

# The Degree of Teaching Knowledge for Saudi EFL Teachers: An Investigation for Madinah EFL Teachers' Perceptions Regarding TPACK Framework

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## Abstract

The selection of a previous framework or model as a basis for measuring the degree of teachers' knowledge in teaching has been carried out by some studies in different places to improve teacher preparation programs and, thus, to improve educational outcomes. This descriptive study aimed at exploring the degree of EFL teaching knowledge for Saudi teachers in Madinah city, according to the TPACK framework. Hundred and ninety-one male and female EFL schoolteachers participated in the study. A questionnaire was hired to collect the data. The findings of the study showed that the degree of teaching knowledge for Saudi EFL teachers in Madinah city, in general, was high, according to the TPACK framework. The results also indicated a significant difference among EFL teachers in the degree of teaching knowledge attributable to their gender in favor of female teachers, and to their stage in favor of secondary stage. Finally, the study presented many recommendations based on its results to elevate EFL teachers' knowledge in teaching.

**Keywords:** content, EFL, knowledge, pedagogical, teaching, technology, TPACK

## 1. Introduction

Almost all educational systems focus on the fact that the teacher is the cornerstone of the educational process. Without an academically qualified teacher and professionally trained person who is aware of his significant and comprehensive role, no educational system can reach the desired goals.

Because of the enormous cognitive explosion, the increased application of information, and communication systems in education, there is an instant need for an advanced teacher to keep pace with the spirit of the times to meet the needs of learners, takes into account the orientations and aspirations of society towards progress and advancement. Also, there is an urgent need to train teachers on all successive developments and developments to become professionally productive and active in developing capabilities.

Despite the different types of professional development programs for teachers in items of content and form, they share the general goal that all seek to achieve, which is improving the teacher's professional practices to promote the level of learners to achieve the best results. Superior outputs of learners are the most powerful tools for the development of the entire society. These training programs also aim to establish the principle of sustainable professional development: continuous education and lifelong learning and rely on self-learning methods, and enable the teacher to use the skills of using information sources and search for all new and developed, and develop competencies and skills of evaluation of all kinds, especially the self-evaluation skills of the teacher.

Among the most prominent development efforts that Shulman came out with, he explains how teachers integrate their knowledge of education with content knowledge (Shaour & Al Saadi, 2015) to use technological tools that support the educational process. He called it the framework of knowledge of education and content knowledge (Pedagogical Content Knowledge Framework). It is a mixed knowledge of the teacher's knowledge about the subject of his lesson, and his knowledge of the rules and principles of teaching and education. It is a knowledge that reflects the teacher's experience accumulated over the years. The teaching experience guides him during his educational practices and is a compass that guides his thoughts and beliefs.

As completion of Shulman's efforts, both Mishra and Koehler (2006) pointed out the importance of shifting

interest in teacher preparation programs from focusing on what a pre-service teacher should learn about technology to concentrate on how technology interacts with another knowledge in the educational context. They have proposed a model or framework for developing the teacher's understanding of the technological interaction's nature with his pedagogical and content knowledge.

As part of this changing world, Saudi society is trying to adapt to the changes in the knowledge and information revolution and the rapid transfer of information through information and communication technology, because of this new educational concept presented by this technology, such as open education, lifelong learning, virtual classes, universities without walls, and learning Electronic, and so on. The Saudi Ministry of Education has worked to include the Blackboard environment in its university education system to work alongside classroom education and achieve the desired learning goals considering the Saudi 2030 vision. The Islamic University of Madinah has adopted using the Blackboard system. It is known as an e-learning system in its courses. The university encouraged faculty members to use it to support their practices in addition to real education through lectures in all specializations at the university by providing various facilities such as training courses, providing technicians, and usage guides.

Regarding obtain the wished development, it is necessary to strive to develop the reservation of the nook and foundation in this process which is a republic education teacher; therefore, this study seeks to determine the degree of the teaching knowledge of teachers of English language in Madinah region, according to the framework (TPACK).

### *1.1 The Questions of the Research*

The essential question of the current research was:

What is the degree of Teaching knowledge of Saudi EFL teachers in Madinah city regarding the TPACK Framework?

The following sub-questions arise from the main questions:

1. What is the degree of content knowledge (CK) of Saudi EFL teachers in Madinah city?
2. What is the degree of Pedagogical knowledge (PK) of Saudi EFL teachers in Madinah city?
3. What is the degree of technological knowledge (TK) of Saudi EFL teachers in Madinah city?
4. Are there statistically significant differences between teachers in the degree of pedagogical knowledge attributable to their gender?
5. Are there statistically significant differences among teachers in the degree of pedagogical knowledge attributable to the stage in which they are studying?
6. Are there statistically significant differences among teachers in the degree of pedagogical knowledge due to their teaching.

