THE PERSPECTIVES OF EFL STUDENTS ON THE TECHNOLOGICAL PEDAGOGICAL CONTENT KNOWLEDGE (TPACK) OF THEIR TEACHERS

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ABSTRACT

The objective of this current research was examining EFL students' point of views on their teachers' TPACK (technological pedagogical content knowledge). A growing body of research had been conducted to investigate instructors' TPACK. However, few research have addressed the evaluation of TPACK from the perspective of EFL students. The students' view offers a relatively objective perspective of instructors' TPACK to provide valuable feedback for further evaluation on their classroom practice. A survey method was employed by administered a TPACK student-based questionnaire adapted from Tseng (2014). The respondents were English education department students who had experience studying with technology, especially e-learning in the midst of pandemic. The findings showed that EFL students typically thought their teachers were knowledgeable about certain aspects of TPACK. Nevertheless, it was discovered that CK instructors were regarded as the greatest aspect of TPACK, whereas TK domain was thought to be the least important aspect. The results suggested that EFL teachers may need further TPACK training to attain the competency needed to properly incorporate technology more successfully in English lessons.

Introduction

In this digital age, information and communication technologies (ICTs) have strongly impacted educational practices. There are a lot of institutions introducing technology into education, and the implementation of technology has earned a lot of attention in language instructions. Technology is frequently used in the learning environment, particularly in English as a foreign language (EFL) instruction (Pokriváková, 2019). Appropriate technological integration in English language instruction is required. It indicates that traditional techniques of EFL teaching, in which students were passive receivers of information, should be abandoned (Rohmah, 2013). To successfully incorporate technology into English language classes, language teachers must be computer literate and technologically aware.

As well known, developments and innovations in technology have a direct impact on the teaching process, and it has been widely recognized for teaching English. The incorporation of ICT in the ELT classroom typically yields positive outcome (Ammade et al, 2018). Studies suggested that integrating technology into education benefits for both students and teachers in a variety of ways. Some of these advantages include making it easier to transmit and receive knowledge with the flexibility of time and place (Smedley, 2010), providing limitless information and resources (Arkorful & Abaidoo, 2014), engaging learning more entertaining for students (Billings & Mathison, 2012), and enhancing student learning motivation and interest by involving students in the actual processes of language acquisition through discussion among each other (Shyamlee & Phill, 2012).

Many studies, however, found that, while teachers constantly used gadgets and different digital tools out of school, they tended not employ educational technology at a sufficient level in their courses. According to Nugroho and Mutiaraningrum (2020), there is a common trend in many Indonesian educational situations to emphasize on face-to-face meetings rather than utilizing digital equipment into language learning. Furthermore, several EFL teachers were apprehensive about incorporating digital learning into the classroom. It is possible since there is not a helpful guide for bringing technology into classroom teaching procedures (Nugroho & Mutiaraningrum, 2020). According to Muhamad (2014), students were not exposed to a diversity of activities while using computer-mediated communication (CMC) as a technology tool for English education. It might be because instructors lack sufficient "teacher knowledge" to aid their instruction through instructional technology. Teachers are unable to quickly adapt to innovations due to a lack of understanding concerning latest technology and pedagogy, both of which are essential for online teaching and learning (Noh, 2020).

Teachers' capability to integrate technology into the classroom may be represented in their understanding of technological pedagogical content (TPACK). It is the most used conceptual model of teacher knowledge in the instructional development of digital advancements (Mishra and Koehler, 2006). The TPACK framework, based on Chai et al. (2013), was primarily needed to analyze the ability of teachers in transmitting subject material using suitable technology in a pedagogically acceptable way. This concept establishes a relationship between teachers' understanding and instructional technology (Schmidt et al., 2009). Koehler and Mishra (2009) mentioned that TPACK contains the basis for successful technology-enhanced learning, which necessitates a comprehension of concept organization through technology, instructional practices that employ digital constructively to present material, awareness of how students can address the problems by utilizing technology, and an understanding of how technology can be used to develop the students' knowledge/skill.

Teachers' understanding of technology integration gives critical insight into their ability to teach using technology. To better meet today's technological demands, teachers must be educated with the skills required to properly integrate educational technology with content and pedagogy. Effective ICT integration is dependent on teachers' capability to integrate the subject matter they teach (content knowledge) with what method they implement (pedagogical knowledge), as well as which technology to employ and why (technological knowledge) (Mishra & Koehler, 2006). In tackling this issue, TPACK has emerged as a prominent topic. TPACK evaluates a teacher's ability to effectively employ ICT in practice (Schmidt et al., 2009). When an instructor seems to have a significant TPACK level, these competences should be used in the classroom.

