological pedagogical content knowledge, TPACK</p> |
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Introduction

Technology is growing rapidly and unexpectedly, and it is an evolving phenomenon that creates ideal conditions and opportunities in education. Effective adoption of the latest technology in classrooms requires teachers to possess knowledge that approximates that of Generation Z. As a result, teachers are to incorporate modern media into educational settings. Meanwhile, they also need to equip themselves with the knowledge dimensions necessary to function effectively in those settings. One of the educational models that can help teachers achieve this goal is termed TPACK. According to Misha and Koehler (2006), the TPACK framework contains seven domains of knowledge, including technological knowledge (TK), pedagogical knowledge (PK), content knowledge (CK), technological content knowledge (TCK), technological pedagogical knowledge (TPK), pedagogical content knowledge (PCK) and technological pedagogical content knowledge (TPACK).

Since the outbreak of COVID-19, the need to provide teachers with the required skills and competencies in their instruction has been on the rise, and it has become more urgent since teachers started teaching online. Thus, teachers' internal factors, including their attitudes and perceptions of knowledge sources are essential for developing and adopting technology-integrated learning environments. Research has demonstrated that integration of technology into teaching is a complicated issue that requires much planning (Voogt & McKenney, 2017). Teachers are expected to establish possible links among various knowledge sources of TPACK, including content, pedagogy, and technology, to teach online materials.

Several studies have been done to examine the attitudes of EFL teachers towards online teaching (Dashtestani, 2014; Mollaei & Riasati, 2013; Nim Park & Son, 2009; Taghizadeh & Basirat, 2023) and the relationship between TPACK and attitudes towards technology (Kozikoğlu & Babacan, 2019; Paneru, 2018; Raygan & Moradkhani, 2022; Zhang & Chen, 2022). Moreover, some research studies were carried out during the COVID-19

pandemic to investigate online instructional issues in several EFL contexts (Akbarzade Farkhani et al., 2022; Bachiri & Sahli, 2020; Baroudi & Shaya, 2022; Civelek et al., 2021; Noor et al., 2020). Almost all the researchers have been dissatisfied with the state of affairs regarding online teaching integration in their countries due to the unexpected and adverse circumstances resulting from the lockdown.

A similar experience was also witnessed in Iraq, where educators and students had to cope with the challenges of online teaching attributed to a lack of training and experience, a dearth of facilities and ICT skills, weak internet connectivity (Couatts et al., 2020), inadequate administrative support, and technology acceptance (Makki & Bali, 2021). The aforementioned factors could partly give the full picture of implementing online teaching during the pandemic. Notably, previous studies were all restricted to examining pre-service/in-service EFL teachers' TPACK and describing their attitudes about online teaching integration without considering each and every dimension of the TPACK framework where practicing EFL teachers were involved. Thus, examining EFL teachers' attitudes about online teaching and how it can be associated with their knowledge of technology, pedagogy, and content merits attention. To this end, the present study focused on how Iraqi EFL teachers perceived online teaching in relation to knowledge sources represented in technological pedagogical content knowledge during remote teaching.

Literature Review

TPACK

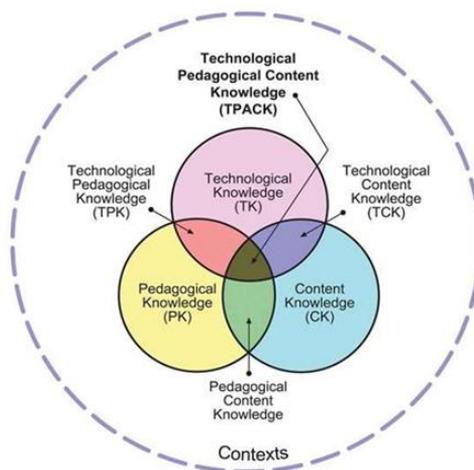
The idea that Schulman (1987) put forward as Pedagogical Content Knowledge (PCK) of instructor competencies later developed by Koehler and Mishra (2005) into Technological Pedagogical Content Knowledge (TPACK) by adding the technology aspect. TPACK is comprised of seven knowledge components: Technological Knowledge (TK), Pedagogical Knowledge (PK), Content Knowledge (CK), Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK), Pedagogical Content Knowledge (PCK), and Technological Pedagogical Content Knowledge (TPACK). TK is teachers' knowledge of how to handle technology (Koehler & Mishra, 2009). Teachers need to have requisite skills in using technology productively in the classroom. PK is the teacher's knowledge of the process and practice of teaching and learning which contains the techniques used in the classroom (Koehler et al., 2013). CK is the teacher's knowledge of the material being learned or taught (Shulman, 1986).

