

DEVELOPMENT AND EVALUATION OF A TECHNOLOGICAL
PEDAGOGICAL CONTENT KNOWLEDGE (TPACK) ASSESSMENT TOOL
FOR PRESERVICE TEACHERS LEARNING TO TEACH ENGLISH AS A
FOREIGN LANGUAGE

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ABSTRACT

DEVELOPMENT AND EVALUATION OF A TECHNOLOGICAL PEDAGOGICAL CONTENT KNOWLEDGE (TPACK) ASSESSMENT TOOL FOR PRESERVICE TEACHERS LEARNING TO TEACH ENGLISH AS A FOREIGN LANGUAGE

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The purpose of this study is to develop and evaluate a technological pedagogical content knowledge (TPACK) assessment tool for preservice teachers learning to teach English as a foreign language (EFL). The assessment tool, called TPACK-EFL survey, was developed and evaluated through tool development research by using mixed methods approach. Survey items were generated by using qualitative data. Content validity of the survey was maintained through expert reviews and a cognitive interview. Then, construct validity of the TPACK-EFL survey was evaluated through two rounds of validation. The survey was, first, administered to 174 preservice EFL teachers and then, 204 preservice EFL teachers. Both rounds of data were analyzed by using exploratory factor analysis (EFA). In the first round, five-factor structure was found. The survey was revised for the second round of validation. EFA results of the second round indicated seven-factor structure whose factors were named as TK, CK, PK, PCK, TCK, TPK, and TPACK. After evaluating the construct validity of the TPACK-EFL survey, the researcher used triangulation design to provide evidences for convergent validity of the survey. 88 preservice EFL

teachers completed the survey for quantitative part of the triangulation design. Then, 12 of the 88 preservice EFL teachers were interviewed to corroborate descriptive survey results. The results of the corroboration showed that only three cases were misaligned for TCK and TPK items. As a conclusion, the final TPACK-EFL survey including 39 items was provided with strong evidences for its validation; however, three misaligned cases indicated that TCK and TPK items of the survey needs to be further developed.

Keywords: English as a Foreign Language, Technology Integration, Technological Pedagogical Content Knowledge, Teacher Education, Assessment

ÖZ

İNGİLİZCE ÖĞRETMENİ ADAYLARINA YÖNELİK TEKNOLOJİK PEDAGOJİK ALAN BİLGİSİ (TPAB) DEĞERLENDİRME ARACININ GELİŞTİRİLMESİ VE DEĞERLENDİRİLMESİ

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Bu çalışmanın amacı İngilizce öğretmenleri adaylarının teknolojik pedagojik alan bilgilerini (TPAB) değerlendirmek için kullanılabilecek bir araç geliştirmektir. TPACK-EFL olarak adlandırılan değerlendirme aracı karma yöntemler kullanılarak geliştirilmiş ve değerlendirilmiştir. Ölçek oluşturulurken nitel veriler kullanılmıştır. Ölçeğin kapsam geçerliliği alan uzmanlarından alınan görüşler ve bilişsel görüşme yöntemi kullanılarak sağlanmıştır. Daha sonra TPACK-EFL ölçeğinin geçerliliği iki turdan oluşan yapısal geçerlilik çalışması ile değerlendirilmiştir. Ölçek ilk olarak, 174 İngilizce öğretmenleri adayına uygulanmış ve daha sonra aynı uygulama 204 İngilizce öğretmenleri adayıyla tekrarlanmıştır. Her iki uygulama sonrasında elde edilen veriler açımlayıcı faktör analizi (EFA) kullanılarak incelenmiştir. Birinci uygulama sonucunda 5 faktörlü yapı bulunmuştur. İkinci uygulamadan önce ölçek yeniden gözden geçirilerek düzeltilmiştir. İkinci uygulama sonucunda elde edilen EFA bulgularında TK, CK, PK, PCK, TCK, TPK ve TPACK olarak adlandırılan 7'li yapı elde edilmiştir. TPACK-EFL ölçeğinin yapısal geçerliliği değerlendirildikten sonra yakınsama geçerliliğini değerlendirmek için çeşitleme tasarımı kullanılmıştır. Çeşitleme tasarımının nicel kısmı için 88 İngilizce öğretmenleri adayları anket sorularını yanıtlamışlardır. Daha sonra, bu 88 adayın 12 tanesiyle elde edilen nicel verileri

desteklemek amacıyla yüz yüze görüşmeler gerçekleştirilmiştir. Nicel ve nitel verilerin karşılaştırılması sonucunda, on iki durumdan üç tanesinde TCK ve TPK faktörlerinde uyum olmadığı görülmüştür. Sonuç olarak, 39 sorudan oluşan ve oldukça güçlü bir geçerliliğe sahip TPACK-EFL ölçeği oluşturulmasına rağmen, üç durumda TCK ve TPK verilerinin uyuşmaması bu faktörler için kullanılan soruların daha da geliştirilmesi gerektiğini göstermiştir.