Many studies suggested that TPACK can help instructors understand how to incorporate ICT into their classroom instruction (Archambault & Crippen, 2009; Ansyari, 2012; Sarçoban et al., 2019; Demirtaş & Mumcu, 2021). According to these studies, the concept of TPACK and acquiring knowledge of technologies assist teachers in improving their professional performance in the class or lesson plan design that they used in teaching, as well as developing some appropriate strategies to present the technological materials to meet the content outcomes. This clearly refers to how TPACK relates theoretical and practical concerns in the instructional processes. The use of TPACK framework can help to guide effective technology integration based on specific content and suitable pedagogy (Schmidt et al., 2009).

A range of studies on teachers' attitudes toward the knowledge component of TPACK based on self-evaluation have been carried out in the EFL setting to provide increased understanding regarding how instructors consider integration of ICT into their language teaching. Shi & Jiang (2022) investigated the perceptions of Chinese EFL instructors on TPACK. The findings revealed that Chinese EFL instructors strongly believed in the value of seven TPACK areas, as well as in the utilization ICT in EFL education. According to Öz (2015), who evaluated TPACK competences of ELT student-teacher in Turkey. The investigation found that EFT student-teacher had well developed TPACK understanding. Nisa et al. (2022) investigated TPACK perception of Indonesian English instructors. According to the survey results, EFL instructors considered to have a favorable view of TPACK. The highest-level domains were discovered to be TK, TPK, and TPC. In contrast to Dewi et al. (2021), pre-service instructors struggled to apply educational technology, but are proficient in pedagogical competences.

Concerning studies of TPACK, a few research, however, have examined at EFL students' views of their teachers' technology pedagogical content competence (TPACK). Tseng (2014) investigated junior high school students' attitudes regarding their instructors' TPACK in Taiwan. Students thought their teachers showing higher content knowledge than their integrated TPACK. According to Fathi and Yousefifard (2019), who analyzed the beliefs of Iranian EFL students about the TPACK of their instructors. The findings suggested that Iranian students in the EFL class did not really feel that their instructors were able to have a better their own teaching by making good use of technology in the language classrooms.

Given the insight of the previous research and the limitations of studies exploring students' viewpoints on their instructors' TPACK, particularly in EFL setting, further empirical investigations are considered necessary. Although student judgments may not be equal to teachers' self-perceptions, it offers a relatively objective perspective of instructors' TPACK practices. Students' attitudes or views of their teachers' usage of technology are important in providing teachers with valuable feedback for further evaluation on their classroom practices. Thus, this study's goal is evaluating to what extent students of English as a Foreign Language (EFL) perceived their instructors' levels of technological pedagogical and content knowledge (TPACK) during circumstances in which ICT was integrated into the processes of teaching and learning.

TPACK Framework

Technological Pedagogical and Content Knowledge is what is intended when people refer about TPACK. It is a notion that outlines the sort of kind of understanding that educators need to acquire in order to successfully incorporate ICT into their instruction. This approach focuses on ways the particular subject mastery, instructional practices, and technological abilities of instructors interact with one another to enhance teaching performance (Koehler et al., 2014). The goal of such a notion is to provide a definition of knowledge required by teachers in order to teach a certain subject to their students using specific representations and using technology to enhance students' understanding (Cox & Graham, 2009). What instructors have to understand, according to the TPACK idea, is defined by a three essential types of comprehension of technology, pedagogy, and content, as well as the relationships that emerge these body of knowledge areas. (Koehler et al., 2013).

The TPACK framework expands on the Shulman's theory of PCK (Pedagogical and Content Knowledge) (Mishra & Koehler, 2006). PCK, as described by Shulman, is

the integration of both content and pedagogy form such a concept of the way specific topics, problems, and implications being managed, identified, and modified to the varied preferences and skills of learners (Koehler et al., 2014). The primary concept behind pedagogical content knowledge entails that being able to educate students on topic demands not simply a comprehension being taught, along with the development of appropriate pedagogical approaches and abilities for the learners. In other words, the PCK framework is concerned with two broad perspectives: subject matter or content knowledge (what will be delivered) and instructional techniques or pedagogical knowledge (the methodology for instructing).

