

# Level of ESL Teachers' Technological Pedagogical Content Knowledge (TPACK) Skill and Attitude towards Technology

Izni Nabilah Khairul Azhar, Harwati Hashim\*

Faculty of Education, Universiti Kebangsaan Malaysia, Bangi, Malaysia

Email: \*harwati@ukm.edu.my

**How to cite this paper:** Azhar, I. N. K., & Hashim, H. (2022). Level of ESL Teachers' Technological Pedagogical Content Knowledge (TPACK) Skill and Attitude towards Technology. *Creative Education*, 13, 1193-1210.

<https://doi.org/10.4236/ce.2022.134074>

**Received:** January 13, 2022

**Accepted:** April 10, 2022

**Published:** April 13, 2022

Copyright © 2022 by author(s) and Scientific Research Publishing Inc. This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

## Abstract

Technology integration in teaching and learning activities has become a contentious issue among educators in recent years and Technological Pedagogical Content Knowledge (TPACK) is a dynamic framework for explaining teachers' knowledge needed for developing, implementing, and reviewing technology-assisted curriculum and instruction. The development of TPACK by teachers is paramount to teacher's attitude. This study aimed to examine the TPACK skill and attitude towards technology among ESL teachers in Malaysia. A total of 65 responses from English teachers of various educational sectors in Malaysia were analyzed by employing a quantitative approach. The findings show that the ESL teachers' TPACK level is amazingly high. Additionally, it also shows that the teachers' attitude towards technology is also promisingly significant. Apart from that, findings also disclosed that there is a significant relationship between ESL teachers' TPACK skills and attitudes towards technology. It is suggested that future research studies incorporate the administration of the questionnaire to analyze attitudes before and after the implementation of a long-term professional development plan for technology integration.

## Keywords

TPACK, ESL Teachers, Attitudes, Technology Integration

## 1. Introduction

Schools and school systems are finding ways to obtain and use new technology for teaching and learning as new technologies emerge and older technologies are improved (Dobo, 2016). The Malaysian government has invested about RM6 bil-

lion in education technology, such as smart schools, which is one of the most capital-intensive expenditures made by the Malaysian Education System (Rauf & Suwanto, 2020). Malaysia's education system is also undergoing reforms in order to enable education in the country to meet the requirements and problems of the twenty-first century (Rahman, Yunus, & Hashim, 2019). While teachers' attitudes towards technology in the ESL classroom are not well studied, Kozikoğlu and Babacan (2019) found that teacher TPACK skills in Turkey and attitude towards technology are positively correlated. Skills in TPACK and attitudes towards technology are closely related. For example, TPACK skills are affected by someone's attitude toward technology, so the more positive an individual's attitude toward technology, the more skills he/she has in TPACK.

Actions can be taken to address the reasons for the TPACK skills and attitude towards technology in the English classroom once they are known. The TPACK framework by Mishra and Koehler (2006) is used to assess the level of TPACK skills focusing on the seven components of the framework: Content Knowledge (CK), Pedagogical Knowledge (PK), Technological Knowledge (TK), Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK) and Technological Pedagogical and Content Knowledge (TPACK).

Many academics have looked at the current use of information and communication technology (ICT) and, as a result, the attitudes of individuals about the use of ICT, which play a significant role in this development. Another cause for teachers' lack of technology integration in their classroom is their unfavorable belief and attitude about technology. According to several studies, one of the most essential components of technology integration is teachers' beliefs and attitudes (Taimalu & Luik, 2019; Farjon, Smits, & Voogt, 2019). In addition, the more technology knowledge instructors have, the more positive attitudes they have toward it (Scherer, Tondeur, Siddiq, & Baran, 2018; Karatas, Tunc, Yilmaz, & Karaci, 2017; Farjon et al., 2019). Furthermore, studies have indicated that teachers are frequently viewed as deficient in understanding in order to effectively use technologies in their classrooms, particularly in terms of scope, variety, and depth (Mishra & Koehler, 2006). All of these research shows that instructors' attitudes toward technology, as well as technical pedagogical subject expertise, are significant.

As previously stated, the use of technology in English as second language teaching appears to be very significant, and it is clear that today's Malaysian ESL teachers require TPACK skills as well as a favourable attitude toward technology in order to assure effective learning. It is envisaged that the adoption of TPACK skills in English language learning will improve teaching among ESL teachers. Many teachers and educators believe that using technology in the classroom alters the dynamics (Hashim & Yunus, 2012). It is important to assess Malaysian ESL teachers' TPACK capabilities and attitudes toward technology in this scenario. There are many studies on educators' TPACK and the impact of TPACK on the teaching process; however, there are few studies on ESL instructors'

TPACK. According to a literature study conducted by [Rahman and Harun \(2018\)](#), only about 20 studies focused on TPACK among ESL or EFL pre-service teachers out of all the publications on TPACK that they found. Besides that, there is a lack of further research on English teachers especially for those who are used to traditional methods yet are forced to shift to modern methods as it seems to fit 21st-century learning and teaching ([Elas, Majid, & Narasuman, 2019](#)). Hence, this study seeks to fill a research gap by researching TPACK skill and attitude towards technology among ESL teachers in Malaysia using a validated TPACK instrument and Attitude Scale towards technology. The purpose of this study is to determine ESL secondary school educators' attitude about incorporating technology into their classrooms and the level of their TPACK skills.

## 2. Literature Review

Teachers and school systems in Malaysia are learning to use technology to improve student achievement as the availability of technology in online classrooms has risen since online distance learning was implemented. The technical, pedagogical, and content knowledge (TPACK) framework was created to assess educators' level of this skill ([Mishra & Koehler, 2006](#)). Apart from that, much of the available research on teachers' attitudes toward technology in the classroom is inconclusive. Technology Attitude Model (TAM) will be observed in this chapter too since this research is taking teacher's attitude into consideration. Teachers' attitudes about technology are related to their own self-appreciation and self-understanding in terms of integrating technology into their own teaching practices will be discussed too in this chapter.

