

## EXAMINATION OF STUDIES REGARDING PRE-SERVICE EFL TEACHERS' TECHNOLOGICAL PEDAGOGICAL CONTENT KNOWLEDGE (TPACK) IN TURKEY\*

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### ABSTRACT

One of the sets of skills most in demand in the 21<sup>st</sup> century is information, media, and technology skills. In addition to these most demanded skills, qualified teachers are expected to master pedagogical and content knowledge as well. For this reason, teachers' competencies with regard to their technological, pedagogical and content knowledge (TPACK) have been the subject of much debate in recent years. This study aims to analyse studies on pre-service English as a Foreign Language (EFL) teachers' TPACK competencies in Turkey with respect to the aims, methods, participants, and findings of the selected studies. The study employs meta-synthesis method to determine the research tendency of certain studies about current TPACK competencies of pre-service EFL teachers in Turkey. To this end, 3 dissertations and 12 articles between the years of 2005-2018 have been analysed in terms of aims, method, subject group, and findings. The articles and dissertations have been reached through searching databases with certain keywords. ERIC, EBSCHOST, Web of Science, Google Scholar, Springer, TÜBİTAK ULAKBİM Dergipark, and YÖK National Dissertation Center have been used as research databases in the study. The results of the study reveal that research investigating TPACK of pre-service EFL teachers mainly focus on development of TPACK over time, the effect of TPACK-based treatment, gender, and academic achievement, development of TPACK self-assessment survey, comparison of TPACK among pre-service, in-service, and formation program students, and finally TPACK and its reflections on lesson planning. It is also concluded that although pre-service EFL Teachers' TPACK competencies in Turkey seem to be highly developed in the studies, more descriptive and experimental studies are required to have a satisfactory perspective of the current competence levels of the students.

**Keywords:** TPACK, competence, pre-service EFL teachers.

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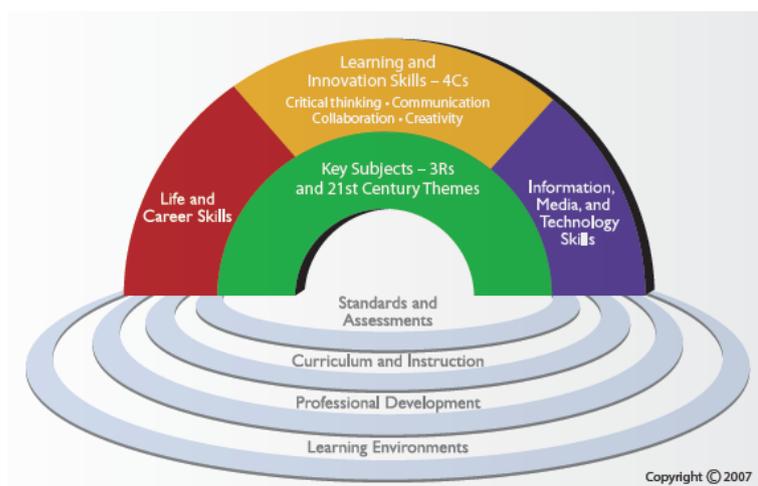
## INTRODUCTION

There is no doubt that prospective teachers should be competent in some certain skills that they will need in the future in line with the developments in globally determined key competencies and skills. These skills are called 21<sup>st</sup> century skills and they have a direct influence on teaching and learning processes in today's world. 21<sup>st</sup> century skills refer to the basic competencies in collecting, organizing, managing, evaluating and then deciding on the quality and usefulness of the existing information. In other words, these skills are related to finding and selecting the required information among abundant information resources. In addition, 21<sup>st</sup> century skills require analyzing, synthesizing, and generating new information as well.

Considering this crucial role of the 21<sup>st</sup> century skills, they are inevitably attached great importance almost in all educational settings in the world. The underlying reason for this is that students in this era are born to technology and they are not expected to memorize information anymore because access to information is easier than never before. They just need to learn how to reach, retrieve, organize and manage information as well as analysing the quality and reliability of the resources they are exposed to. For this reason, today's students are expected to be competent enough in certain main and subskills. In fact, some of these skills cannot be described as new. They have just gained importance with the advent of recent technological developments in information era we are now living.