Mishra & Koehler (2006) addressed this issue by developing PCK as such TPACK framework. This was done as response to the rising need of technological advances in educational setting. 'Technology,' according to Mishra and Koehler, is a complete primary knowledge in PCK. TPACK refers to teacher knowledge that explicitly highlights the role that technological knowledge may perform in effective teaching. It demonstrates how instructional technology understanding and PCK work together to provide efficient technology-enhanced teaching. Mishra & Koehler (2006) established TPACK as the competences needed by a practitioner in order to better integrate modern technologies into the curriculum. This notion is constructed on the basis of three distinct types of knowledge including technology knowledge (TK), pedagogy knowledge (PK), and content knowledge (CK). The idea also tackles the relationships between several types of expertise, such as PCK (pedagogical content knowledge), TCK (technological content knowledge), TPK (technological pedagogical knowledge), and TPACK (technological pedagogical content knowledge).
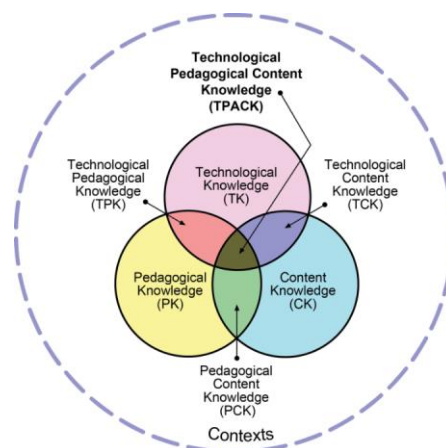

Figure 1. TPACK Model Developed by Mishra & Koehler (2006)

Figure 1 depicts three fundamental components, as well as four intersections, one of which contains TPACK. Each component is connected to the collective knowledge of the others. Technological Knowledge (TK) refers to teachers' awareness of developing technologies which might be used in the classroom (Mishra & Koehler, 2006; Koehler et al., 2014). The term Pedagogical Knowledge (PK) is known as a teacher awareness of a wide range of instructional approaches, tactics, procedures, and classroom practices for increasing learners' understanding (Koehler et al., 2014). The term CK stands for Content knowledge refers to any specific subject knowledge how both instructors and students are accountable for teaching and learning (Mishra & Koehler, 2006).

PCK stands for Pedagogical Content Knowledge which refers to the comprehension of way specific subjects, concern, and challenges are organized, expressed, and diverse capabilities and students' need, then conveyed for the purpose of education (Koehler et al., 2014). The acronym TCK stands for Technological Content Knowledge, and it refers to the awareness of the connection that exist between content and technology. The term Technological Pedagogical Knowledge (TPK) refers to an awareness that certain teaching methods may be both constrained and made more effective using technology. Finally, the acronym TPACK stands for technological pedagogical content knowledge. It refers to an educator's comprehension of the interconnected between technology, pedagogy, and content that enables educators to design appropriate and context-specific teaching. Its goal was to create teaching possibilities using technology and, of course, suitable pedagogical procedures (Mishra & Koehler, 2006).

Research Method

The current study used a quantitative survey research approach. The aim of this survey was to discover about the viewpoint of EFL students on the employment of TPACK in the classroom held by their instructors. The participants included 40 students, 17 men and 23 women, from the English education department for the 2019 academic year. Two criteria were used to choose the participants. First and foremost they were obliged to be students of English for those who did not speak it as their native language. Second, they got past experience studying with technologies, particularly online learning during the outbreak.

The quantitative data were gathered by distributing a student based TPACK questionnaire adopted from Tseng (2014). The instrument included 35 TPACK domains. The TK domain had five questions that assessed a instructor's capacity to make productive employment of technology in classroom, such as resolving student computer issues. The PK domain had five questions that examined a instructor's capacity to instruct in an appropriate manner. The capacity of instructor to convey material in an understandable and engaging manner was evaluated using five questions in the CK area. The TPK domain had five questions that evaluated a teacher's capacity to take good pedagogical instruction and use technology to improve teaching. The capacity of a teachers to explain material clearly and concisely was evaluated using five questions that were part of PCK domain. The TCK domain had five questions that examined instructor's competence to use their subject knowledge and convey it to learners through technology (e.g., online). Lastly, the TPACK domain included five questions designed to assess the instructor's capability of integrating teaching skills, subject knowledge, and technological expertise.

The TPACK survey used a 5-point Likert scale as its method of rating, with 1 representing strong disagreement and 5 representing strong agreement. The final score was determined by adding up the points earned across all of the subdomain categories, with a total score that might be in between 35 to 175 points. The instrument was provided to the learners through the use of a Google form. The Cronbach alpha value of the TPACK instrument's reliability coefficient was 0.97. The findings of the survey were examined in SPSS by utilizing the descriptive statistics. This analysis was conducted with the intention of providing an overview of the findings.

Result

The purpose of this study was to examine the findings in order to establish how EFL students viewed about the technological pedagogical and content understanding of their teachers (TPACK). Table 1 presented the findings of a statistical analysis collected from the students' responses to the TPACK questionnaire.