### *1.2 The Objectives of the Research*

This research aimed at:

1. Determine the actual level of content knowledge (CK) of Saudi EFL teachers in Madinah city.
2. Recognizing the degree of pedagogical knowledge (PK) of Saudi EFL teachers in Madinah city.
3. Determine the real degree of technological knowledge (TK) of Saudi EFL teachers in Madinah city.
4. Recognizing the significant differences among teachers in the level of pedagogical knowledge due to their teaching experience, sex, and the stage in which they are studying.

### *1.3 The Importance of Research*

Some studies, such as the study conducted by (Eno, 2018) indicated that " the global shift towards the realization of effective communication in English and the need to enable potential participants of the opportunities in the world marketplace, and the academic arena oblige knowledge of English a prerequisite tool. To satisfy the growing demand, qualified personnel in ESL/EFL pedagogy becomes essential in helping aspirant learners achieve their goal—linguistic competency and proficiency for better learning and professionalism across the world". (p.61)

So, it can be noted that this research is of great importance in both theoretical and applied Items, as follows:

Theoretically, this research presents a contemporary concept that focuses on one of the modern models that provide a broader perspective in defining and evaluating the knowledge and skills of using technology among

teachers in response to the requirements of the twenty-first century and the Kingdom's 2030 vision. Other researchers can also benefit from this research to shed light on this model's importance and define the twenty-first century's skills. They can also define the teacher's characteristics in this context, especially in the Kingdom of Saudi Arabia and the Arab world. This study can help in recognizing ways to assess the professional performance of the teacher. In other words, this research opens new horizons for researchers interested in educational technology and the teacher preparation for teaching and evaluating his professional performance.

In items of application, this research sheds light on officials and decision-makers in the Kingdom of Saudi Arabia on the characteristics and features that must be available in teachers in the twenty-first century. It also provides potential guidance on models that should be adopted to train teachers and develop programs to prepare it and consider the (TPACK) framework factors.

#### 1.4 Definition of Items

- *Content knowledge (CK)* refers to any subject-matter knowledge that a teacher is responsible for teaching.
- *Pedagogical knowledge (PK)* refers to teacher knowledge about various instructional practices, strategies, and methods to promote students' learning.
- *Technology knowledge (TK)* refers to teacher knowledge about traditional and new technologies that he can involve in the curriculum.

Four components in the TPACK framework address how these three bodies of knowledge interact, constrain, and afford each other as follows:

- *Technological Content Knowledge (TCK)* refers to understanding the reciprocal relationship between technology and content. Disciplinary knowledge is often defined and constrained by technologies and their symbolic and functional capabilities.
- *Pedagogical Content Knowledge (PCK)* is to Shulman's (1986) notion of "an understanding of how particular topics, problems, or issues are organized, represented, and adapted to the diverse interests and abilities of learners, and presented for instruction" (p. 8).
- *Technological Pedagogical Knowledge (TCK)* refers to an understanding of technology that can constrain and afford specific pedagogical practices.

#### 1.5 Limitations of the Research

This research was limited to studying the degree of teachers' knowledge of the content, teaching methods, and educational technology without studying their interactions.

- This research was applied to English language teachers working in Medina schools during the second semester of 2019/2020.

## 2. Literature Review

In this part of the research, the research's theoretical and philosophical basis has been addressed in support of previous studies and researches:

A study conducted by (Mishra & Koehler, 2006) presented a simple explanation for (TPACK) as a concept or model for effective teaching. It was merely resulting from the connections, interactions, affordances, and constraints between and among content (C), pedagogy(P), and technology (T). they added," The relationships between content (the actual subject matter that is to be learned and taught), pedagogy (the process and practice or methods of teaching and learning), and technology (both commonplace, like chalkboards, and advanced, such as digital computers) are complex and nuanced" (p.1025). However, they also ensured that effective teaching could be found through the interaction between them. It relies on the ability of the teacher to employ these three elements inside his or her classroom.