### 2.1. TPACK Framework

The availability of technology alone cannot determine the success of technological integration. However, it must be determined whether or not the teachers' expertise and aptitude in selecting and efficiently employing technology is compatible with learning content and pedagogy ([Bilici, Guzey, & Yamak, 2016](#)). To define such a skill or aptitude, the proper technology integration model is Technological Pedagogical Content Knowledge (TPACK) ([Joo, Park, & Lim, 2018](#)).

The core components and integration components (a mixture of the basic components) make up the TPACK framework. The basic components consist of Content Knowledge (CK), Pedagogical Knowledge (PK) and Technological Knowledge (TK). In addition, the integration components include Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK) and Technological Pedagogical and Content Knowledge (TPACK) ([Koehler, Mishra, & Cain, 2013](#); [Valtonen, Kukkonen, Kontkanen, Mäkitalo-Siegl, & Sointu, 2017](#); [Valtonen et al., 2018](#)). These seven elements are intertwined and cannot be separated. As a result, a teacher must be able to acquire fluency and cognitive flexibility in each of the primary components and interactions between them in order to have an effective TPACK. Components of TPACK Finally, they will be able to create effective technology

integration strategies (Koehler et al., 2013).

In the literature, there are numerous definitions for TPACK. TPACK was defined by Koehler and Mishra (2009) as the ability to use technology to support pedagogical practices, to assist students in solving challenges they experience during learning, to consolidate existing information, and to work on technology at the point of sustaining new information. TPACK is defined by Niess (2005) as the way teachers employ 21<sup>st</sup>-century technologies to plan, organise, and change class circumstances to meet the requirements of students. TPACK, as described by Timur and Taşar (2011), is the successful integration of educational technologies with Pedagogical Content Knowledge in the classroom. TPACK can be defined as the successful use of technology in the teaching-learning process, as well as instructors' enrichment of their pedagogical content knowledge using technology, using these definitions.

## 2.2. Teaching Method in ESL

For a long time, the process of second language acquisition (SLA) was primarily guided by the following approaches such as the grammar translation method (GTM), the audiolingual method (ALM), the communicative language teaching (CLT) method and task-based language teaching (TBLT) for language learning. Even though they belong to distinct time periods and represent different learning settings, all of these methods have the potential to be successfully implemented in a classroom setting today.

According to Tassev (2019), language acquisition in many nations was dominated by the GTM from the late eighteenth century until the 1960s. This strategy was originally used with classical Latin and Greek, later with current foreign languages. According to Munday (2008: p. 7-8, as cited in Tassev, 2019), essentially, this strategy was based on "rote study" of the L2's structures and grammatical norms. The proponents of this technique felt that translation exercises and mastery of vocabulary knowledge were crucial for the study of L2 (Mart, 2013).

Nonetheless, the GTM fell out of favor with the emergence of the communicative approach to English language instruction in the 1960s and 1970s. Munday (as cited in Tassev, 2019) also added that this technique valued spoken forms above written ones and abandoned translation as the major means of language acquisition.

Audiolingualism is a linguistic, or structure-based, method of language instruction. The beginning point is a linguistic syllabus, which covers the essential aspects of the language's phonology, morphology, and syntax in the sequence in which they are presented. According to Vidhiasi and Lengari (2018), these aspects may have been generated in part from a contrastive examination of the gaps between the native tongue and the target language, as these gaps are regarded to be the source of the learner's primary difficulties and in most cases, a lexical syllabus comprising core vocabulary items is also set in advance.

In 2019, Bagheri, Hadian and Vaez-Dalili stated that there are several aspects of the audiolingual teaching approach. Using Audiolingualism to learn English involves habit development, meanings of words can only be learnt in a cultural

or linguistic context, and analogies are a stronger base for learning English than analysis. Furthermore, grammatical faults are frowned upon and should be avoided. However, in the Audiolingual method, incorrect replies result in negative feedback (Bagheri, Hadian, & Vaez-Dalili, 2019).

Dialogue is also an important aspect of the Audiolingual approach. Butzkamm and Caldwell (as cited in Bagheri, Hadian, & Vaez-Dalili, 2019) stated that a dialogue improves a learner's fluency and agility in using language. Dialogues allow students to memorise, replicate, and perfect their English. Students participate in a range of exercises in classroom lessons utilising the Audiolingual method, including phrase repetition, reading dialogues aloud, and hard practise. The students concentrate on accurately imitating a teacher's statement. In order to generate exact output and pronunciation, repetition is used. According to Butzkamm and Caldwell (as cited in Bagheri, Hadian, & Vaez-Dalili, 2019), the teacher provides an example, and the pupils serve as imitation. Drills urge a pupil to constantly rehearse a certain line or grammatical construct until they can utilise it without thinking or pausing.

The communicative language teaching (CLT) method emphasizes the functional features of language above the formal parts. Derived from the shortcomings of the audiolingualism method, it is founded on the premise that conversing in English as a foreign language leads to successful mastery of English as a foreign language. As a result, the method depends on interaction as the primary way of language learning (Candlin, 2016). Engaging students in real-world dialogue improves their language skills. According to Bagheri, Hadian and Vaez-Dalili (2019), there are three main factors that form the foundation of the communicative language instruction technique. Tasks, communication, and meaning are among the components. "Tasks" are activities in which the English language is employed to complete meaningful tasks that aid in the learning process. Tasks are completed in a variety of situations and contexts to provide students with a broad understanding of how to utilise the language. Furthermore, "communication" is a key part of CLT since activities involving actual encounters improve learning. Finally, the "meaning" component is an important feature of student learning since a language that is meaningful to a student helps his or her learning (Richards, 2005).

Students who are studying English as a second language converse in order to practise the language. They talk about their own encounters with their lecturers and classmates. In contrast to the Audiolingual approach, in which pupils mimic what the teacher says, the communicative technique exclusively employs dialogues (Ghofur et al., 2017; Tehrani et al., 2013; Rao, 2002). Furthermore, a communicative method teacher teaches topics on many contexts and conditions. According to Spada (2007), focusing on language abilities in varied settings rather than grammatical rules allows students to bring personal experiences into their classroom setting, making English learning more applicable.