Sub-domains	Mean	SD
Technology knowledge (TK)	3.71	0.91
Pedagogical knowledge (PK)	3.94	0.93
Content knowledge (CK)	4.28	0.86
Technological Pedagogical knowledge (TPK)	4.08	0.91
Technological Content Knowledge (TCK)	3.95	1.03
Pedagogical Content knowledge (PCK)	4.09	0.89
Technological Pedagogical Content Knowledge (TPACK)	4.10	0.90
TOTAL	**3.98**	**0.92**

Table 1. Statistical Description of How Students Perceive TPACK across All Areas

All sub-domain mean scores were more than 3.5. The overall mean was 3.98, while the standard deviation was 0.92. The students believed that their lecturers demonstrated great understanding of every component of TPACK as outlined in the form. It discovered that EFL instructors' TPACK competencies were typically strong. According to what was discovered in the research, the majority of EFL students had a good attitude about their teachers' comprehension of the seven TPACK areas. The subdomains with the highest reported mean were CK, TPK, PCK, and TPACK, as indicated in table 1. More particular, the CK had the greatest average score (M = 4.28, SD = 0.86), while the TK received the average with the weakest points (M = 3.71, SD = 0.91). This suggested that the students valued their instructors' content understanding of the English topic more than their teachers' technology competence. In addition, the following explanation provided data to the teacher's TPACK performance in the seven domains in providing a detailed overview of the response that students gave to the specific information.

Item Statements	1	2	3	4	5	Mean	SD
Technological Knowledge (TK)						**3.71**	**0.91**
My lecturer has a fundamental understanding of computer hardware	0 0%	2 5%	14 35%	16 40%	8 20%	3.75	3.84
My lecturer is knowledgeable about fundamental computer software	2 5%	0 0%	8 20%	22 55%	8 20%	3.85	0.92
My lecturer is able to troubleshoot and resolve technical issues related to hardware	0 0%	6 15%	16 40%	16 40%	2 5%	3.35	0.80
My lecturer is knowledgeable about how to troubleshoot technical issues relating to software	0 0%	5 13%	13 33%	15 38%	7 18%	3.60	0.93
My lecturer stays current with the most significant emerging technology	2 5%	1 3%	7 18%	15 38%	15 38%	4.00	1.06

Table 2. Students' Perception regarding Teachers' TK

According to the results of a questionnaire on technological knowledge, lecturers who keeping up with the newest innovative technologies had the highest mean value (M = 4.00, SD = 1.06). Most students (76%) agreed that their lecturers are computer

competent. Students also claimed that their lecturers were well-versed in basic computer software and hardware. However, the students thought that the teachers lacked the ability to deal with technological issues.

Item Statements	1	2	3	4	5	Mean	SD
Pedagogical Knowledge (PK)						**3.94**	**0.93**
My lecturer employs a wide array of instructional methods in the classroom.	0 0%	4 10%	5 13%	16 40%	8 20%	4.20	1.02
My lecturer employs a variety of tests and strategies to evaluate students.	1 3%	0 0%	9 23%	22 55%	8 20%	4.08	0.92
My lecturer is concerned to the struggles that students face in their education.	0 0%	4 10%	14 35%	16 40%	2 5%	3.60	0.87
My lecturer adapts his or her teaching methods based on the results and comments of the students in the class.	0 0%	2 5%	13 33%	15 38%	7 18%	3.85	0.89
My lecturer is skilled in the art of classroom management.	0 0%	4 10%	7 18%	15 38%	15 38%	3.95	0.96

Table 3. Students' Perception concerning Teachers' PK

Table 3 showed students' perspectives on their lecturers' pedagogical knowledge. Most students assessed their teachers to use a variety of teaching techniques (M = 420, SD = 1.02) and evaluation procedures (M = 4.08, SD = 0.92) in class. Students stated teachers knew how to organize the classroom and offer feedback on students' performance. Students, on the other hand, reported that the teacher less to grasp their learning requirements.

Item Statements	1	2	3	4	5	Mean	SD
Content Knowledge (CK)						**4.28**	**0.86**
My English class lecturer has a good grasp of the grammatical rules of the language.	0 0%	2 5%	5 13%	12 30%	21 53%	4.30	0.88
My lecturer has an excellent pronunciation.	3 8%	0 0%	2 5%	13 33%	22 55%	4.28	1.11
My lecturer speaks English in a clear and fluent manner throughout class.	0 0%	2 5%	7 18%	11 28%	20 50%	4.23	0.92
My lecturer develops resources that may improve the quality of my education.	0 0%	1 3%	7 18%	18 45%	14 35%	4.13	0.79
My English lecturer addresses the concerns and inquiries of the class.	0 0%	0 0%	2 5%	18 45%	20 50%	4.45	0.60

Table 4. Students' Perception respecting Teachers' CK

In terms of instructors' topic understanding, learners reported that their instructors were well-versed in the subjects they taught. Every item in the CK domain has a mean score greater than 4.00. The professors were seen to be incredibly knowledgeable in topics such as grammar (M = 4.30) and pronunciation (M = 4.28). The teachers were competent enough to address the learners' English difficulties.