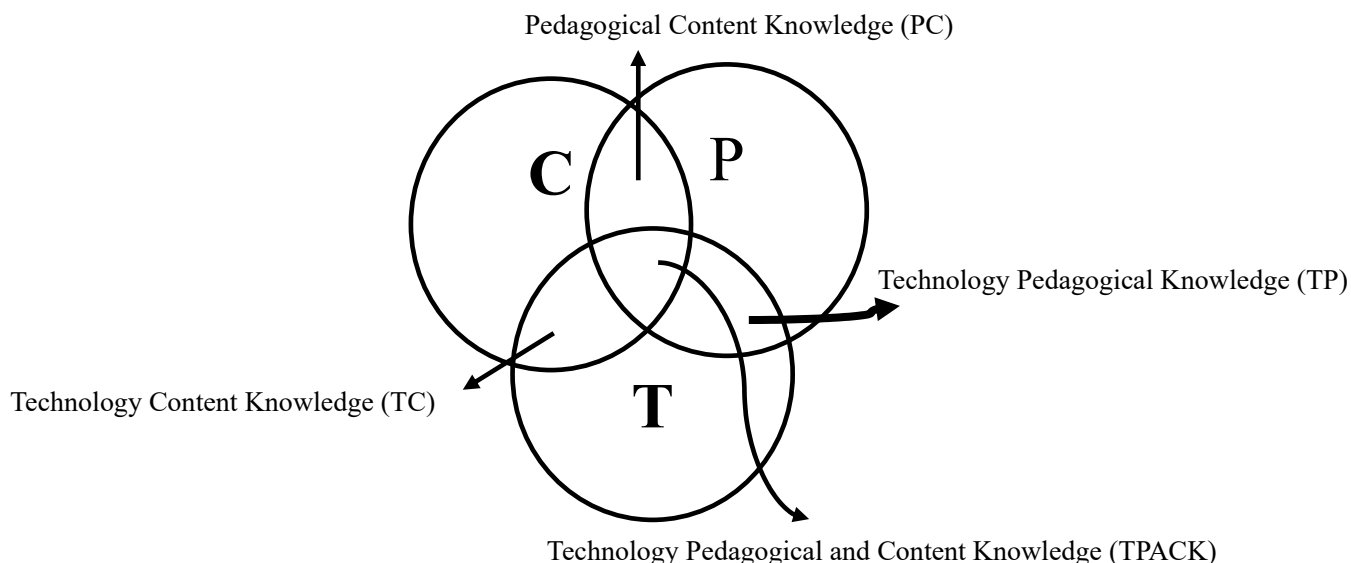


Figure 1. TPACK Framework (Mishra & Koehler, 2006, p. 1025)

Another study conducted by (Su-Bergil & Erçevik, 2019) ensured that EFL teachers deserve to preserve up to date comprehensive knowledge of pedagogy, which would equip them with high standard teaching skills and competences. It clarified that policymakers should regard the link between the teaching style options that potential EFL teachers want to teach and their real teaching style(s) they exhibit and declare professionally in teachers' employment process.

A study conducted by (Sarıçoban, Tosuncuoğlu, & Kırmızı, 2019) aimed at measuring (TPACK) of pre-service EFL teachers learning to teach EFL. The results indicated that pre-service EFL teachers have a satisfactory level of competence in technological pedagogical content knowledge; yet, some areas need development. Another study conducted by (Atai & Shafiee, 2017) investigated the pedagogical knowledge base underlying EFL teachers' provision of oral corrective feedback in grammar instruction. Content analysis of transcripts of stimulated rendering sessions revealed 19 pedagogical thought categories, assorted into three major themes of professional knowledge, procedural knowledge, and personal knowledge. The results showed a significant positive correlation across patterns of thought categories. A study conducted by (Xiaobin, Wei, Huiwen, & Lijun, 2013) investigated the practical application status of the Educology of Foreign Languages among English teachers involved in the National English Teachers Training Project in China. The results exhibited that the practical application of English teachers stayed pessimistic in that teachers are far from the criterion required in Items of TPACK. Another study was conducted by (Wu & Wang, 2015) to explore the TPACK among 22 in-service EFL teachers at elementary schools in Taiwan. The results clarified that the EFL teachers needed more technical knowledge to develop their TPACK further. The EFL teachers' TPACK concentrated much on motivating students, rather than using technology to create opportunities for students to use the English language meaningfully and authentically. A study conducted by (Chen & Goh, 2014) examined whether teachers' self-perceived knowledge about oral English teaching differs concerning their professional profiles in English as a Foreign Language (EFL) context in China. Results showed that EFL teachers generally reported having insufficient pedagogical content knowledge (PCK) and knowledge of students KOS.