PCK refers to knowledge of methodological aspects of teaching about course content (Shulman, 1986). It involves teaching, learning, curriculum, testing, reporting the course results, and the interconnections among these main domains. TCK refers to knowledge of course content manifested with the use of technology (Koehler & Mishra, 2005). In other words, TCK is an understanding of how technology and content affect and restrict each other (Koehler & Mishra, 2009). TPK is expressed as "knowledge of how technology can support pedagogical goals" (Koehler & Mishra., 2005, p. 134). Understanding TPK involves discerning what affordances technology bears and how they can be influenced in different ways following changes in context and aims (Koehler et al., 2013).

TPACK is the teacher's knowledge about using technology in various teaching methods, depending on the content of the subject. TPACK takes into account the reflection of technology in the teaching and learning process and the teacher's ability to turn this reflection into an advantage (Koehler & Mishra, 2008). In the digital era, the ideal English teacher needs a deep understanding of TPACK to design interesting lessons. For teachers to be effective users of technology, they need to understand the concepts and pedagogical practices associated with constructive use of technology to teach content. Knowledge of what makes pedagogical concepts more accessible to learn and how technology can help the learning process fight off some of the challenges students face. Successful learning is influenced by the ability of teachers to master learning materials, manage learning activities, and integrate technology into the learning environment to support the learning process.

Figure 1

TPACK Model Presented by Koehler and Mishra (2006)



TPACK and Online Technology in Teaching

Considering the fact that the relationship between knowledge sources and attitudes towards technology use in online teaching is instrumental in developing the theoretical basis of CALL competence models, and, as a result, enhancing TPACK status in teacher education programs (Chai et al., 2010; Scherer et al., 2019), research on relationships between TPACK and attitudes towards technology has come to attention over recent years (Baturay et al., 2017; Kozikoğlu & Babacan, 2019; Lai et al., 2022; Scherer et al., 2019; Zhang & Chen, 2022).

Various investigations into this knowledge gap demonstrated positive correlations between TPACK components and attitudes towards technology differentially. Baturay et al. (2017) found a marginal correlation between Turkish K12-level teachers' TPACK and attitudes towards education through technology. Their research was limited regarding type, participants, and context. Scherer et al. (2019) conducted their study on 688 Finnish pre-service teachers. They reported how specific TPACK dimensions related to three aspects of attitude toward ICT, the educational use of ICT, and perceived ease of ICT use. It was found that the participants had positive attitudes towards ICT, and their self-perceptions correlated with TPACK, TCK, TPK, and TK.

Using TPACK to investigate 164 Saudi EFL instructors' perceptions regarding applications of technology in language teaching, Kassem (2018) maintained that educators who simply aimed for blind application of technology, regardless of content, student needs, learning styles, or methods were no longer educationally effective. The findings could pave the way for reshaping educator's educational beliefs, practices, and approaches to integrating technology into EFL classrooms.

In view of correlations between Turkish EFL teachers' TPACK skills and attitudes towards technology, Kozikoğlu and Babacan (2019) showed that there was a high level of attitude towards TPACK skills and technology. It was concluded that the link between teachers' TPACK skills and attitudes towards technology was weak, but positive and essential.