Furthermore, oral activities are used in CLT to teach. In communicative language instruction, a number of spoken activities can be employed in class. Inter-

views, role play, opinion exchange, and knowledge gaps are just a few of the activities. Interviews, which are conducted in pairs, are designed to improve and strengthen the students' interpersonal skills (Candlin, 2016; Richards & Schmidt, 2014). Students act out various roles in various contexts during role play. Opinion sharing, on the other hand, is a subject-based oral exercise in which students share and engage in a topic that is relevant to all of them. Finally, information gap activities encourage students to communicate with one another in order to obtain the missing knowledge.

Second language acquisition as an academic area has grown rapidly in recent decades, with a particular concentration on Task Based Language Teaching (TBLT) for more than 30 years. Task-based instruction is a method in which communicative and meaningful tasks play a central role. Instead of the previous language teaching approaches' overarching focus on grammar, TBLT, an offshoot of CLT (Kumaravadivelu, 2006), emphasizes the use of language for meaningful learning in the classroom context, providing a learning environment in which learners can have their own say and also practise through communicating. In other words, learners in this setting learn the language as they use it. In addition, Rubaiat (2018) stated that the third crucial criterion stressed here for students is motivation for learning, drive to absorb and expose what they are receiving, and desire to use the target language as frequently as possible in order to profit from exposure and usage. This statement supported Willis (1996) who stated that communicative language usage is highlighted as a critical component of a task-based framework.

Furthermore, in addition to learning the meaning of a language, paying attention to its form is essential for developing communicative skills. TBLT emphasizes the primacy of meaning, but it also emphasizes the relevance of form in the language acquisition process (Bygate, Skehan, & Swain, 2003). In addition, Van den Branden (2016) characterised TBLT as a "learner-centered approach to language teaching", in which students govern tasks in their own way after following instructions. In contrast to more traditional, "teacher-dominated" systems, the teacher here mostly serves as a facilitator.

There is a strong link between task acquisition and second language acquisition. As a result, the task aids language acquisition by providing opportunities for not only using the language but also focusing on form to encourage subconscious grammar acquisition (Ellis, 2009). Nonetheless, collaboration benefits learners at all levels of skill, and in TBLT, group participation is encouraged in activities where learners can benefit themselves based on their capacity to offer and receive aid (Wells, 1999). As a result, task-based language teaching is a holistic approach to language learning in which students can share their language knowledge in groups and maximize their learning through various activities, resulting in fluency and accuracy in the target language.

### **2.3. Attitude towards Technology with Teachers**

While there are studies looking at knowledge and readiness among teachers (e.g.

Avelino & Ismail, 2021), there is a need to study attitude regarding technology. Albirini (2006) says that the attitude consists of three components: emotional, cognitive and behavioural. Affective element is the emotional case of the person; the cognitive element is the transparent behaviour which corresponds to the individual's understanding. A person's general feeling for technology or ICT and for specific computer and Internet activities attitude towards technology integration (Smith, Caputi & Rawstone, in Abedalaziz, Sharir, & Chin, 2013). Consideration of all these components is vital to understanding one's attitude towards technology integration. Studies in information technology have also consistently found that user attitudes are crucial elements influencing the system's success (Hashim, Yunus, & Embi, 2016).

Focusing on teachers' attitudes is necessary because teachers have a large influence in choosing how much technology they use or do not use in the classroom, and identifying negative teacher attitudes and fostering favourable ones is important if integrating technology in the classroom will be successful (Gilakjani & Leong, 2012). Teo et al. (2016) also claimed that good teacher attitudes regarding technology integration in the classroom are critical to its effectiveness. This was also reinforced by Semerci and Aydin (2018), who said that teachers' attitudes had a significant impact on their usage of technology in the classroom. Thus, teachers' attitudes have a key role in their technological integration in the classroom.

While teachers agree that technology may assist their students, in order to feel comfortable with certain technologies, teachers must first experiment with them before attempting to integrate them into the classroom (Constantine, Róowa, Szostkowski, Ellis, & Roehrig, 2017). Chiu and Churchill (2016) collected data from secondary school teachers using questionnaires regarding their views, attitudes, and anxieties regarding utilising mobile devices in the classroom before and ten months after adoption. Teachers were given professional development on how to use mobile devices in their classrooms prior to their introduction. They discovered that while the use of mobile devices did not enhance teachers' views toward teaching with mobile devices, it did reduce anxiety levels. Because technology may help them reach their instructional goals, math and science instructors' questionnaire ratings improved significantly in terms of computer self-efficacy, perceived utility, and perceived ease of use.

According to Buabeng-Andoh (2012), despite challenges such as a shortage of hardware and software, teachers' positive attitudes are a determinant in the successful integration of technology in learning activities. Furthermore, according to Kimmons and Hall (2018), teacher views and values may have a greater impact on integration than their expertise. In other words, the attitude of the teachers might have a moderating effect on the successful integration of technology into learning activities. In Malaysia, the latest data on teachers' attitudes toward technology competences and English teachers' TPACK is still scarce, and it primarily consists of descriptions. Several studies on TPACK are still in the process of describing and focusing on specific materials, such as investigating science teachers' perceptions of technological pedagogical content knowledge

(TPACK), focusing on teachers' perceptions of the affordances of technology application in instruction (Mai & Hamzah, 2016, Chieng & Tan, 2021), Mathematic teachers (Belgheis & Kamalludeen, 2018, Bakar, Maat, & Rosli, 2020), Art teachers (Rahmat & Au, 2017) and English teachers (Rauf & Suwanto, 2020).

According to these studies, there appears to be a gap to be filled between teachers' attitudes toward technology integration and English teachers' TPACK. These variables are related and influence one another. There was also no data on teachers' attitudes toward technology integration as a moderator variable in the relationship between technology competencies and TPACK. Due to this, it brings the light into the intention of this study.