A study conducted by (Ergen, Yelken, & Kanadli, 2019) aimed at examining a presumed difference in the effect size of (TPACK) due to gender. The result revealed that there is an essential difference between the knowledge types of TPACK by gender. Moreover, the analysis of sub-groups in technological pedagogical knowledge and technological pedagogical content knowledge had a significant effect size in favor of males. On the other side, content knowledge, pedagogical content knowledge, and technological content knowledge had a nominal effect size in favor of males. Moreover, pedagogical knowledge had an insignificant effect size in favor of females. Lin, Tsai, Chai, & Lee (2013) conducted a study to explore science teachers' perceptions of technological and pedagogical content knowledge (TPACK). It was addressing teachers' perceptions of the affordances of technology application in instruction. The findings revealed the relationships between the science teachers' perceptions of TPACK and their demographic characteristics such as teaching experience, gender, and age. The findings also indicated that female science teachers perceive higher self-confidence in pedagogical knowledge

but lower technological knowledge levels than males. Further, female in-service science teachers' perceptions of TK, TPK, TCK, and TPC significantly and negatively correlated with their age.

A study conducted by (Yerdelen-Damar, Boz, & Aydın-Günbatar, 2017) examined the relations of pre-service science teachers' attitudes towards technology use, technology ownership, technology competencies, and experiences to their self-efficacy beliefs about technological pedagogical content knowledge (TPACK). The results revealed that pre-service teachers' technology competencies and experiences mediated the relation of technology ownership to their TPACK self-efficacy beliefs. Their technology possession's direct relation to their TPACK self-efficacy beliefs was insignificant, while the indirect relation through their technology competencies and experiences was significant. The results also indicated significant direct effects of pre-service teachers' attitudes towards technology use, technology competencies, and experiences on their TPACK self-efficacy beliefs. Another study conducted by (Alnajjar & Al-Jamal, 2019) investigated the English language teachers' perception of Technological Pedagogical and Content Knowledge (TPACK) in teaching listening and speaking in schools of the UNRWA in Jordan. The results of the study indicated a shortage of Technological Knowledge (TK), a dissociation of Technological Knowledge (TK) with Content Knowledge (CK), a deficiency of Pedagogical Knowledge (PK), and a lack of Technological Pedagogical and Content Knowledge (TPACK). It recommended the need for EFL teachers from Jordan to accede. TPACK-based training workshops, regardless of gender or experience, aims to merge technology in their teaching to ameliorate their teaching skills and their students' achievements in listening and speaking. A study conducted in Turkey (Emrah, 2018) aimed to analyze studies that applied on pre-service English as a Foreign Language (EFL) teachers to measure the TPACK competencies in Turkey concerning the aims, methods, and participants and findings of the selected studies.

According to the analysis results, pre-service EFL Teachers' TPACK competencies in Turkey were highly developed in the studies. More descriptive and experimental studies must have the right perspective of the students' current competence levels. Another Turkish study conducted by (Kozikoğlu & Babacan, 2019) investigated the rapport between Turkish EFL teachers' (TPACK) skills and attitudes regarding technology. The study results revealed that Turkish EFL teachers' attitudes towards technology and its skills are high.

A study conducted by (Tseng, 2014) examined how teachers integrate technology into teaching. The results showed that teachers demonstrated content knowledge more adequately than their integrated TPACK. Algamdi (2017) conducted a study that aimed at investigating the level of Technological Pedagogical Content Knowledge (TPACK) of English Language (EFL) teachers in Saudi Arabian male public secondary schools. The study's findings indicated that EFL teachers could use ICT in many different forms in an EFL teaching context. A study reviewed 74 journal papers (Lin, Tsai, Chai, & Lee, 2013) investigating ICT integration from the framework of technological pedagogical content knowledge (TPACK). A review of those journals indicated that TPACK is a thriving research field in North American countries. Al-far & Wahbeh (2016) conducted a study to reveal the educational qualification program's effectiveness. The study was based on teachers' competencies in developing both pedagogical knowledge of the content (PCK) and the pedagogical technology of content (TPACK). The analyzed the perspectives of Palestinian science teachers in the governorates of the West districts and their school principals. The quantitative results showed that teachers found the competency-based qualification program highly useful in developing their pedagogical knowledge of content and the pedagogical technology of science content, as confirmed by qualitative data from focus groups of teachers and school principals' interviews.

The study of (Shaqour & Al Saadi, 2015) aimed to identify the degree of readiness of An-Najah National University teachers towards the use of the Learning Management System (Moodle) according to the framework of knowledge of technology, education, and content (TPACK) in light of study variables (gender, college type, age, number of courses in which the model was used). The study found that the level of technological knowledge (TK), content knowledge (CK), and knowledge of education (PK) is very high. The knowledge of technology and education (TPK) was high, and knowledge of technology, education, and content (TPACK) was medium. There were no statistically presumed differences between the means of the level of knowledge (TPACK) among teachers due to the variables (experience, gender). Simultaneously, there are statistically significant differences between teachers' averages of technology knowledge due to the variables (age, specialization). Another study conducted by (Fouda, 2017) aimed at developing professional development programs of in-service teachers in light of the Technological and pedagogical Content Knowledge (TPACK) model's dimensions. The experimentation application results revealed that the training program was influential in developing the TPACK model's dimensions and its sub-indicators among targeted teachers.