In more recent developments, Raygan and Moradkhani's (2022) research regarding factors affecting technology integration demonstrated that there were positive correlations between EFL teachers' TPACK and attitude and their technology use. Moreover, Zhang and Chen (2022) investigated the role of TPACK and attitudes towards technology. It was indicated that teachers' TPACK and their actual technology use in both in-person and online classes were correlated positively. Some limitations were identified in this study, including relying only on self-report data, which may result in

biased responses. Another limitation was related to the external validity of research influenced by differences in the teachers' culture and discipline backgrounds. Lai et al. (2022) indicated that TPACK was a salient factor in determining technology use and acted as a significant predictor of using all three technology types presented in the study. This study was restricted because it was biased regarding its context, the subject under investigation, and the participants' teaching experience, especially in dealing with TPACK.

Given online teaching internships and TPACK during the COVID-19 pandemic, Ismael and Al-Mulhim (2022) conducted an experimental study on 120 Saudi pre-service teachers to compare the impact of a new online teaching internship strategy and the traditional strategy on the teachers' TPACK competencies at the tertiary level of education. Interestingly, there were significant differences between the two research groups favoring TPACK knowledge sources in the online group, except for CK. It was concluded that developing teachers' online teaching skills was very critical because it would enable them to shift to online learning whenever possible or activate blended learning.

Basirat and Taghizadeh (2021) examined 100 Iranian EFL teachers' views regarding online teacher quality and TPACK. Based on the data collected from two questionnaires, it was found that having knowledge of content and pedagogy, organized and structured content, proper timing, using appropriate resources, and offering feedback and ample opportunities for communication were regarded as the most salient types of knowledge of an online language teacher. Among the most frequently suggested skills for online language teachers were effective online communication and teaching skills, effective content delivery, technological skills, and effective assessment. In a similar study, Taghizadeh and Basirat (2023) investigated Iranian EFL teachers' attitudes associated with online teaching. The findings revealed that using technologies could enhance students' learning progress, teacher-student interaction, student collaboration, motivation, and involvement.

It appears that research on TPACK-attitude relations among EFL teachers is still sparse. Scherer et al. (2019) underscored a compelling need for a deeper exploration into examining more innovative aspects of technology to broaden the view on the TPACK-attitude relations. Therefore, it is imperative to explore the relationship between TPACK and attitudes towards online instruction in a new context like Iraq, which has not witnessed much research. To address the gap in the present study, the following question is addressed:

RQ: How do Iraqi EFL teachers perceive online teaching in relation to their TK, CK, PK, PCK, TCK, TPK, and TPACK?

Methodology

Research Design

To address the research question formulated for this study, a correlational quantitative design was used to explore the relationships among variables. According to Mackey and Gass (2016), a correlational design is a non-experimental type of research since it does not entail manipulating the variables under investigation. Moreover, a correlational design intends to discover how strongly the variables under scrutiny relate to one another. Thus, a correlational design determined the relationship between the Iraqi EFL teachers' attitudes towards online teaching and their TPACK skills.

Participants

The study participants consisted of 60 Iraqi EFL teachers, including 30 males and 30 females. Convenience/availability sampling was used to determine the study cohort. This non-probability sampling method can be used for several reasons, including quick and easy data collection procedures, few rules to follow, readily available samples, low cost, easy access, and no special training. (Lavrakas, 2008). Using convenience sampling can be justified in light of the health crisis which was created owing to COVID-19. In addition, due to the pandemic and sanitary protocols, most teachers were not mentally or emotionally prepared to engage in research. Although the participants took part in the study anonymously, they could withdraw from it at any time. They were from various age groups and had been teaching English for different periods of time (Table 1).

The participants were full-time teachers working in both private and public language schools in Thi-Qar. The administration agreed to provide the required permission and teachers' contact information (e-mail or social media accounts) to keep in touch with them. After receiving the requisite agreement, one of the researchers began to send e-mails to explain the overall aim of the study and encourage teachers to participate in the project.