#### **2.4. Technology Acceptance Model**

Since this research is taking teacher's attitude into consideration, Technology Acceptance Model (TAM) is being observed too. Students must be prepared for life in a digital world as one of the goals of modern education. Of course, this necessitates the proper implementation of digital media in the classroom. The usage of digital media, on the other hand, is highly dependent on how well teachers adopt it. The Davis Technology Acceptance Model (TAM) is one technique to assess instructors' acceptance of multimedia programmes (Davis, 1986, 1989; Davis et al., 1989). The Technology Adoption Model (TAM), created by Fred D. Davis in 1986, is a verified theoretical model that explains and predicts the user's acceptance of a technology system (IS) (Chang et al., 2012; Davis, 1989). It also aids in determining why people accept or reject a technological system. In addition, the core of this model is to give a platform for tracking external variables affecting beliefs, attitudes, and intention to use technology.

TAM outlines the general factors of computer acceptance that can be used to explain user behaviour across a wide range of end-user computing technologies and populations (Davis et al., 1989). Perceived usefulness and ease of use are the two cognitive judgments assumed in this model as factors in technology system acceptability. The model also posits that the individual's attitude toward using technology is influenced by the two perspectives. The perceived utility of the technology and the user's attitude toward using it influence an individual's behavioural intention to use it (Alharbi & Drew, 2014).

### **3. Methodology**

Through descriptive statistics, including frequency, mean, median, mode, and standard deviation values of scale scores were examined in this study to determine Malaysian ESL teachers' attitudes toward technology and TPACK skill levels. Furthermore, One-way ANOVA was used to investigate the relationship between teachers' TPACK skills and attitudes toward technology. Stratified random sampling was used to select participants for this study. This study included 65 ESL teachers in Malaysia.

In this study, the attitudes of English teachers in relation to technology were

determined with the help of “Attitude Scale to Technology” and a “Scale of Implementing Technological Pedagogical Containment” were used for the assessment of the level of TPACK teachers. The following is an explanation of the tools for data collection:

*Attitude scale towards technology:* Yavuz’ (2005) Attitude to technology is used to assess teachers’ and prospective teachers’ attitudes towards technology. There are 19 items in the five-point Likert scale. The internal consistency of the Cronbach Alpha scale is 87, which is found in this study to be 85. These values are indicative of the validity and reliability of this tool.

*Technological pedagogy content knowledge implementation scale:* The skills of teachers in technological teaching knowledge are measured through these scales developed by Baser, Kopcha, & Ozden (2016). The 5-point Likert scale comprises 39 items and six sub-dimensions, including TK, CK, PK, PCK, TCK, TPK and TPACK, in accordance with the framework of the TPACK framework. The internal consistency of the Cronbach Alpha scale coefficient of the TPACK factors varied from 81 to 92 for each factor when analyzed separately. These results indicate that items in each construction have a high degree of reliability. The statements included in the survey questionnaire, and respondents were asked to choose between “Strongly Disagree”, “Disagree”, “Neutral”, “Agree”, and “Strongly Agree”. The results will be calculated and converted into percentages.

The data was gathered using Crowd Signals, an alternative tool to distribute online survey besides than Google Form, one of the most widely used tools today. The Crowd Signal’s personal information form and scales were distributed via social networks, e-mail, and WhatsApp by creating an online link, and the online survey will be available until the targeted number of completed surveys achieved. The information was gathered online.

#### 4. Findings

The result of this study is to answer the first research objective of this study which is to identify the level of ESL teachers’ TPACK skills. To give a clearer picture, the descriptive analysis is as shown in **Table 1** below.

In this study, the level of ESL teachers’ TPACK skills is measured by 7 dimensions, namely technological knowledge, content knowledge, pedagogical knowledge, technological content knowledge, pedagogical content knowledge, technological pedagogical knowledge and technological pedagogical content knowledge. From **Table 1** below shows that the scores of technological knowledge (mean = 4.18, SD = 0.459), pedagogical knowledge (mean = 4.17, SD = 0.489), technological content knowledge (mean = 4.19, SD = 0.577), pedagogical content knowledge (mean = 4.21, SD = 0.481), technological pedagogical knowledge (mean = 4.10, SD = 0.484) and technological pedagogical content knowledge (mean = 3.93, SD = 0.638) are at a high stage. The very high score is content knowledge (mean = 4.54, SP = 0.501). Overall, the score of the ESL teachers’ TPACK skills (mean = 4.19, SD = 0.402) is at a high level.

The result below is to answer the second objective of this study which is to

identify the level of ESL teachers' attitudes towards technology. To give a clearer picture, the descriptive analysis is as shown in **Table 2** below.

In this study, the level of ESL teachers' attitudes towards technology is measured by 5 dimensions namely not using technological tools in education, using technological tools in education, the effects of technology in educational life, teaching how to use technological tools and evaluating technological tools. **Table 2** below shows that the score of not using technological tools in education (mean = 2.03, SD = 0.596) is at a low level. For high scores are the effects of technology in educational life (mean = 4.18, SD = 0.441), teaching how to use technological tools (mean = 4.08, SD = 0.495) and evaluating technological tools (mean = 3.60, SD = 0.821)). While using technological tools in education (mean = 4.30, SD = 0.417) also recorded a very high score. Overall, the level score of ESL teachers' attitudes towards technology (mean = 4.03, SD = 0.316) is at a high level.

Correlation analysis explains the relationship between the dependent variable and independent variables. It shows the direction, significance and strength of the variables of this study. **Table 3** on Pearson Correlation Coefficient analysis

**Table 1.** Level of ESL Teachers TPACK skills.

	Mean	SD	Level
Technological knowledge	4.18	0.459	High
Content Knowledge	4.54	0.501	Very high
Pedagogical Knowledge	4.17	0.489	High
Technological Content Knowledge	4.19	0.577	High
Pedagogical Content Knowledge	4.21	0.481	High
Technological Pedagogical Knowledge	4.10	0.484	High
Technological Pedagogical Content Knowledge	3.93	0.638	High
Overall (ESL teachers' TPACK skills)	4.19	0.402	High

(Level: Very low = 1.00 - 1.89, Low = 1.90 - 2.69, Moderate = 2.70 - 3.49, High = 3.50 - 4.29, Very high = 4.30 - 5.00).