### 3. Method

The descriptive survey method was used because it is based on collecting information and data related to the phenomenon. It works on classifying and expressing the phenomenon in quantitative items, which is the numerical description that determines the degree or size of this situation or this phenomenon and its degree of association with the other; To know the extent of the need to make partial or fundamental changes in it. The researcher chose the descriptive survey method because it is suitable for the research's nature and achieving its goals.

#### 3.1 The Community of Research

The community of this research consisted of all male and female teachers of the English language in Madinah city, who taught during the second semester of the academic year 2019/2020. The total of the community was 1715 teachers. They were 772 male teachers and 943 female teachers.

#### 3.2 Sample Size

The tool of the study was distributed randomly to the community of the study. One hundred ninety-one teachers responded to it. They represented about %11.13 from the whole community. This percentage is acceptable to generalize the results of the study. Table 1 shows some specifics about the sample.

Table 1. Research sample

Gender	Stage			Total
	Primary Stage	Intermediate Stage	Secondary Stage	
Male	24	32	23	79
Female	32	48	32	112
Total	56	80	55	191

#### 3.3 Data Collection Tool

The questionnaire developed and validated by Sariçoban et al. (2019) was used in the present study after some edits. The edits included its dimensions and items. The edited questionnaire consists of 3 sub-dimensions which are: Content knowledge (CK), Pedagogical Knowledge (PK), and Technological knowledge (TK). The questionnaire is a 5-point Likert type questionnaire in which the scope of the answer from strongly disagree (1), disagree (2), neutral (3), agree: (4), and to strongly agree: (5)

The reliability analysis of the questionnaire was tested by Cronbach's alpha, and shown in Table 1.

Table 2. reliability analysis

Sub-dimension	items	Cronbach's alpha value
Content Knowledge (CK)	1, 2, 3, 4, 5	0.81.8
Pedagogical Knowledge (PK)	6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16	0.91
Technological Knowledge (TK)	17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30	0.90.4
Total	30 items	0.93.9

### 4. Results and Discussion

This study scrutinized EFL in-service teachers' perception of TPACK according to the study survey questionnaire. The questionnaire's five responses were graded according to their means as the following: 1 to 1.80 = Strongly disagree, 1.81 to 2.60 = Disagree, 2.61 to 3.40 = Undecided, 3.41 to 4.20 = Agree, 4.21 to 5 = Strongly agree. In this part of the research, we will discuss the collected data results to answer the research questions:

#### 4.1 First Question

What is the degree of content knowledge (CK) of Saudi EFL teachers in Madinah city?

Table 3. descriptive statistics related to content knowledge (CK)

	N	Mean	SD
1. I can express my ideas and feelings orally in English.	191	4.0942	.74799
2. I can express my thoughts and feelings by writing in English.	191	4.0419	.80676
3. I can read texts written in the English language with the correct pronunciation.	191	4.2251	.73742
4. I can understand texts written in English.	191	4.1885	.78544
5. I can understand the speech of the English native speaker easily.	191	3.6597	.94278
Total	191	3.4563	.50595

Concerning content knowledge degree and answering the first question of the study, table (3) showed that all the targets agreed that they could express their ideas by speaking ( $M = 4.09$ ,  $SD = .74799$ ), writing ( $M = 4.04$ ,  $SD = .80676$ ), and reading in English. ( $M = 4.22$ ,  $SD = .73742$ ). They also agreed that they could understand written texts ( $M = 4.18$ ,  $SD = .78544$ ). The least agreement was found with understanding native English speakers ( $M = 3.65$ ,  $SD = .94278$ ). The EFL teachers' mean responses to the whole dimension of content knowledge were ( $M = 3.45$ ,  $SD = .50595$ ). These results showed that the degree of content knowledge (CK) of Saudi EFL teachers in Madinah city is **high**. This degree is almost like what the study of (Sarıçoban, Tosuncuoğlu, & Kırmızı, 2019) indicated in its results. It differed from the result gained from the study (Chen & Goh, 2014) that was on a medium degree.

#### 4.2 Second Question

What is the degree of Pedagogical knowledge (PK) of Saudi EFL teachers in Madinah city?