In order to specify the skills each student needs to acquire, some frameworks have been developed with the support of some organizations and governments. These are "(a) framework based on Organization for Economic Cooperation and Development countries, (b) Assessment and Teaching of twenty-first Century Skills (ATCS), and (c) Partnership for twenty-first Century Skills (P21)" (Chu, Reynolds, Tavares, Notari, & Lee, 2017). Among those, the framework offered by Partnership for twenty-first Century Skills deserves mentioning in detail.

Partnership for 21<sup>st</sup> Century Skills (P21) is an American organization which was founded in 2002. P21 (2009) developed the framework that covers core subjects and 21<sup>st</sup> century themes. It is stated in the framework that schools will need to adopt a 21<sup>st</sup> century skills curriculum and interiorize new educational models integrating innovative research-proven strategies, modern educational technologies, real world resources and context (P21, p. 2). The framework presents students' outcomes as in the following figure:



**Figure 1.** Rainbow Illustration of the Partnership for Twenty-First Century Skills' Framework (retrieved from <http://www.p21.org>)

The rainbow illustrated in Figure 1 consists of twelve competencies which are classified into three core elements such as “(1) learning and innovation skills, (2) information, media, and technology skills, and (3) life and career skills”. These twelve competencies are presented in Table 1. Learning and innovation skills consist of the competencies students need to have for coping with the complexity of life and work environments in today’s world. Information, Media and Technology Skills, as the name implies, cover capabilities and competencies as to information, media, communication and technology literacy. Life and Career Skills are comprised of sub-skills in which students need to develop autonomy, thinking skills and content knowledge.

**Table 1.** Competencies for Each Set of 21<sup>st</sup> Century Skills

Learning and Innovation Skills	Information, Media and Technology Skills	Life and Career Skills
<ul style="list-style-type: none"> <li>• Creativity and Innovation</li> <li>• Critical Thinking and Problem Solving</li> <li>• Communication</li> <li>• Collaboration</li> </ul>	<ul style="list-style-type: none"> <li>• Information Literacy</li> <li>• Media Literacy</li> <li>• ICT Literacy</li> </ul>	<ul style="list-style-type: none"> <li>• Flexibility and Adaptability</li> <li>• Initiative and Self-Direction</li> <li>• Social and Cross-Cultural Skills</li> <li>• Productivity and Accountability</li> <li>• Leadership and Responsibility</li> </ul>

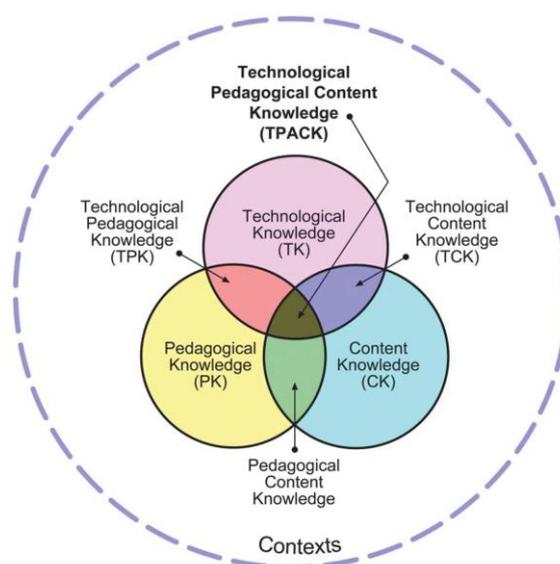
(retrieved from <http://www.p21.org/our-work/p21-framework>)

As the framework presented in Table 1 puts it, today’s students are expected to be competent enough both in information and communication technologies (ICT) and content knowledge. From this point of view, pre-service EFL teachers, in line with the scope of the current study, should have adequate competencies in content, pedagogical, and ICT knowledge. In other words, their Technological Pedagogical and Content Knowledge (TPACK) levels need to be researched in order to determine the weak points and equip them with the necessary qualifications required as 21<sup>st</sup> century skills.