**Table 2.** Level of ESL Teacher's Attitudes towards Technology.

	Mean	SD	Level
Not using technological tools in education	2.03	0.596	Low
Using technological tools in education	4.30	0.417	Very high
The effects of technology in educational life	4.18	0.441	High
Teaching how to use technological tools	4.08	0.495	High
Evaluating technological tools	3.60	0.821	High
Overall (ESL teachers' attitudes towards technology)	4.03	0.316	High

(Level: Very low = 1.00 - 1.89, Low = 1.90 - 2.69, Moderate = 2.70 - 3.49, High = 3.50 - 4.29, Very high = 4.30 - 5.00).

below, shows that ESL teachers' TPACK skills ( $r = 0.454, p < 0.01$ ) are correlated positively with ESL teachers' attitudes towards technology. Hence, the overall correlation analysis relationship with variables is significant.

The result below is to answer the third objective of this study which is to identify the relationship between ESL teachers' TPACK skills and attitudes towards technology. In **Table 4**, coefficient analysis for ESL teachers' attitudes towards technology model shows that the independent variables (ESL teachers' TPACK skills) are significantly and positively related to ESL teachers' attitudes towards technology,  $R^2 = 0.206, F(1, 65) = 16.323, p < 0.05$ . This indicates that ESL teachers' TPACK skills can explain 20.6% of the variation in ESL teachers' attitudes towards technology. The outcomes show a significant relationship between ESL teachers' TPACK skills and attitudes towards technology,  $\beta = 0.454, t(63) = 4.040, p < 0.01$ .

## 5. Discussion

The findings of this study are linked to literature on the level of TPACKS skills of ESL teachers and their attitudes toward technology. This will allow for the investigation of the implications of ESL teachers' TPACK skills as well as their attitudes toward technology. Discussions on the factors such as gender and professional experience in relation with the TPACK skills and their attitude towards technology were also made. It enables suggestions for improving attitudes toward technology and assisting teachers with their TPACK skills to be constructed. Some lines of research for future research projects were outlined based on these findings.

### 5.1. ESL Teachers' TPACK Skills

The findings show that ESL teachers have a high level of TPACK skills. These findings are consistent with previous research that ESL teachers have a high level

**Table 3.** Pearson correlation coefficient analysis among the variables.

ESL teachers' attitudes towards technology	
ESL teachers' TPACK skills	0.454**

\*\* $p < 0.01$ .

**Table 4.** Coefficient analysis for ESL teachers' attitudes towards technology.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig. P
		B	Std. Error	Beta		
1	(Constant)	2.531	0.372		6.812	0.000
	ESL teachers' TPACK skills	0.357	0.088	0.454	4.040	0.000

a. Dependent Variable: ESL Teachers' attitudes towards technology. R-square = 0.206, F(1, 63) = 16.323, Sig. F = 0.000.

of TPACK integration skills (Kozikoğlu & Babacan, 2019). Hence, this study provides an initial glimpse at the level of ESL teachers' TPACK skill implementation within a specific school system among a specific number of teachers, and the findings may serve as a baseline for future research. In addition, the findings proved that ESL teachers' attitude towards technology is significantly positive. The teachers in this study have attitudes that are consistent with the findings of Kimmons and Hall (2018) which found that the teachers' attitudes may have a moderating effect on the successful incorporation of technology into learning activities. This study provides an initial glimpse at the attitudes toward technology within a specific school system among a specific number of teachers, and the findings may serve as a baseline for ongoing studies.

### **5.2. Gender**

Other implications emerged from the findings where ESL teachers' attitudes toward technology and TPACK skills do not differ significantly by gender. These findings show distinctness with the findings of other research in the literature. Similar to this study, Şad, Akgül and Delican (2015) discovered that there is no significant variation in the students' TPACK proficiency level based on gender in their study of 4<sup>th</sup> grade education faculty students. In their research of the teachers from Taiwan region, Jang and Tsai (2013) discovered that men teachers have better TPACK skills than female teachers. Similarly, in their study of 137 potential English instructors, Solak and Akr (2014) discovered a substantial difference in favor of male prospective teachers. In this situation, it can be shown that diverse outcomes have been obtained in gender studies.

### **5.3. Professional Experience**

Additionally, ESL teachers' attitudes toward technology and TPACK abilities change significantly based on their professional experience. This aligns with Lee and Tsai (2010) discovery where instructors with less professional experience performed better on TPACK than teachers with more professional experience. Furthermore, according to a study conducted by Bal and Karademir (2013), instructors with fewer than 20 years of experience had more positive views toward technology. Unlike Jang and Tsai (2012) who discovered that mathematics instructors with more professional experience had a greater degree of TPACK skills. In regard to their professional experience, ESL teachers with less professional experience have excellent levels of TPACK skills and attitudes toward technology. According to the findings of this study, ESL teachers' TPACK abilities and attitudes toward technology are altered based on professional experience.

### **5.4. Relationship between ESL Teacher's TPACK Skills and Attitude towards Technology**

Apart from that, the findings also portray that there is a significant and positive relationship between ESL teacher's TPACK skills and their attitude towards technology. The findings of this study add to the existing body of knowledge

about the ESL teachers TPACK skills and their attitude towards technology (Scherer, Tondeur, Siddiq, & Baran, 2018; Karatas, Tunc, Yilmaz, & Karaci, 2017; Farjon et al., 2019). Positive attitudes of ESL teachers toward technology, as well as teachers' TPACK skills, are critical for efficient and suitable use of technology in second language classes, as well as beneficial consequences on student achievement (Günüç & Babacan, 2017). As a result, ESL teachers' high TPACK skills and good attitudes toward technology might be perceived as a good result in terms of technology integration in English teaching and successful language acquisition. Ay (2015) discovered that attitudes about technology influence TPACK skills in his study with instructors, and that there is a substantial association between attitudes toward technology and TPACK skills. Furthermore, Abbitt's (2011) study with starting instructors discovered a substantial association between teachers' attitudes toward technology and TPACK skills. Based on these findings, it is possible to conclude that TPACK skills and attitudes toward technology are closely associated. In this scenario, one may say that one's attitude toward technology influences one's TPACK abilities; in other words, the more positive one's attitude toward technology, the more TPACK skills he or she possesses.