Item Statements	1	2	3	4	5	Mean	SD
Technological Pedagogical Knowledge (TPK)						**4.08**	**0.91**
	0	1	9	18	12	4.03	0.80

Item Statements	1		2	3	4	5	Mean	SD
My lecturer employs various technological tools in order to stimulate my interest in learning.	0%		3%	23%	45%	30%		
My lecturer makes use of several technology to provide an adequate explanation.	0 0%		1 3%	7 18%	15 38%	17 43%	4.20	0.82
My lecturer use of numerous technology so that she can communicate with us more effectively.	2 5%		1 3%	7 18%	16 40%	14 35%	3.98	1.05
My lecturer makes use of many technology in order to make the learning process easier.	0 0%		3 8%	8 20%	13 33%	16 40%	4.05	0.96
My lecturer makes use of technologies that are suitable for the classroom setting.	0 0%		1 3%	11 28%	10 25%	18 45%	4.13	0.91

Table 5. Students' Perception toward Teachers' TPK

The result in the TPK domain demonstrated that teachers can clearly convey the content by employing technology (M = 4.20, SD = 0.82). Most of the students believed that their instructors utilized suitable technology to assist instructional activities. Participants also stated that their lecturers utilize technology to engage and encourage their students.

Item Statements	1	2	3	4	5	Mean	SD
Technological Content Knowledge (TCK)						**3.95**	**1.03**
My lecturer utilizes digitalized teaching resources, which have helped me become more proficient in vocabulary learning.	0 0%	2 5%	11 28%	13 33%	14 35%	3.98	0.92
My lecturer provides me with digitalized teaching resources, which allow me to improve my grammatical knowledge.	0 0%	3 8%	6 15%	11 28%	20 50%	4.20	0.97
My lecturer employs digitalized reading resources, which enable me to improve my reading ability.	2 5%	6 15%	3 8%	11 28%	18 45%	3.93	1.27
My lecturer utilizes digitalized teaching tools, which have helped me become a better speaker.	0 0%	5 13%	11 28%	11 28%	13 33%	3.80	1.04
My lecturer utilizes digitalized teaching resources, which enable me to have a deeper understanding of the culture I'm trying to learn about.	0 0%	4 10%	10 25%	14 35%	12 30%	3.85	0.98

Table 6. Students' Perception about Teachers' TCK

Table 6 revealed the results of the instructors' Technological Content Knowledge (TCK). TCK got a mean score of 3.95 and a standard deviation of 1.03, suggesting that the items in this domain were agreed upon by the participants. Most of participants stated that their instructors utilize digitally enhanced teaching resources to help students improve their grammar (M = 4.20) and vocabulary (M = 3.98).

Item Statements	1	2	3	4	5	Mean	SD
Pedagogical Content Knowledge (PCK)						**4.09**	**0.89**
	0	0	8	17	15	4.18	0.75

Item Statements						Mean	SD
My English comprehension has improved as a result of the lessons that my lecturer gives.	0%	0%	20%	43%	38%		
My lecturer assigns me several tests so that I may get further English practice.	0 / 2%	0 / 0%	7 / 18%	18 / 45%	15 / 38%	4.20	0.72
My lecturer organizes games in which I have additional opportunities to improve the English language.	5 / 0%	1 / 3%	12 / 30%	13 / 33%	12 / 30%	3.80	1.07
My lecturer organizes group activities in which I am able to practice my English language skills further.	0 / 0%	5 / 13%	5 / 13%	14 / 35%	16 / 40%	4.03	1.03
My lecturer facilitates discussion-based activities in which I have more opportunities to utilize English.	0 / 0%	1 / 3%	9 / 23%	10 / 25%	20 / 50%	4.23	0.89

Table 7. Students' Perception related to Teachers' PCK

The following sub-dimension is related to knowledge of pedagogical content (PCK). It seemed as if the participants had reached an agreement on the things included in this area. Participants explicitly stated that their instructors engage discussion (M = 4.23), exams (M = 4.20), and lecturing (M = 4.18) to help them better understanding of English. However, when it came to English practice activities, the participants felt that their lecturers lacked appropriate comprehension.