### What is TPACK?

Technological Pedagogical Content Knowledge (TPACK) stands for the knowledge of teachers with regard to technology integration into pedagogically suitable teaching and learning processes (Mishra & Koehler, 2006). The idea behind TPACK is that if the classroom environments are desired to turn into collaborative and interactive places where students are active, then it is necessary for teachers to combine technological, pedagogical and content knowledge. There are reciprocal relationships among content, pedagogical, pedagogical content, and technological pedagogical knowledge. In other words, the content has an effect on which pedagogical techniques should be used through appropriate technologies.

TPACK is based on that each area is unique and requires appropriate pedagogical knowledge. For this reason, it is clear that teaching content and pedagogy as two separate fields will not yield expected results. Pedagogical content knowledge enables teachers to decide on which subject can be taught best with which techniques. Figure 2., which highlights the areas such as technological content knowledge, pedagogical content knowledge, and technological pedagogical knowledge, illustrates how TPACK appears through the intersection of technological knowledge, content knowledge, and pedagogical knowledge.



**Figure 2.** TPACK Image Illustrating the Intersection of Each Knowledge taken from <http://www.tpack.org>

In Figure 2 above, different knowledge forms have a reciprocal relationship with each other. Content knowledge is the knowledge to be learned or taught. Pedagogical knowledge is related to the knowledge about techniques and methods focusing on how something is taught. Technological knowledge covers teachers' skills regarding which technological tools are appropriate for certain classroom activities. As it can be seen in the Figure 2, one of the intersection areas is technological content knowledge which is about selecting appropriate technology for the content to be taught. Pedagogical content knowledge is the knowledge about the methodology used for teaching a subject. Technological pedagogical knowledge deals with the way appropriate

technological tools can be used for teaching certain content in a pedagogically appropriate manner. Thus, TPACK combines all above-mentioned knowledge forms and appears as a framework each teacher and teacher candidate needs to possess. In sum, Koehler and Mishra (2009) explain the differences between TPACK and other knowledge forms as;

“...TPACK is different from knowledge of all three concepts individually. Instead, TPACK is the basis of effective teaching with technology, requiring an understanding of the representation of concepts using technologies; pedagogical techniques that use technologies in constructive ways to teach content; knowledge of what makes concepts difficult or easy to learn and how technology can help redress some of the problems that students face; knowledge of students’ prior knowledge and theories of epistemology; and knowledge of how technologies can be used to build on existing knowledge to develop new epistemologies or strengthen old ones” (p. 66).

As Koehler and Mishra (2009) put forward, TPACK represents skills teachers should acquire in order to present content knowledge through appropriate pedagogy together with facilitating technology. Therefore, enhancing TPACK is essential in teacher training programs since prospective teachers should have the capabilities of blending different knowledge forms.

In Turkey, teacher education programmes present content and pedagogic knowledge. With the advent of recent technological developments, these programmes have started integrating technology into their curricula. However, the question is to what extent pre-service teachers are competent in terms of TPACK. Research conducted about TPACK competencies in Turkey is very limited and this field needs to be developed and supported with much research. At this point, determining the tendency the current research has in Turkey is very important in terms of specifying the gaps in the literature and paving the way for future studies regarding TPACK. Therefore, the current study tries to find answers for the following research question;

What is the general tendency of research conducted in Turkey with regard to the TPACK-related studies about pre-service EFL teachers in terms of the aims, subject groups, methodology and conclusions?

## METHODOLOGY

### Research Design

This study has a meta-synthesis research design. Meta-synthesis is a technique which is based on the findings of previous studies. This research design is used for understanding the in-depth nature of a particular issue. In other words, meta-synthesis is conducted through interpretation and synthesizing the reported findings of the studies about the same subject with a critical point of view. Meta-synthesis is commonly used in health sciences, but it can also be utilized in educational sciences as an approach for content analysis (Dinçer, 2014). The term meta-synthesis was first used in an article by Jensen and Allen in 1996. Sheerwood (1999) states that this research design enables researchers to grasp some concepts and patterns better and provides the refinement of existing knowledge, models, and theories. According to Çalık and Sözbilir (2014), the aim in

meta-synthesis research is to examine the studies conducted on a specific subject and determine the similarities and differences. The comparative evaluation of the studies can provide researchers and scholars with a rich source of resources.