After ensuring the participation of the intended number of EFL teachers, the questionnaire link containing an informed consent form and the survey items were sent via e-mail and social networks such as Telegram, WhatsApp, Instagram, and Facebook. The participants completed web-based forms and submitted their responses online.

Table 1

EFL Teachers' Demographic Profile

| Item | Category | Frequency |
|-----------------------------|----------|-----------|
| Gender | Male | 30 |
| | Female | 30 |
| Age Range | 22-26 | 13 |
| | 27-30 | 13 |
| | 31-35 | 17 |
| | 36-40 | 9 |
| | 41-50 | 8 |
| Teaching Experience (years) | 1-3 | 12 |
| | 4-7 | 14 |
| | 8-11 | 16 |
| | 12-15 | 10 |
| | over 16 | 8 |

Instruments

The research survey included two different sections. The first part gathered information on EFL teacher' demographic features, including their gender, age range, and experience in teaching English. Part two collected data on the participants' perceptions of TPACK and online teaching using two questionnaires developed by Schmidt et al. (2009) and Dashtestani (2014) respectively. Some modifications were made to the content of the items to make them more suitable for the study. TPACK scale asked the respondents to assess themselves regarding knowledge sources and consisted of 28 items. A 5-point Likert-type scale ranging from *strongly disagree* to *strongly agree* was used to collect the data. In the context of the current study, TK refers to knowledge of using Web 2.0 technologies, applications, websites, online platforms, software, and troubleshooting problems. CK covers areas related to both productive and receptive skills. PK is described as using teaching approaches and techniques and supporting students in the learning environment from different aspects. PCK refers to managing the learning environment, evaluating student progress, and developing students' English. TCK is presented as using online sources to express content areas and interact with the learners. TPK shows how to use interactive technologies to meet students' needs, manage the learning environment, and support learning. Finally, TPACK is used to support student learning by providing content via technology and teaching techniques.

The scale on attitude towards online teaching in EFL included 16 items and was used to check how the teachers perceived themselves. In this study, the teachers' attitudes about online teaching encompass a wide range of benefits in virtual classes, such as using authentic materials via multimedia, providing corrective feedback, delivering lessons easily and inexpensively,

developing student autonomy and motivation, and promoting teachers and students' digital literacy and collaboration among students to name just a few.

As for the psychometric properties of the questionnaires, internal consistency reliability was examined by running a pilot study to see whether the items were appropriate for collecting the data and fulfilling the study's objectives. It was found that both questionnaires enjoyed a suitable rate of Cronbach's alpha coefficient. The questionnaire was also checked for content validity issues based on two ELT and educational technology experts' views.

Data Collection and Analysis Procedures

To conduct the current research, the following steps were taken. Firstly, school principals were asked to grant permission to access EFL teachers. At this stage, using social media, the required data were collected utilizing Google Forms, one of the most widely used tools in educational research. The survey method was employed firstly because it was able to collect data with greater ease and higher speed than traditional methods. Secondly, the prevalence of COVID-19 had a profound impact on other data collection methods. To this end, a self-report survey was designed in two parts. The first section asked the teachers to provide data about their demographic characteristics, including gender, age range, and teaching experience. Next, the teachers would respond to the items on TPACK and attitude towards online teaching. Moreover, for ethical considerations, the teachers' participation in the research was totally voluntary and they were assured of the confidentiality of the information they provided. They were informed that the collected data would be used for research purposes only and the results of the questionnaire would be given to them after the completion of the research.

When the required data were collected via questionnaires, they were keyed into SPSS v. 26 for analysis. Descriptive statistics was examined using one-sample statistics in order to provide the means and SD values of the study variables. As for inferential statistics, tests of normality were run to ensure the variables were distributed normally. The next step was to run a series of Pearson Product-Moment Correlation to determine the direction and strength of the linear relationships among the eight variables. This technique is useful, but it has its own important limitations, one is that it assumes a linear association and no causality is involved.