Item Statements	1	2	3	4	5	Mean	SD
Technological Pedagogical Content Knowledge (TPACK)						**4.10**	**0.90**
My lecturer conveys the material by using relevant approaches and a variety of technological tools to depict the information.	0 / 0%	1 / 3%	8 / 20%	11 / 28%	20 / 50%	4.25	0.87
My lecturer gives us the chance to practice English using suitable techniques by using a variety of technological tools, which is really helpful.	0 / 0%	1 / 3%	3 / 8%	18 / 45%	18 / 45%	4.33	0.73
My lecturer gives us the chance to utilize English in an acceptable manner by using a variety of different technologies, which is a great opportunity for us.	2 / 5%	1 / 3%	4 / 10%	18 / 45%	15 / 38%	4.08	1.02
The use of the computer in my English class is an interesting and interactive method of instruction.	0 / 0%	5 / 13%	8 / 20%	17 / 43%	10 / 25%	3.80	0.97
The use of the computer in the instruction of English that I get from my lecturer is beneficial to my progress in the language.	0 / 0%	1 / 3%	12 / 30%	11 / 28%	16 / 40%	4.05	0.90

Table 8. Students' Perception referring to Teachers' TPACK

Finally, when it comes to students' perceptions of instructors' technological pedagogical content knowledge (TPACK), the participants appeared to be practically agreed (M = 4.10, SD = 0.90). They generally agreed that their lecturers allowed their students opportunities to practice English using suitable methodologies through the use of various technology (M = 4.33, SD = 0.73). Furthermore, the students regarded their lecturers as representing material (M = 4.25) and the chance to practice English (M = 4.08) using technological tools. Nevertheless, participants considered that their

instructors lacked sufficient understanding in the technique they taught English using computers (M = 3.80).

Discussion

This research intended to examine the TPACK of EFL instructors by looking at their practices from the students' point of view. The use of questionnaires aided in understanding the instructors' general teacher effectiveness from the students' personal view. This study highlighted the level of instructors' TPACK by investigating students' perceptions of their lecturers' incorporation of technology in the setting of tertiary education, especially English pedagogical practices.

According to the descriptive statistics, the tertiary EFL students believed their instructors were competent in overall TPACK. In other words, students viewed their lecturers to be typically proficient enough to increase their language skills with appropriate use of technology in their own pedagogy. Furthermore, it was discovered that EFL students thought their instructors were at a good level in the four components, which included CK, TPK, PCK, and TPACK. They assessed their lecturers were generally competent at a moderate level in the three other areas, notably TCK, PK, and TK.

More specifically, the survey findings suggested that CK instructors were thought to be the strongest component, while TK was the lowest aspect of TPACK carried by EFL teachers. Even though CK was greater than average, the connection between TK and CK (TCK) was lacking. It can be said that the students of English as a Foreign Language (EFL) had the preconceived opinion that their teachers, despite knowing the basic knowledge of the English language but not comprehensive understanding to use technology, were judged to be insufficiently competent employing technology equipment in their classroom practice or enhancing the learning of the students by making effective use of information and communications technology in the students' language classes.

Due to the lowest score of TK, it is important for teachers to think about ways increasing the capacity to utilize information and communication technologies (ICT) in practice in order to promote the instructional process using technology (García-Valcárcel & Mena, 2021). Instructors need to improve their level of technological competence to having an effect on student learning and the activities those teachers do within the classroom (Sarıçoban et al., 2019). As a result, having a good TPACK abilities indicates that instructors can improve their digital proficiency and make effective use of technology in the classroom (Erdogan et al., 2010; Sarıçoban et al., 2019).

This study also confirmed the study conducted by Chuang et al. (2018). The study found that learners' views of instructors' technological knowledge had a significant influence on TPACK. Due to a lack of fundamental technological competence, many EFL teachers struggle while attempting to present instructional material in the EFL classroom through technology implementation (Fathi & Yousefifard, 2019). However, it is important to emphasize that the mastery technology is not enough for successful implementation in the classroom (Indriyono et al., 2022). It is essential to ensure that technology is used appropriately in an appropriate educational setting in order to achieve its complete capacity (Koehler & Mishra, 2006).

These findings might imply that EFL teachers require increased training to offer instructional content using technologies. Teachers should begin by determining the instructional pedagogies adequate for the teaching content and look for appropriate digital technologies to assist teaching activities that will enhance their digital competence and the quality of teaching. This can be accomplished by establishing the training of

teachers' technological ability, which will help to comprehensively improve teachers' TPACK abilities.

Conclusion

It is essential to consider EFL instructors' technological knowledge and skill in delivering language learning materials through the use of suitable technology. The present study, which was conducted through the use of a survey, uncovered the personal views of EFL students on the efficiency of their teachers' TPACK. According to the results of this investigation, students generally believed their instructors were capable in all seven areas of TPACK, although at different levels. Furthermore, Many English learners reported that their English instructors performed well in CK, TPK, PCK, and TPACK aspects. However, the majority of EFL students rated their instructors as performing at a moderate level in the others area of TPACK including TK, PK, and TCK.