Table 4. descriptive statistics related to pedagogical knowledge (PK)

Pedagogical knowledge items	N	Mean	SD
6. I can utilize teaching methods and techniques that are suitable for a learning environment.	191	4.1728	.81207
7. I can design learning content that is appropriate for the level of students.	191	4.1728	.79901
8. I can support students' learning per their individual differences	191	4.0157	.81095
9. I can co-operate with school stakeholders (students, parents, my colleagues, etc.) to support students' learning.	191	3.8220	.89427
10. I can reflect on the experiences that I gained from professional development programs to my teaching process.	191	4.0890	.88105
11. I can help students' out-of-class work to facilitate their self-regulated learning.	191	3.8115	.82467
12. I can manage a classroom learning environment.	191	4.4241	.70580
13. I can evaluate students' learning processes	191	4.3717	.65134
14. I can use suitable teaching methods and techniques to support students in developing their language skills.	191	4.2775	.73375
15. I can equip curricular activities that develop students' language skills.	191	4.1780	.80769
16. I can adapt a lesson plan by students' language skill levels.	191	3.9110	.88105
<b>total</b>	<b>191</b>	<b>3.7901</b>	<b>.52474</b>

To answer the second question of the study, table (4) indicated that all EFL teachers in Madinah city agreed to this dimension's items. The total mean of this dimension was ( $M = 3.79$ ,  $SD = .52474$ ). This result clarified that the degree of Pedagogical knowledge (PK) of Saudi EFL teachers in Madinah city is **high**. It is higher than content knowledge (CK). The degree is analogous to that of (Sarıçoban, Tosuncuoğlu, & Kırmızı, 2019) study, but it may differ in the statistical treatment and the number of the sample. The participants in this study are more than those of (Sarıçoban, Tosuncuoğlu, & Kırmızı, 2019). The sample was also from one stage, not from three stages, as done in the current study. It differed from the study (Alnajjar & Al-Jamal, 2019), which revealed a lack of Pedagogical knowledge (PK) for EFL teachers. The above results tell us that the Saudi EFL teacher has essential teaching competencies, especially CK and PK.

### 4.3 The Third Question of the Study

What is the degree of technological knowledge (TK) of Saudi EFL teachers in Madinah city?

We should see the mean of EFL teachers' responses to the third dimension of the questionnaire's statements about answer the above question. It is evident in the table (5) that it contains 14 items that cover many factors related to Technological Knowledge (TK). Table (5) showed that Saudi EFL teachers agreed to all the items of (TK). The mean of their total response to this dimension was ( $M = 3.70$ ,  $SD = .57199$ ). It is high in general, but table (5) also indicated that the degree of using a wiki, Edmodo, 3D virtual environments, ..., etc. for Saudi EFL teachers was medium ( $M = 3.32$ ,  $SD = 1.20138$ ).

Table 5. descriptive statistics related to Technological Knowledge (TK)

Technological Knowledge (TK) items	N	Mean	SD
17. I can use basic technological tools (e.g., operating system, wireless connection, virtual memory, etc.) appropriately.	191	4.1623	.78126
18. I can adjust PCs settings such as installing software and establishing an Internet connection.	191	4.0209	.92314
19. I can use PCs peripherals such as a printer, a headphone, and a Scanner.	191	4.2513	.80765
20. I can fix/deal with troubleshoot common computer problems (e.g., printer problems, Internet connection problems, etc.) independently.	191	3.8010	1.02197
21. I can utilize digital classroom equipment, such as projectors and smartboards.	191	4.2042	.93199
22. I can employ Office programs (i.e., Word, PowerPoint, etc.) with a high proficiency level.	191	4.1937	.90563
23. I can produce multimedia (e.g., video, web pages, etc.) using text, pictures, sound, video, and animation.	191	3.7120	1.17241
24. I can hire collaboration tools (wiki, Edmodo, 3D virtual environments, ..., etc.) following my objectives.	191	3.3298	1.20136
25. I am keen to learn software that helps me in completing a variety of tasks more efficiently.	191	4.0681	.90645
26. I can utilize from using technology (e.g., web conferencing and discussion forums) to contribute at a distance to multilingual communities.	191	3.9267	.77790
27. I can employ the advantage of multimedia (e.g., video, slideshow, etc.) to express my ideas about various topics in English.	191	4.0942	.91853
28. I can take advantage of E-Mail effectively in learning EFL to my students.	191	3.6702	1.07169
29. I can take advantage of Mobile applications to evaluate the learners' progress in learning language skills.	191	4.1204	.84052
30. I can take advantage of mobile applications to support the EFL learning process.	191	4.1571	.86842
Total	191	3.7037	.57199

The result of the current study in this dimension differed from many previous studies such as (Alnajjar & Al-Jamal, 2019), (Tseng, 2014), and (Ergen, Yelken, & Kanadli, 2019).