### Data Collection

In order to determine the articles and dissertations, ERIC, EBSCO Host, Web of Science, Google Scholar, Springer, TÜBİTAK ULAKBİM Dergipark, and YÖK National Dissertation Centre have been used as research databases in the study. The keywords searched were determined by analysing the abstracts of TPACK-related studies in the literature. These keywords were “TPACK in Turkey and EFL”, “TPCK in Turkey and EFL”, “İngiliz Dili Eğitimi ve TPAB”, “İngiliz Dili Eğitimi ve TPACK”. Keywords included different abbreviations of ‘Technological Pedagogical Content Knowledge’, ‘English as a foreign language’ in both English and Turkish; and, and ‘Turkey’ to narrow down the scope of the research. The following table indicates the results of the first search prior to the elimination process.

**Table 2.** Keywords Search Results in Different Databases

Keywords	Databases					
	ERIC	EBSCOHost	Web of Science	Google Scholar	Springer	TÜBİTAK ULAKBİM
“TPACK in Turkey and EFL”	2	101	14	407	5	2557
“TPCK in Turkey and EFL”	5	28	4	198	2	1553
“İngiliz Dili Eğitimi ve TPACK”	0	5	0	2390	0	1657
“İngiliz Dili Eğitimi ve TPAB”	0	5	0	161	0	2466

Subsequent to broad search with regard to TPACK in the EFL context in Turkey, 12 articles published between 2005 and 2018 which were directly related to the scope of the current study were determined. As for the dissertations, YÖK National Dissertation Centre was used as the search database with the same keywords. Three related dissertations were determined to be included in the study. All of the articles and dissertations between 2005 and 2018 which are related to Pre-service EFL Teachers’ TPACK in Turkey were selected without any elimination in terms of ranging since there was already limited research about the issue. The rest of the articles and dissertations that did not focus on pre-service EFL teachers and their TPACK were eliminated.

Finally, three dissertations and 12 articles between the years of 2005-2018 have been analysed in terms of their aims, subject groups, methodology and conclusions. Although the subject groups of two dissertations and one article consisted of in-service teachers, they were also included in the study as the context of those studies were directly related to the scope of the current research.

## FINDINGS

The findings of the study will be presented on the basis of four categories: aims, subjects groups, methodology, and conclusions of the selected studies. Tables for each category indicate the given category and present an overview for the research conducted in the Turkish context. While presenting findings regarding dissertations, all categories were combined in order not to disrupt the integrity.

**Table 3.** Findings with Regard to Four Categories Concerning the Reviewed Dissertation -1-

Delen, K. (2016). <i>The Investigation of Technological Pedagogical and Content Knowledge Level by Turkish Teachers of English</i> . Unpublished M.A. Thesis. Çağ University Institute of Social Sciences.	
Aim	to explore the TPACK levels of Turkish EFL teachers and the relationship between gender/experience and TPACK levels of the Turkish EFL teachers
Subject Group	33 in-service teachers
Method	Quantitative, Descriptive
Conclusion	- have high levels of TPACK - no meaningful relationship between gender and TPACK level of teachers - no statistically significant relationship between the teaching experience of the participants and their TPACK levels

As it can be seen in Table 3 above, in the first dissertation reviewed, Delen (2016) aims to explore TPACK levels of 33 in-service teachers focusing on gender and experience variables. With its quantitative research design, the study concludes that the subject group has high levels of TPACK and there is no meaningful relation between gender, experience and TPACK levels.