Overall, the study's results suggested that, while EFL teachers had adequate knowledge of the English language, they were perceived to have relatively less confidence in utilizing new tech education, and they may lack the ability to successfully demonstrate English as a foreign language using various technology equipment. This finding revealed that EFL students were unsure their teachers could improve their students' learning through appropriate incorporation of ICT in EFL education. The results of this study may suggest that instructors of English as a foreign language (EFL) need further training in TPACK professional development to acquire the competency necessary to incorporate technology into their EFL classroom.

Acknowledgements

References

Archambault, L., & Crippen, K. (2009). Examining TPACK among K-12 Online Distance Educators in the United States. *Contemporary issues in technology and teacher education*, *9*(1), 71-88. https://dx.doi.org/10.1080/0158791022000009213

Ammade, S., Mahmud, M., Jabu, B., & Tahmir, S. (2018). Integrating Technology in English Language Teaching: Global Experiences and Lessons for Indonesia. *International Journal of English Linguistics*, *8*(6), 107. https://dx.doi.org/10.5539/ijel.v8n6p107

Ansyari, M. H. (2012). *The development and Evaluation of A Professional Development Arrangement for Technology Integration to Enhance Communicative Approach in English Language Teaching* (Master's thesis, University of Twente).

Arkorful, V., & Abaidoo, N. (2014). The Role of E-learning, The Advantages and Disadvantages of Its Adoption in Higher Education. *International Journal of Education and Research, 2*(12), 397-410.

Billings, E. S., & Mathison, C. (2012). I Get to Use an IPod in School? Using Technology-based Advance Organizers to Support The Academic Success of English Learners. *Journal of Science Education and Technology, 21*(4), 494-503. https://dx.doi.org/10.1007/s10956-011-9341-0

Chai, C.-S., Koh, J. H.-L., & Tsai, C.-C. (2013). A Review of Technological Pedagogical Content Knowledge. *Educational Technology & Society, 16*(2), 31–51 .

Chang, Y., Jang, S. J., & Chen, Y. H. (2015). Assessing University Students' Perceptions of Their Physics Instructors' TPACK Development in Two Contexts. *British Journal of Educational Technology*, *46*(6), 1236-1249. https://dx.doi.org/10.1111/bjet.12192

Cox, S., & Graham, C. R. (2009). Using an Elaborated Model of the TPACK Framework to Analyze and Depict Teacher Knowledge. *TechTrends*, *53*(5), 60-69. https://dx.doi.org/10.1007/s11528-009-0327-1

Demirtaş, B. & Mumcu, F. (2021). Pre-service Teachers' Perceptions of ICT and TPACK Competences. *Acta Educationis Generalis, 11*(2), 60-82. https://dx.doi.org/10.2478/atd-2021-0013

Dewi, A. R. E. K., Kritina, D., & Ngadiso. (2021). Perceptions of Technological, Pedagogical and Content Knowledge (TPACK) among EFL Pre-Service Teachers in Central Java, Indonesia. *Proceeding of 2nd International Conference on the Teaching of English and Literature*.

Erdogan, A., & Sahin, I. (2010). Relationship between Math Teacher Candidates' Technological Pedagogical and Content Knowledge (TPACK) and Achievement Levels. *Procedia-Social and Behavioral Sciences*, *2*(2), 2707-2711. https://dx.doi.org/10.1016/j.sbspro.2010.03.400

Fathi, J., & Yousefifard, S. (2019). Assessing Language Teachers' Technological Pedagogical Content Knowledge (TPACK): EFL Students' Perspectives. *Research in English Language Pedagogy*, *7*(2), 255-282. https://doi.org/10.30486/relp.2019.665888

García-Valcárcel, A., & Mena, J. (2021). In-Service Teachers' Use of ICT for the Promotion of Collaborative Professional Learning. In *Research Anthology on Facilitating New Educational Practices Through Communities of Learning* (pp. 287-301). https://dx.doi.org/10.4018/978-1-7998-7294-8.ch015

Indriyono, H., Budiraharjo, M., & Bram, B. (2022). Assessing Vocational High School EFL Teachers' Technological Pedagogical Content Knowledge in Online Learning. *Journey: Journal of English Language and Pedagogy*, *5*(2), 310-319. https://doi.org/10.33503/journey.v5i2.2115

Koehler, M. J., & Mishra, P. (2009). What is Technological Pedagogical Content Knowledge? *Contemporary Issues in Technology and Teacher Education, 9*(1), 60-70. https://dx.doi.org/10.1177/002205741319300303

Koehler, M. J., Mishra, P., Akcaoglu, M., & Rosenberg, J. M. (2013). The Technological Pedagogical Content Knowledge Framework for Teachers and Teacher Educators. *ICT Integrated Teacher Education: A resource book*, 2-7.