It is also similar to the results of some studies done around the word like: (Sarıçoban, Tosuncuoğlu, & Kırmızı, 2019), (Chai, Koh, & Tsai, 2013), and (Alghamdi, 2017). The most crucial point that should be noticed is that the current study differs from all previous studies in its community and the place where it was applied though it may resemble it to some extent in the results.

- a) *Fourth question:* Are there statistically significant differences between teachers in the degree of teaching knowledge attributable to their gender?

Concerning the answer to the fourth question of the study, independent samples T-test was performed to investigate the statistically significant differences between teachers according to their gender.



Table 6. T-test statistics related to TPACK according to gender

Questionnaire dimension	Gender	N	Mean	SD	Sig.
Content knowledge (CK)	Male	79	3.4724	.62143	.000
	Female	112	3.4450	.40803	
Pedagogical Knowledge (PK)	Male	79	3.6925	.67248	.000
	Female	112	3.8588	.37684	
Technological Knowledge (TK)	Male	79	3.6879	.68812	.000
	Female	112	3.7148	.47644	
TPACK	Male	79	3.9962	.62821	.000
	Female	112	4.0690	.39044	

Table (6) showed that male teachers have more familiarity with content knowledge (CK) than female teachers. (male(M) = 3.47, SD = .62143, whereas female(M) = 3.44, SD = .40803). But female teachers have more familiarity with pedagogical knowledge (PK) than male teachers. (female(M) = 3.85, SD = .37684, whereas male(M) = 3.69, SD = .67248). Female teachers also have more familiarity with technological knowledge (TK) than male teachers. (female(M) = 3.71, SD = .47644, whereas male(M) = 3.68, SD = .68812). Female teachers, in general, have more familiarity in teaching knowledge than male teachers regarding TPACK. (female(M) = 4.06, SD = .39044, whereas male(M) = 3.99, SD = .62821). So, the answer to the 4th question of the study is: Yes, there are statistically significant differences between teachers in the degree of teaching knowledge attributable to their gender in favor of female teachers. This result differed from that of (Ergen, Yelken, & Kanadli, 2019), where the differences favored males. However, it is compatible with the study results (Chai, Koh, & Tsai, 2013) in which the differences were in favor of females.

#### 4.4 Fifth Question of the Study

Are there statistically significant differences among teachers in the degree of teaching knowledge attributable to the stage in which they are studying?

Table 7. ANOVA related to TPACK according to stage

dimensions	Primary Stage			Intermediate Stage			Secondary Stage			Sig.
	M	N	SD	M	N	SD	M	N	SD	
Ck	3.463	56	0.449265	3.40	80	0.523377	3.52	55	0.533487	.359
PK	3.82	56	0.46682	3.69	80	0.565178	3.88	55	0.50694	.109
TK	3.78	56	0.488551	3.57	80	0.622521	3.80	55	0.547031	.031
TPACK	4.09	56	0.437761	3.93	80	0.523398	4.13	55	0.51141	.038

In order to answer the 5th question of the study, a one-way ANOVA test was performed to determine the differences between. Table (7) showed no statistically significant differences among teachers in the degree of Content knowledge (CK) attributable to the stage in which they are studying. (Primary = 3.46, Intermediate = 3.40, Secondary = 3.52, Sig. = .359). The thing itself can be said about the pedagogical knowledge (PK). (Primary = 3.82, Intermediate = 3.69, Secondary = 3.88, Sig. = .109). There no statistically significant differences. There are no statistically significant differences between teachers in the degree of technological knowledge (TK) attributable to the stage in which they are studying in favor of the EFL teachers at the secondary stage. (Primary = 3.78, Intermediate = 3.57, Secondary = 3.80, Sig. = .031). Table (7) also indicated that there are statistically significant differences among teachers in the degree of technological, pedagogical, and content knowledge (TPACK) attributable to the stage in which they are studying in favor of the EFL teachers at the secondary stage (Primary = 4.09, Intermediate = 3.93, Secondary = 4.13, Sig. = .038). All the reviewed previous studies did not include the stage as one of their variables like the current study.

#### 4.5 Sixth Question

Are there statistically significant differences among teachers in the degree of teaching knowledge due to their teaching experience?