**Table 4.** Findings with Regard to Four Categories Concerning the Reviewed Dissertation -2-

Tunçer, M. (2014). <i>The Relationship between Teacher Efficacy and Technological Pedagogical Content Knowledge within the Scope of EFL Pre-Service Teachers</i> . Unpublished M.A. Thesis. Anadolu University Institute of Educational Sciences.	
Aim	to investigate (1) perceptions of Turkish EFL preservice teachers related to their overall teacher efficacy, (2) level of their TPACK, (3) the relationship between levels of teacher efficacy and TPACK of Turkish preservice teachers of English language
Subject Group	110 fourth-year students at Anadolu University, Marmara University, Yıldız Technical University, and Yeditepe University
Method	Mixed-method
Conclusion	- high levels of overall teacher efficacy - high levels of TPACK knowledge at the end of undergraduate educational period - meaningful relationship between overall teacher efficacy and TPACK competence

In the second dissertation, as Table 4 indicates, Tunçer (2014) aims to find out the perceptions, TPACK levels, and the relationship between TPACK and teacher efficacy. The subject group consists of 110 fourth-year students from Anadolu University, Marmara University, Yıldız Technical University, and Yeditepe University. The study using mixed-method design concludes that student teachers have high level of TPACK and there is a relationship between teacher efficacy and TPACK competence.

As shown in Table 5, the last dissertation reviewed, Saraç (2015) aims to explore the relationships between in-service teachers' TPACK and their attitudes towards Interactive Whiteboards together with the gender and experience variables.

**Table 5.** Findings with Regard to Four Categories Concerning the Reviewed Dissertation -3-

Saraç, M. (2015). *An explanatory investigation on the Turkish EFL teachers' TPACK and their attitudes toward the use of interactive whiteboards* (M.A. thesis). Anadolu University, Eskişehir, Turkey.

Aim	to investigate (a) TPACK of Turkish EFL in-service teachers; (b) the attitudes of the in-service Turkish EFL teachers towards the use of Interactive Whiteboards (IWBs) in their classes; (c) the relationship between TPACK and teachers' attitude toward IWB use; (d) the relationship between gender of the participants and their TPACK levels; (e) the relationship between gender of the participants and their attitude toward IWB use; (f) the relationship between teaching experience and TPACK; and (g) the relationship between teaching experience and attitude toward IWB use.
Subject Group	106 in-service EFL teachers from 24 Anatolian High Schools in Gebze, Darıca and Çayırova municipalities of Kocaeli
Method	Quantitative, Descriptive
Conclusion	- high levels of TPACK - positive attitudes toward IWB use - statistically meaningful relationship between TPACK and attitude - not a meaningful relationship between gender and TPACK, and similarly between gender and teachers' attitude - statistically meaningful relations between teaching experience and TPACK

Using a quantitative research design, the study concludes that the participants (106 in-service EFL teachers) have high level of TPACK. There is a statistically meaningful relationship between teachers' TPACK and their attitudes/teaching experience, but no significant relationship is reported between gender, attitudes and TPACK.

Apart from the dissertations reviewed above, we also determined 12 articles related to pre-service and in-service teachers' TPACK in Turkey. Table 6 indicates the findings about the aims of the reviewed articles.

**Table 6.** Findings with Regard to the Aims of the Reviewed Articles

Aims	Articles
Examining TPACK development of the pre-service English Language teachers	Aşık, A., Eroğlu İnce, B. H., & Şarlanoğlu Vural, A. (2018). Ersanli, C. Y. (2016) Koçoğlu, Z. (2009) Turgut, Y. (2017)
Developing survey examining TPACK among preservice teachers	Baser, D., Kopcha, T. J., & Ozden, M. Y. (2016)
Exploring the TPACK competency of preservice English teachers and differences in terms of gender and academic achievement	Ekrem, S., & Recep, Ç. (2014) Öz, H. (2015)
Investigating perceptions of Turkish pre-service and in-service EFL (English as a Foreign Language) teachers related to their level of TPACK	İşler, C., & Yıldırım, Ö. (2018) Kavanoz, S., Yüksel, H. G., & Özcan, E. (2015) Köse, N. K. (2016)
Reflecting TPACK competencies of preservice teachers	Kurt, G., Akyel, A., Koçoğlu, Z., & Mishra, P. (2014).
Comparing TPACK among teacher-candidates, pre-service and in-service EFL teachers in Turkey	Turgut, Y. (2017)

As indicated in the table above, general research tendency in terms of the aims of the studies is TPACK development, competency, gender and achievement effects, perceptions, and comparison of TPACK among pre- and in-service teachers in Turkey.