Koehler, M. J., Mishra, P., Kereluik, K., Shin, T. S., & Graham, C. R. (2014). The Technological Pedagogical Content Knowledge Framework. In *Handbook of Research on Educational Communications and Technology* (pp. 101-111). Springer, New York, NY.

Mishra, P., & Koehler, M. J. (2006). Technological Pedagogical Content Knowledge: A framework for teacher knowledge. *Teachers College Record, 108*(6), 1017-1054. https://dx.doi.org/10.1111/j.1467-9620.2006.00684.x

Muhammad, N. A. B. (2014). Investigating the Roles of Motivation and Technological Pedagogical Content Knowledge (TPACK) in Computer Mediated Communication (CMC) speaking Skills Instruction. *International Journal of Applied Linguistics and English Literature, 3*(2), 112-130. https://dx.doi.org/10.7575/aiac.ijalel.v.3n.2p.112

Nisa, N.A., Ratnawati, & Rohayati, D. (2022). Investigating EFL Pre-service Teachers' Perceptions of TPACK (Technological Pedagogical Content Knowledge) for Their Teaching (A Survey among English Education Students of A Private College in Ciamis Indonesia). *Journal of English Education Program (JEEP), 9*(2), 1-10. http://dx.doi.org/10.25157/(jeep).v9i2.8555

Nugroho, A., & Mutiaraningrum, I. (2020). EFL Teachers' Beliefs and Practices about Digital Learning of English. *EduLite: Journal of English Education, Literature and Culture*, *5*(2), 304-321. https://dx.doi.org/10.30659/e.5.2.304-321

Noh, N. M., Abdullah, N., Teck, W., & Hamzah, M. (2019). Cultivating Blended Learning in Teaching and Learning: Teachers' Intrinsic and Extrinsic Readiness in Malaysia. *International Journal of Academic Research in Business and Social Sciences*, *8*(2), 2. https://dx.doi.org/10.6007/ijarped/v8-i2/5778

Öz, Hüseyin. (2015). Assessing Pre-service English as a Foreign Language Teachers' Technological Pedagogical Content Knowledge. *International Education Studies, 8*(5), 119-130. https://dx.doi.org/10.5539/ies.v8n5p119

Pokrivčáková, S. (2019). Preparing Teachers for The Application of AI-Powered Technologies in Foreign Language Education. *Journal of Language and Cultural Education*, *7*(3), 135-153. https://dx.doi.org/10.2478/jolace-2019-0025

Rohmah, Z. (2013). Teaching English as a Foreign Language: a Handbook for English Department Undergraduate Students Faculty of Letters and Humanities UIN Sunan Ampel Surabaya.

Sarıçoban, A., Tosuncuoğlu, İ & Kırmızı, Ö. (2019). A Technological Pedagogical Content Knowledge (TPACK) Assessment of Pre-Service EFL Teachers Learning to Teach English as A Foreign Language. *Journal of Language and Linguistic Studies, 15*(3), 1122-1138. https://dx.doi.org/10.17263/jlls.631552

Schmidt, D. A., Baran, E., Thompson, A. D., Mishra, P., Koehler, M. J., & Shin, T. S. (2009). Technological Pedagogical Content Knowledge (TPACK) The Development and Validation of An Assessment Instrument for Preservice Teachers. *Journal of research on Technology in Education*, *42*(2), 123-149. https://dx.doi.org/10.1080/15391523.2009.10782544

Shi, L. & Jiang, L. (2022). How EFL Teachers Perceive and Self-evaluate The Knowledge Components in Forming Technological Pedagogical Content Knowledge (TPACK). *English Language Teaching Educational Journal, 5*(1), 1-15. https://doi.org/10.12928/eltej.v5i1.5914

Shyamlee, S. D., & Phil, M. (2012). Use of technology in English language teaching and learning: An analysis. *In International Conference on Language, Medias and Culture, 33*(1), 150-156.

Smedley, J. (2010). Modelling The Impact of Knowledge Management Using Technology. *OR insight, 23*(4), 233-250. https://dx.doi.org/10.1057/ori.2010.11

Tseng, J. J. (2014). Developing An Instrument for Assessing Technological Pedagogical Content Knowledge as Perceived by EFL Students. *Computer Assisted Language Learning*, *29*(2), 1-19. https://dx.doi.org/10.1080/09588221.2014.941369

Tseng, J. J. (2014). Investigating EFL Teachers' Technological Pedagogical Content Knowledge: Students' Perceptions. In S. Jager, L. Bradley, E. J. Meima, & S. Thouësny (Eds), *CALL Design: Principles and Practice; Proceedings of the 2014 EUROCALL Conference, Groningen, The Netherlands* (pp. 379-384). Dublin: Research publishing.net. https://dx.doi.org/10.14705/rpnet.2014.000249