## 6. Conclusion

The outcome of this study shed light on a new topic in the area of Malaysia ESL teachers: the TPACK skills and their attitude towards technology. Since there was lack of research on the relationship between TPACK skills and attitude towards technology among ESL teachers in Malaysia, the current study draws an overview of the nature of ESL teachers' TPACK skills and their attitude towards technology and highlights the relationships between these two factors and also the impact of gender and professional experience on the factors. This study relied heavily on quantitative research methodologies. The chosen research instrument did not produce qualitative significant findings in the majority of cases. Despite the fact that the study was properly conducted and verified, the results are constrained by a small sample size. A bigger population would allow for more generality of results and allow for more meaningful assertions in future research. This study, on the other hand, acts as a stepping stone and provides a foundation for larger-scale research.

Furthermore, it is suggested that future research studies incorporate the administration of the questionnaire to analyze attitudes before and after the implementation of a long-term professional development plan for technology integration. The findings might be compared to earlier findings to see if professional development helps to improve attitudes and technology integration. However, it is critical to improve the quality, diffusion, and control of these practices in order for the courses and seminars to be more productive.

## Acknowledgements

The authors would like to acknowledge Universiti Kebangsaan Malaysia for the

support given under the research grant no. GG-2021-003.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

## References

- A'tiah Sakinah Abdul Rahman, R., & Harun, N. S. R. (2018). Tesl Pre-Service Teachers' Tpack: A Review. *International Journal of Academic Research in Business and Social Sciences*, 8, 795-804. <https://doi.org/10.6007/IJARBS/v8-i2/3986>
- Abbitt, J. T. (2011). An Investigation of the Relationship between Self-Efficacy Beliefs about Technology Integration and Technological Pedagogical Content Knowledge (TPACK) among Preservice Teachers. *Journal of Digital Learning in Teacher Education*, 27, 134-143.
- Abedalaziz, N., Shahrir, J., & Chin, H. L. (2013). Measuring Attitude toward Computer and Internet Usage among Postgraduate Students in Malaysia. *TOJET: The Turkish Online Journal of Educational Technology*, 12, 200-214.
- Albirini, A. (2006). Teachers' Attitudes toward Information and Communication Technologies: The Case of Syrian EFL Teachers. *Computers & Education*, 47, 373-398.
- Alharbi, S., & Drew, S. (2014). Using the Technology Acceptance Model in Understanding Academics' Behavioural Intention to Use Learning Management Systems. *International Journal of Advanced Computer Science and Applications*, 5, 143-155. <https://doi.org/10.14569/IJACSA.2014.050120>
- Avelino, N. M., & Ismail, H. H. (2021). Assessing ESL Teachers' Knowledge and Readiness in Integrating 4IR into Teaching Practices: A Concept Paper. *Creative Education*, 12, 2038-2055. <https://doi.org/10.4236/ce.2021.129156>
- Ay, Y. (2015). *Evaluation of Teachers' Technological Pedagogical Content Knowledge (TPACK) within the Framework of Practical Model* (Unpublished Doctoral Thesis). Eskisehir Osmangazi University, Eskisehir, Turkey.
- Bagheri, M., Hadian, B., & Vaez-Dalili, M. (2019). Effects of the Vaughan Method in Comparison with the Audiolingual Method and the Communicative Language Teaching on Iranian Advanced EFL Learners' Speaking Skill. *International Journal of Instruction*, 12, 81-98. <https://doi.org/10.29333/iji.2019.1226a>
- Bakar, N. S. A., Maat, S. M., & Rosli, R. (2020). Mathematics Teacher's Self-Efficacy of Technology Integration and Technological Pedagogical Content Knowledge. *Journal on Mathematics Education*, 11, 259-276. <https://doi.org/10.22342/jme.11.2.10818.259-276>
- Bal, M. S., & Karademir, N. (2013). Determining the Self-Evaluation Levels of Social Studies Teachers on Technological Pedagogical Content Knowledge (TPACK). *Pamukkale University Faculty of Education Journal*, 34, 15-32.
- Baser, D., Kopcha, T. J., & Ozden, M. Y. (2016). Developing a Technological Pedagogical Content Knowledge (TPACK) Assessment for Preservice Teachers Learning to Teach English as a Foreign Language. *Computer Assisted Language Learning*, 29, 749-764. <https://doi.org/10.1080/09588221.2015.1047456>
- Belgheis, S., & Kamalludeen, R. (2018). The Intention to Use GeoGebra in the Teaching of Mathematics among Malaysian Teachers. *Malaysian Online Journal of Educational Technology*, 6, 109-115.