Results

The first step was to check the assumptions of the study. To do so, descriptive statistics and the normality of distribution were calculated. The results are shown below (Table 2).

Table 2

One-Sample Statistics for the Study Variables

| | N | Mean | SD | Std. Error Mean |
|----------|----|------|-----|-----------------|
| Attitude | 60 | 3.19 | .26 | .05 |
| CK | 60 | 2.89 | .37 | .05 |
| TK | 60 | 2.74 | .28 | .05 |
| PK | 60 | 3.47 | .32 | .18 |
| PCK | 60 | 3.30 | .92 | .11 |
| TCK | 60 | 2.61 | .58 | .04 |
| TPK | 60 | 3.29 | .29 | .08 |
| TPACK | 60 | 3.50 | .56 | .03 |

Descriptive statistics revealed that the mean scores of all variables except TK, CK, and TCK were higher than the theoretical mean ($M = 3$). The theoretical mean was calculated based on the scale of the questionnaire, ranging from one to five. Table 1 shows that EFL teachers displayed a relatively moderate attitude toward online teaching and had a moderate knowledge of pedagogical knowledge, pedagogical content knowledge, technological pedagogical knowledge, and TPACK.

Table 3

Tests of Normality for the Study Variables

| | Kolmogorov-Smirnov | | | Shapiro-Wilk | | |
|----------|--------------------|----|------|--------------|----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| TK | .10 | 60 | .08 | .96 | 60 | .10 |
| CK | .17 | 60 | .00 | .92 | 60 | .00 |
| PK | .16 | 60 | .00 | .95 | 60 | .02 |
| PCK | .24 | 60 | .00 | .87 | 60 | .00 |
| TCK | .31 | 60 | .00 | .73 | 60 | .00 |
| TPK | .10 | 60 | .17 | .95 | 60 | .04 |
| TPACK | .34 | 60 | .00 | .70 | 60 | .00 |
| Attitude | .09 | 60 | .20* | .96 | 60 | .09 |

* This is a lower bound of the true significance.

Based on the results shown in Table 3, the distributions of all the variables of the study were not normal except TK ($p = .08 > .05$), TPK ($p = .17 > .05$), and attitude towards online teaching ($p = .20 > .05$). According to the findings, and based on the mean scores, SD, and standard mean error, Pearson correlations between each of the variables and attitude towards online teaching was conducted at the significance level of $\alpha = 0.05$.

Table 4

Correlations between Attitude and TPACK Components

| | | TK | CK | PK | PCK | TCK | TPK | TPACK |
|----------|---------------------|-------|-------|-------|-------|-------|-------|-------|
| Attitude | Pearson Coefficient | 0.34 | 0.49 | 0.63 | 0.70 | 0.41 | 0.67 | 0.73 |
| | P-value | 0.008 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |
| | N | 60 | 60 | 60 | 60 | 60 | 60 | 60 |

The strength of the correlation coefficients between attitude towards online teaching and each variable is presented below. As displayed in Table 4, there is a weak positive correlation between attitude towards online teaching and TK ($r = 0.34$). In the case of CK, it can be stated that there is a moderate positive correlation between attitude and CK ($r = 0.49$). Like CK, there is a moderate positive correlation between attitude and PK ($r = 0.63$).

In the case of PCK, a very moderate positive correlation between attitude and PCK ($r = 0.70$) was found. According to Table 3, it can be demonstrated that there is a moderate positive correlation between attitude and TCK ($r = 0.41$). It was also found that there is a very moderate positive correlation between attitude and TPK ($r = 0.67$). Finally, there is a positive correlation between attitude and TPACK ($r = 0.73$).

Discussion

This study set out to gauge the perceptions of Iraqi EFL teachers about online instruction. This study also assessed the participants' technological pedagogical content expertise. In addition, it sought to ascertain the link between teachers' attitudes toward online instruction and their proficiency with TPACK in language teaching. The findings indicated that EFL teachers had a fair amount of knowledge about content, pedagogy, technology, and other inter-connected TPACK skills. Additionally, the research outcomes showed that the associations between the components of the teachers' TPACK and their attitude on online teaching were moderate.