Table 7 shows the details about the subject groups of the reviewed studies. Except for Köse's (2016) study, the participants consist of preservice EFL students from various grades. Among the studies, the minimum number of participants is 27 and the maximum is 204.

**Table 7.** Findings with Regard to the Subject Groups of the Reviewed Articles

Subject Group	Articles
100 senior student teachers of English	Aşık, A., Eroğlu İnce, B. H., & Şarlanoğlu Vural, A. (2018)
174 preservice EFL teachers in the first factor analysis and 204 in the second one	Baser, D., Kopcha, T. J., & Ozden, M. Y. (2016)
137 preservice English teachers.	Ekrem, S., & Recep, Ç. (2014)
59 pre-service English language teachers	Ersanli, C. Y. (2016)
94 Turkish pre-service EFL teachers	İşler, C., & Yıldırım, Ö. (2018)
120 EFL pre-service teachers	Kavanoz, S., Yüksel, H. G., & Özcan, E. (2015)
27 pre-service EFL teachers	Koçoğlu, Z. (2009)
127 language instructors	Köse, N. K. (2016)
27 pre-service EFL teachers	Kurt, G., Akyel, A., Koçoğlu, Z., & Mishra, P. (2014)
76 undergraduate students	Öz, H. (2015)
53 pre-service EFL teachers, 39 Teacher Certificate Program Students, 103 in-service EFL teachers	Turgut, Y. (2017)
174 pre-service EFL teachers	Turgut, Y. (2017)

With regard to the methodology of the reviewed studies, Table 8 indicates that most of the research has mixed method design. Two studies employ quantitative method while only one of the studies uses qualitative method.

**Table 8.** Findings with Regard to the Methodology of the Reviewed Articles

Method	Articles
Mixed Method	Aşık, A., Eroğlu İnce, B. H., & Şarlanoğlu Vural, A. (2018) Baser, D., Kopcha, T. J., & Ozden, M. Y. (2016) Ersanli, C. Y. (2016) İşler, C., & Yıldırım, Ö. (2018) Köse, N. K. (2016) Kurt, G., Akyel, A., Koçoğlu, Z., & Mishra, P. (2014) Öz, H. (2015) Turgut, Y. (2017) Turgut, Y. (2017)
Quantitative	Ekrem, S., & Recep, Ç. (2014) Kavanoz, S., Yüksel, H. G., & Özcan, E. (2015)
Qualitative	Koçoğlu, Z. (2009)

The last dimension of this meta-synthesis study is related to the conclusions of the reviewed research. Three studies (Aşık, Eroğlu İnce, & Şarlanoğlu Vural, 2018; Ersanli, 2016; Koçoğlu, 2009) provide treatment to find out the possible effects of TPACK intervention. These studies report important findings in favour of TPACK after the treatment process.

**Table 9.** Findings with Regard to the Conclusions of the Reviewed Articles

Conclusion	Articles
significant improvement in all domains after the research intervention	Aşık, A., Eroğlu İnce, B. H., & Şarlanoğlu Vural, A. (2018). Ersanli, C. Y. (2016) Koçoğlu, Z. (2009)
establishing clear boundaries between the TPACK constructs	Baser, D., Kopcha, T. J., & Ozden, M. Y. (2016)
males' technological knowledge was higher than females, respecting the pedagogical knowledge, female participants were better, no significant difference was observed between academic achievement and TPACK mean	Ekrem, S., & Recep, Ç. (2014)
high levels of perceptions on TPACK competences high level of perceived TPACK competences	İşler, C., & Yıldırım, Ö. (2018) Kavanoz, S., Yüksel, H. G., & Özcan, E. (2015)
competent in their subject matter, English language, but not competent in technology	Koçoğlu, Z. (2009)
in the course of organizing and applying their lessons, the participants became aware of the relationship among content, pedagogy and technology	Kurt, G., Akyel, A., Koçoğlu, Z., & Mishra, P. (2014)
high levels of TPACK development	Öz, H. (2015)
significant difference found among the participants (undergraduate ELT students, teacher-candidates in an ELT teacher-certificate program, and in-service ELT teachers' self-perceptions of TPACK	Turgut, Y. (2017)
a nonlinear pattern of TPACK development over time	Turgut, Y. (2017)