- Bilici, S. C., Guzey, S. S., & Yamak, H. (2016). Assessing Pre-Service Science Teachers' Technological Pedagogical Content Knowledge (TPACK) through Observations and Lesson Plans. *Research in Science and Technological Education, 34*, 237-251. <https://doi.org/10.1080/02635143.2016.1144050>
- Buabeng-Andoh, C. (2012). Factors Influencing Teachers Adoption and Integration of Information and Communication Technology into Teaching: A Review of the Literature. *International Journal of Education and Development Using ICT, 8*, 136-155.
- Bygate, M., Skehan, P., & Swain, M. (2013). *Researching Pedagogic Tasks: Second Language Learning, Teaching, and Testing Applied Linguistics and Language Study*. Routledge. <https://doi.org/10.4324/9781315838267>
- Candlin, C. N. (2016). Sociolinguistics and Communicative Language Teaching. *ITL International Journal of Applied Linguistics, 16*, 37-44. <https://doi.org/10.1075/itl.16.02can>
- Chang, C. C., Yan, C. F., & Tseng, J. S. (2012). Perceived Convenience in an Extended Technology Acceptance Model: Mobile Technology and English Learning for College Students. *Australasian Journal of Educational Technology, 28*, 809-826. <https://doi.org/10.14742/ajet.818>
- Chieng, Y. E., & Tan, C. K. (2021). A Sequential Explanatory Investigation of TPACK: Malaysian Science Teachers' Survey and Perspective. *International Journal of Information and Education Technology, 11*, 235-241. <https://doi.org/10.18178/ijiet.2021.11.5.1517>
- Chiu, T. K. F., & Churchill, D. (2016). Adoption of Mobile Devices in Teaching: Changes in Teacher Beliefs, Attitudes and Anxiety. *Interactive Learning Environments, 24*, 317-327. <https://doi.org/10.1080/10494820.2015.1113709>
- Constantine, A., Róźowa, P., Szostkowski, A., Ellis, J., & Roehrig, G. (2017). The "T" in STEM: How Elementary Science Teachers' Beliefs of Technology Integration Translate to Practice during a Co-Developed STEM Unit. *Journal of Computers in Mathematics and Science Teaching, 36*, 339-349.
- Davis, F. D. (1986). *A Technology Acceptance Model for Empirically Testing New End-User Information Systems*. Institute of Technology, Sloan School of Management.
- Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use and User Acceptance of Information Technology. *MIS Quarterly, 13*, 319-339. <https://doi.org/10.2307/249008>
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User Acceptance of Computer Technology: A Comparison of Two Theoretical Models. *Management Science, 35*, 982-1003. <https://doi.org/10.1287/mnsc.35.8.982>
- Dobo, N. (2016, November 9). More Schools Are Online Than Ever Before—But It's Far from Perfect. <https://hechingerreport.org/more-schools-are-onlinethan-ever-before-but-its-far-from-perfect/>
- Elas, N., Majid, F., & Narasuman, S. (2019). Development of Technological Pedagogical Content Knowledge (TPACK) for English Teachers: The Validity and Reliability. *International Journal of Emerging Technologies in Learning (IJET), 14*, 18-33. <https://doi.org/10.3991/ijet.v14i20.11456>
- Ellis, R. (2009). Task-Based Language Teaching: Sorting Out the Misunderstandings. *International Journal of Applied Linguistics, 19*, 221-246. <https://doi.org/10.1111/j.1473-4192.2009.00231.x>
- Farjon, D., Smits, A., & Voogt, J. (2019). Technology Integration of Pre-Service Teachers Explained by Attitudes and Beliefs, Competency, Access, and Experience. *Computers & Education, 130*, 81-93. <https://doi.org/10.1016/j.compedu.2018.11.010>

- Ghofur, A., Degeng, I. N. S., Widiati, U., & Setyosari, P. (2017). The Effect of Communicative Language Teaching and Audio-Lingual Method on English Speaking Skill across Different Learning Styles. *KnE Social Sciences*, 1, 1-7. <https://doi.org/10.18502/kss.v1i3.719>
- Gilakjani, A. P. & Leong, L. M. (2012). EFL Teachers' Attitude toward Using Computer Technology in English Language Teaching. *Theory and Practice in Language Studies*, 2, 630-636. <https://doi.org/10.4304/tpls.2.3.630-636>
- Günüş, S. & Babacan, N. (2017). Technology Integration in English Language Teaching and Learning. *The Journal of Teaching English for Specific and Academic Purposes*, 5, 349-358.
- Hashim, H., & Yunus, M. M. (2012). Tell Me More: Issues and Challenges. *Advances in Language and Literary Studies*, 3, 136-146. <https://doi.org/10.7575/aiac.all.v.3n.2p.136>
- Hashim, H., Yunus, M. M., & Embi, M. A. (2016). Pre-University English as Second Language (ESL) Learners' Attitude towards Mobile Learning. *Creative Education*, 7, 1147. <https://doi.org/10.4236/ce.2016.78119>
- Joo, Y. J., Park, S., & Lim, E. (2018). Factors Influencing Preservice Teachers' Intention to Use Technology: TPACK, Teacher Self-Efficacy, and Technology Acceptance Model. *Educational Technology and Society*, 21, 48-59.
- Jang, S.-J., & Tsai, M.-F. (2012). *Computers & Education*, 59, 327-338.
- Jang, S. J., & Tsai, M. F. (2013). *Australasian Journal of Educational Technology*, 29, No. 4.
- Karatas, I., Tunc, M. P., Yilmaz, N., & Karaci, G. (2017). An Investigation of Technological Pedagogical Content Knowledge, Self-Confidence, and Perception of Pre-Service Middle School Mathematics Teachers towards Instructional Technologies. *Journal of Educational Technology & Society*, 20, 122-132.
- Kimmons, R., & Hall, C. (2018). How Useful Are Our Models? Pre-Service and Practicing Teacher Evaluations of Technology Integration Models. *TechTrends*, 62, 29-36. <https://doi.org/10.1007/s11528-017-0227-8>
- Koehler, M., & Mishra, P. (2009). What Is Technological Pedagogical Content Knowledge (TPACK)? *Contemporary Issues in Technology and Teacher Education*, 9, 60-70.
- Koehler, M. J., Mishra, P., & Cain, W. (2013). What Is Technological Pedagogical Content Knowledge (TPACK)? *Journal of Education*, 193, 13-19. <https://doi.org/10.1177/002205741319300303>
- Kozikoğlu, I., & Babacan, N. (2019). The Investigation of the Relationship between Turkish EFL Teachers' Technological Pedagogical Content Knowledge Skills and Attitudes towards Technology. *Journal of Language and Linguistic Studies*, 15, 20-33.
- Kumaravadivelu, B. (2006). TESOL Methods: Changing Tracks, Challenging Trends. *TESOL Quarterly*, 40, 59. <https://doi.org/10.2307/40264511>
- Lee, M. H., & Tsai, C. C. (2010). Exploring Teachers' Perceived Self-Efficacy and Technological Pedagogical Content Knowledge with Respect to Educational Use of the World Wide Web. *Instructional Science*, 38, 1-21.
- Mai, M. Y., & Hamzah, M. (2016). Primary Science Teachers' Perceptions of Technological Pedagogical and Content Knowledge (TPACK) in Malaysia. *European Journal of Social Science Education and Research*, 3, 167-179. <https://doi.org/10.26417/ejser.v6i2.p167-179>
- Mart, C. (2013). The Grammar-Translation Method and the Use of Translation to Facilitate Learning in ESL Classes. *Journal of Advances in English Language Teaching*, 1, 103-105.