As mentioned earlier, Pearson correlation analysis between attitude and each variable (CK, TK, PK, PCK, TCK, TPK, and TPACK) reflected

positive correlations between attitude and all the variables. The strength of the correlations ranged from the lowest (TK) to the highest (TPACK), indicating that the teachers were different concerning the types of knowledge they had in each category.

According to the findings, there was a positive relationship between EFL teachers' attitudes toward online teaching and primary knowledge sources, including TK, CK, and PK, which is in broad agreement with the results derived from Baturay et al. (2017), Scherer et al. (2019), and Basirat and Taghizadeh (2021).

While the correlation between attitude and TK is statistically significant, it is weaker than those found with other variables. This is very close to the finding of Basirat and Taghizadeh (2021). It shows that the participants' attitude in light of online instruction was somehow influenced by lack of technological knowledge. Furthermore, there was a significant linear correlation between the attitudes of teachers toward online teaching and CK. This finding is not congruent with Ismaeel and Al-Mulhim (2022). It may suggest that Iraqi EFL teachers might have experienced difficulties integrating online technology to provide English content. The significant relationship between the teachers' attitudes and their PK may also indicate that teachers who are more methodologically oriented could be more willing to teach English online as they may feel more confident in teaching the subject.

The results also indicated a moderate relationship between EFL teachers' attitudes toward online teaching and combined knowledge domains, including PCK, TCK, and TPK. These findings correspond with research by Kassem (2018), Scherer et al. (2019), Basirat and Taghizadeh (2021), and Ismaeel and Al-Mulhim (2022). The significant relationship between the teachers' attitudes and PCK may suggest that it is important that teachers perceive themselves as how and what to teach while implementing online courses. The positive relationship between EFL teachers' attitudes and TCK may be indicative of the fact that the teachers delivering lessons in English via technology could have been more efficient in online teaching. In addition, the moderate association between the teachers' attitudes and TPK could be attributed to the teachers' skill in linking pedagogy with technology to enhance student learning. Last but not least, there was a moderate correlation between the teachers' attitudes and TPACK beliefs, which is in line with Scherer et al. (2019), Lai et al. (2022), Kozikoğlu and Babacan (2019), Raygan and Moradkhani (2022), and Zhang and Chen (2022), Basirat and Taghizadeh (2021), and Ismaeel and Al-Mulhim (2022). This finding accentuates the significance of the teachers' core knowledge component by linking their perceptions of online teaching and belief systems about their competence in teaching with technology.

These findings support previous research investigating EFL teachers' attitudes about online teaching and technological challenges involved in English language teaching (Raygan & Moradkhani, 2022; Taghizadeh & Basirat, 2023). The research suggests that understanding EFL teachers' TPACK skills could be a practical attempt to determine their readiness to teach online. Overall, previous research places great emphasis on developing TPACK as a key factor in incorporating online technology into educational settings.

Conclusion

The potential of computer technology provided a chance to use online teaching devices in language learning. However, the attitudes of teachers towards using online teaching tools and their TPACK, explaining the overall potential of teachers in using these tools for teaching English as a foreign language, has not been well-established. This study explored the perceptions of EFL teachers towards online instruction and its relationship with TPACK. The findings indicated that the teachers were not completely prepared, especially technologically-wise, to implement EFL online teaching in Iraq. Overall, this research also showed that there was a moderate relationship between teachers' attitudes towards online teaching and teachers' TPACK.

In language schools, online teaching should be implemented in a specific educational manner. In order to encourage self-directed learning and help educators reach an appropriate level of proficiency in using online educational resources, teachers should be introduced to CALL programs during their teacher education. Online education should be explored to enable more teachers to manage instruction and work independently.