Table 8. ANOVA statistics related to TPACK according to experience

	1-5 years			6-10 years			11-15 years			more than 15 years			Sig.
	M	N	SD	M	N	SD	M	N	SD	M	N	SD	
Ck	3.06	2	1.04651	3.66	20	0.42658	3.45	93	0.32967	3.41	76	0.66124	.168
PK	3.02	2	1.15708	3.83	20	0.59453	3.74	93	0.45929	3.85	76	0.55504	.095
TK	3.48	2	1.37092	3.82	20	0.6850	3.65	93	0.42628	3.73	76	0.67266	.539
TPACK	3.56	2	1.319933	4.14	20	0.594013	3.99	93	0.385224	4.07	76	0.576538	.304

In order to answer the 6th question of the study, a one-way ANOVA test was utilized. Table (8) showed that there are no statistically significant differences among teachers in the degree of Content knowledge (CK) attributable to their experience (1-5 years (M) = 3.06, 6-10 years (M) = 3.66, 11-15 years (M) = 3.45, more than 15 years (M) = 3.41, sig. = .168). Nevertheless, there are statistically significant differences among teachers in the degree of Pedagogical knowledge (PK) attributable to their experience in favor of the EFL teachers who have more than 15 years' experience. (1-5 years (M) = 3.02, 6-10 years (M) = 3.83, 11-15 years (M) = 3.74, more than 15 years (M) = 3.85, sig. = .095). In the dimension of technological knowledge, there are no statistically significant differences among EFL teachers in the degree of (TK) attributable to their experience. (1-5 years (M) = 3.48, 6-10 years (M) = 3.82, 11-15 years (M) = 3.65, more than 15 years (M) = 3.73, sig. = .539). Table (8) also indicated that there are no statistically significant differences among teachers in the degree of technological, pedagogical, and content knowledge (TPACK) attributable to their experience. (1-5 years (M) = 3.56, 6-10 years (M) = 4.14, 11-15 years (M) = 3.99, more than 15 years (M) = 4.07, sig. = .304). This result is not compatible with the result of the study (Shaqour & Al Saadi, 2015), in which there were statistically significant differences among its sample attributable to the experience.

## 5. Conclusion

The current study was intended to investigate the degree of teaching knowledge for Saudi EFL teachers in Madinah city, according to the TPACK model. The study sought to explore the EFL Teachers' knowledge degree by measuring three dimensions: content knowledge (CK), pedagogical knowledge (PK), technological knowledge (TK).

Based on the analysis of descriptive statistics for all participants' responses, the EFL teachers' mean responses on the whole dimension of content knowledge (CK) was (M = 3.45, SD = .50595). These results showed that the degree of content knowledge (CK) of Saudi EFL teachers in Madinah city is high. The Pedagogical Knowledge (PK) dimension's total mean was also high (M = 3.79, SD = .52474). It is slightly higher than content knowledge (CK). The mean of the total responses to the technological knowledge (TK) dimension was high (M = 3.70, SD = .57199). It is generally with a better degree than (CK), but less degree than (PK). Content Knowledge (CK) was the least degree (M = 3.45).

This study focused on comparing teaching knowledge for targeted EFL teachers in Madinah city Public schools according to gender, stage, and experience.

Concerning gender, the study revealed statistically significant differences between teachers in the degree of teaching knowledge attributable to their gender in favor of female teachers. Though male teachers were better in content knowledge (CK) than female ones, Female teachers were better in pedagogical knowledge (PK) and technological knowledge (TK) than male ones.

Regarding the stage that EFL teachers teach in it, the results of the study also indicated that there are statistically significant differences among EFL teachers in the degree of teaching knowledge (TPACK) attributable to the stage in which they are studying in favor of the EFL teachers at the secondary stage (Primary = 4.09. Intermediate = 3.93, Secondary = 4.13, Sig. = .038).

In relation to the experience, findings of the study indicated that there are no statistically significant differences among teachers in the degree of technological, pedagogical, and content knowledge (TPACK) attributable to their experience. (1-5 years (M) = 3.56, 6-10 years (M) = 4.14, 11-15 years (M) = 3.99, more than 15 years (M) = 4.07, sig. = .304).

Some suggestions can be derived from the results of the present study. First, paying attention to intermediate EFL schoolteachers by presenting more training programs consist of (TPACK) concepts and skills. Second, enhancing EFL male teachers' pedagogical knowledge (PK) and technological knowledge (TK). Third, elevating the level of EFL female teachers in content knowledge (CK). Finally, Future studies can be designed to

investigate the degree of TPACK for EFL teachers regarding new variables such as school type (Public, Private) and teachers' academic background. Future studies can also be designed to explore how far TPACK is included in teachers' preparation programs.

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