- Mishra, P., & Koehler, M. J. (2006). Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge. *Teachers College Record*, 108, 1017-1054. <https://doi.org/10.1177/016146810610800610>
- Niess, M. L. (2005). Preparing Teachers to Teach Science and Mathematics with Technology: Developing a Technology Pedagogical Content Knowledge. *Teaching and Teacher Education*, 21, 509-523. <https://doi.org/10.1016/j.tate.2005.03.006>
- Rahman, S. F. A., Yunus, M., & Hashim, H. (2019). A Technology Acceptance Model (TAM): Malaysian ESL Lecturers' Attitude in Adapting Flipped Learning. *Malaysian Journal of Education*, 44.
- Rahmat, M. K., & Au, W. K. (2017). Integrating Technology into Art Classrooms: Does the Malaysia Visual Art Education Teachers Ready? *International Journal of Education*, 2, 310-317.
- Rao, Z. H. (2002). Chinese Students' Perceptions of Communicative and Noncommunicative Activities in EFL Classroom. *System*, 30, 85-105. [https://doi.org/10.1016/S0346-251X\(01\)00050-1](https://doi.org/10.1016/S0346-251X(01)00050-1)
- Rauf, A. A., & Suwanto, S. (2020). Attitudes and Technology Integration among ESL Secondary School Teachers in Sabah. *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, 5, 280-287. <https://doi.org/10.47405/mjssh.v5i12.566>
- Richards, J. C. (2005). *Communicative Language Teaching Today*. SEAMEO Regional Language Centre.
- Richards, J. C., & Schmidt, R. W. (2014). *Language and Communication*. Routledge. <https://doi.org/10.4324/9781315836027>
- Rubaiat, S. (2018). *The Effectiveness of Task Based Language Teaching in Improving ESL Learners' Reading and Writing Skills*. Doctoral Dissertation, BRAC University.
- Şad, S. N., Açıkgül, K., & Delican, K. (2015). Senior Preservice Teachers' Senses of Efficacy on Their Technological Pedagogical Content Knowledge (TPACK). *Journal of Theoretical Educational Science*, 8, 204-235.
- Scherer, R., Tondeur, J., Siddiq, F., & Baran, E. (2019). The Importance of Attitudes toward Technology for Pre-Service Teachers' Technological, Pedagogical, and Content Knowledge: Comparing Structural Equation Modeling Approaches. *Computers in Human Behavior*, 80, 67-80. <https://doi.org/10.1016/j.chb.2017.11.003>
- Semerci, A., & Aydin, M. K. (2018). Examining High School Teachers' Attitude towards ICT Use in Education. *International Journal of Progressive Education*, 14, 93-105. <https://doi.org/10.29329/ijpe.2018.139.7>
- Solak, E., & Çakır, R. (2014). Examining Preservice EFL Teachers' TPACK Competencies in Turkey. *Journal of Educators Online*, 11, No. 2.
- Spada, N. (2007) Communicative Language Teaching. In J. Cummins, & C. Davison (Eds.), *International Handbook of English Language Teaching (Springer International Handbooks of Education, Vol. 15)* (pp. 271-288). Springer.
- Taimalu, M., & Luik, P. (2019). The Impact of Beliefs and Knowledge on the Integration of Technology among Teacher Educators: A Path Analysis. *Teaching and Teacher Education*, 79, 101-110. <https://doi.org/10.1016/j.tate.2018.12.012>
- Tassev, V. V. (2019). A Review of the Contribution to Second Language Acquisition: A Case-Study of the Grammar Translation Method and the Audiolingual Method. *Research Journal Phranakhon Rajabhat: Social Sciences and Humanity*, 14, 425-433.
- Tehrani, A. R., Barati, H., & Youhanaee, M. (2013). The Effect of Methodology on Learning Vocabulary and Communication Skills in Iranian Young Learners: A Comparison between Audiolingual Method and Natural Approach. *Theory and Practice in Lan-*

- guage Studies*, 3, 968-976. <https://doi.org/10.4304/tpls.3.6.968-976>
- Teo, T., Milutinović, V., & Zhou, M. (2016). Modelling Serbian Pre-Service Teachers' Attitude towards Computer Use: A SEM and MIMIC Approach. *Computers & Education*, 94, 77-88. <https://doi.org/10.1016/j.compedu.2015.10.022>
- Timur, B., & Taşar, M. F. (2011). Teknolojik Pedagogik Alan Bilgisi Öz Güven Ölçeğinin (TPABÖGÖ) Türkçe'ye Uyarlanması. *Gaziantep University Journal of Social Sciences*, 10, 839-856.
- Valtonen, T., Kukkonen, J., Kontkanen, S., Mäkitalo-Siegl, K., & Sointu, E. (2018). Differences in Pre-Service Teachers' Knowledge and Readiness to Use ICT in Education. *Journal of Computer Assisted Learning*, 34, 174-182. <https://doi.org/10.1111/jcal.12225>
- Valtonen, T., Sointu, E., Kukkonen, J., Kontkanen, S., Lambert, M. C., & Mäkitalo-Siegl, K. (2017). TPACK Updated to Measure Pre-Service Teachers' Twenty-First Century Skills. *Australasian Journal of Educational Technology*, 33, 15-31. <https://doi.org/10.14742/ajet.3518>
- Van den Branden, K. (2016). The Role of Teachers in Task-Based Language Education. *Annual Review of Applied Linguistics*, 36, 164-181. <https://doi.org/10.1017/S0267190515000070>
- Vidhiasi, D. M., & Lengari, Y. G. P. (2018). The Implementation of Audio Lingual Method in Teaching Grammar. *Saintara: Jurnal Ilmiah Ilmu-Ilmu Maritim*, 2, 13-18.
- Willis, J. (1996). A Flexible Framework for Task-Based Learning. *Challenge and Change in Language Teaching*, 52, 62.
- Wells, G. (1999). *Dialogic Inquiry: Towards a Socio-Cultural Practice and Theory of Education*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511605895>
- Yavuz, S. (2005). Developing a Technology Attitude Scale for Pre-Service Chemistry Teachers. *Turkish Online Journal of Educational Technology-TOJET*, 4, 17-25.