As it is seen in Table 9 above, some studies (İşler & Yıldırım, 2018; Kavanoz, Yüksel, & Özcan, 2015) report high level of perceptions of TPACK and perceived competences. Solak and Çakır (2014) conclude that males'

technological knowledge is higher than that of females and females are better than males in pedagogical knowledge. Turgut (2017) compares prospective EFL teachers in an undergraduate ELT program, teacher-candidates in an ELT teacher-certificate program, and in-service ELT teachers' self-perceptions of TPACK and reports a significant difference.

## DISCUSSION AND CONCLUSION

Based on the reviewed research, it can be inferred that the studies were mostly conducted for determining TPACK development, competency, levels of the participants; developing survey; finding out students' perception and attitudes; and analysing the relationship between teaching experience, gender and TPACK. From these findings, it can be concluded that TPACK-related research conducted in Turkey about pre-service EFL teachers handles similar purposes with different samples. It is clear that conducting research with similar purposes to different subject groups has limited contribution to the TPACK-related research. It is suggested that research focus on individual's TPACK development in longitudinal studies with qualitative design, because TPACK treatment takes time and its effects can only be observed in the long run. The dissertations reviewed in our study aim to analyse the effects of gender and teaching experience on pre-service EFL teachers' TPACK and their attitudes. Likewise, the articles dwell on TPACK development and competency and perceptions of pre-service EFL teachers with regard to TPACK and TPACK training. Only one study has a comparative overview concerning TPACK of pre- and in-service teachers. With regard to the aims of the reviewed studies, it is clear that the research tendency is usually about determining the TPACK levels of pre-service EFL teachers. This result shows that more experimental studies concerning how to enhance TPACK are needed rather than merely determining TPACK levels of the participants, which can be thought the gap to be narrowed in the current literature.

When the reviewed studies are analysed, it is seen that most of the studies employ scales or questionnaires to collect data. However, it is thought that in addition to the research based on questionnaires, more case studies will contribute a lot to TPACK-related research in Turkey. It is also obvious from the reviewed studies that most of the research has mixed-method design which is a plus for the findings. However, the qualitative dimension of the current research does not seem to be adequate enough to support the findings based on the quantitative data. For this reason, more qualitative studies are needed with small number of participants for in-depth analysis of the competencies.

As stated before, TPACK represents skills teachers should acquire in order to present content knowledge through appropriate pedagogy together with facilitating technology (Koehler & Mishra, 2009). For this reason, the studies need to analyze how these three forms of knowledge intersect and be integrated in the lessons. Pre-service EFL teachers' TPACK is attached importance; however, they are still under training when the studies are conducted. More reliable research can be obtained through observing students in their teacher practicum with real students in real classrooms.

It was also found that the reviewed studies have similar findings about TPACK of pre-service EFL teachers, their perceptions and relationship between variables such as gender and experience. Few studies deal with whether there exists significant improvement after research intervention. The common conclusion of the studies usually focuses on the descriptive data about TPACK of the participants. Most of the studies report high levels of TPACK competencies and perceptions.

In conclusion, this limited number of studies with their strong and weak aspects provide a general framework for the research tendency of TPACK-related studies in Turkey about pre-service EFL teachers. This study, exploring the similarities and differences among the research conducted in the Turkish EFL context, attempts to contribute to the existing literature about TPACK-related studies in Turkey in terms of composing the aims, subject groups, methodology and conclusions in order to determine the possible gaps. It can be concluded that more experimental studies with control groups and case studies will be beneficial for exploring how to foster TPACK of the participants rather describing the present TPACK levels. Another gap which needs to be narrowed in the literature is related to the subject groups. It is obvious that TPACK of in-service teachers is as important as that of pre-service. For this reason, future studies are needed to constitute a road map concerning how to enhance TPACK of not only pre-service but also of in-service EFL teachers.

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