Challenges faced in implementing online education in the Iraqi EFL setting include inadequate TPACK-based teacher preparation, insufficient infrastructure, and lack of facilities to integrate online technology into educational planning. Finally, all students should have access to media labs whenever they wish. This requires providing facilities for teachers to incorporate Web-enabled applications into their lessons, and equipping all classrooms with all the latest gadgets.

Further study may be required to determine the effects of TPACK-oriented training programs on online English instruction, assessments of instructors' technological competence, and the adoption of technology in language instruction. Using interviews and classroom observations would have improved the bulk of information in this area of research. Data about educators' abilities to teach online and their actual usage of online teaching tools may have been gathered through observation. Focus groups would have

been helpful in identifying and thoroughly examining educators' opinions regarding the availability of online instruction and their educational potential.

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Appendix A

TPACK Scale

| |
|---|
| TK (Technological Knowledge) |
| 1. I know how to solve my own technical problems. |
| 2. I can learn technology easily. |
| 3. I keep up with important new technologies. |
| 4. I frequently play around the technology. |
| 5. I know about a lot of different technologies. |
| 6. I have the technical skills I need to use technology. |
| 7. I have had sufficient opportunities to work with different technologies. |
| CK (Content Knowledge) |
| 8. I have sufficient knowledge about English. |
| 9. I have various ways and strategies of developing my competency in English. |
| PK (Pedagogical Knowledge) |
| 10. I know how to assess student performance in a classroom. |
| 11. I can adapt my teaching based upon what students currently understand or do not understand. |
| 12. I can adapt my teaching style to different learners. |
| 13. I can assess student learning in multiple ways. |
| 14. I can use a wide range of teaching approaches in a classroom setting. |
| 15. I am familiar with common student understandings and misconceptions. |
| 16. I know how to organize and maintain classroom management. |
| PCK (Pedagogical Content Knowledge) |
| 17. I can select effective teaching approaches to guide student thinking and learning in English. |
| TCK (Technological Content Knowledge) |
| 18. I know about technologies that I can use for understanding and teaching English. |
| TPK (Technological Pedagogical Knowledge) |
| 19. I can choose technologies that enhance the teaching approaches for a lesson. |
| 20. I can choose technologies that enhance students' learning for a lesson. |
| 21. My teacher education program has caused me to think more deeply about how technology could influence the teaching approaches I use in my classroom. |
| 22. I am thinking critically about how to use technology in my classroom |

| |
|---|
| 23. I can adapt the use of the technologies that I am learning about to different teaching activities. |
| TPACK (Technological Pedagogical Content Knowledge) |
| 24. I can teach lessons that appropriately combine English, technologies and teaching approaches. |
| 25. I can select technologies to use in my classroom that enhance what I teach, how I teach, and what students learn. |
| 26. I can use strategies that combine content, technologies, and teaching approaches that I learned about in my coursework in my classroom. |
| 27. I can provide leadership in helping others to coordinate the use of content, technologies, and teaching approaches at my school. |
| 28. I can choose technologies that enhance the content for a lesson. |

Appendix B

EFL Teachers' Attitudes towards Online Teaching

1. Students become more autonomous in online EFL courses.
2. Online EFL courses enhance students' motivation.
3. Online EFL courses are time-efficient.
4. Authentic materials are used in online EFL courses.
5. Learners can communicate internationally in online EFL courses.
6. Online EFL courses are based on learner-centered approaches to teaching.
7. Online EFL courses are easily accessible to students.
8. Multimedia can be used in online EFL courses.
9. Various types of materials can be used in online EFL courses.
10. Online EFL courses are cost-effective.
11. Online EFL courses promote students' and teachers' computer competence.
12. Online EFL courses provide equal opportunities for learners to learn English.
13. Online EFL courses promote collaboration among students.
14. Expansive feedback can be provided for students in online EFL courses.
15. Online EFL courses are easy to be implemented.
16. Online EFL courses are more interactive than traditional courses.