Anahtar Kelimeler: Yabancı Dil olarak İngilizce, Teknoloji Entegrasyonu, Teknolojik Pedagojik Alan Bilgisi, Öğretmen Eğitimi, Değerlendirme

To My Mother, Fatma Yaşar

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CHAPTER 1

INTRODUCTION

1.1. Background of the Study

There has been a considerable amount of studies related to the potential benefits of technology to the instructional process. In addition to these research-based findings, technological tools have been increasingly utilized in educational settings due to international standards and national policies. However, these standards (ISTE, 2008) do not make a connection between teachers' technological capabilities and their integration of technology into their classrooms. Therefore, technology related to professional programs and preservice teacher education programs focus only on those technological capabilities in practice. However, even using technology occasionally is not adequate, because teachers should integrate those capabilities into the teaching and learning process for the requirements of successful technology integration (Bose, 2010). Therefore, preservice teacher education programs aiming to teach only technological capabilities will not be successful in transferring those capabilities into teaching and learning environments (Koc & Bakir, 2010).

One of the main reasons behind the lack of success of preservice teacher education programs may have been proposed as an oversimplification of "technology integration by separating technology from pedagogy and content knowledge" (Koehler & Mishra, 2008 as cited in Baser, Kopcha, & Ozden, 2015, p. 2). Technological Pedagogical Content Knowledge (TPACK) provides a framework for programs to focus on using technology, pedagogy, and content interactively rather than just focusing on using technology (Mishra & Koehler, 2006; Cox, 2008).

The TPACK framework, whose pioneers are Mishra and Koehler (2006), provides what kinds of knowledge teachers need to know for successful technology integration. They proposed that in addition to technological knowledge, pedagogical knowledge, and content knowledge, teachers require new types of knowledge, which

have been derived from the overlaps of these three knowledge domains – Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK) – and TPACK, which is symbolized as the intersection of all three knowledge domains (see Figure 1). While PCK was founded before the TPACK framework by Shulman (1986), other knowledge domains have been constructed by Mishra and Koehler (2006).

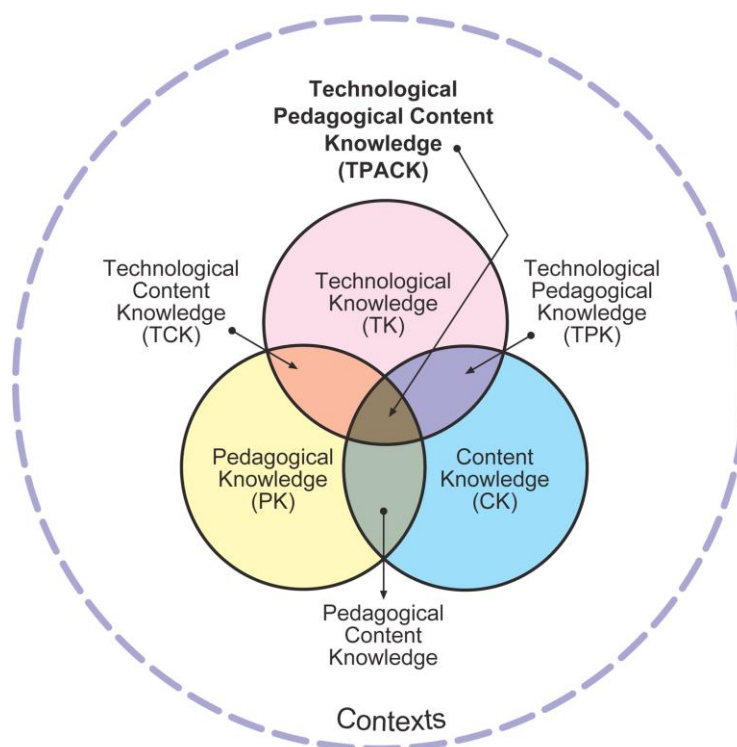


Figure 1.1 The TPACK framework (reproduced by permission of the publisher, © 2012 by <http://tpack.org>)

Although the TPACK framework provides a conceptual outline and multi-faceted forms of knowledge for successful technology integration, the definitions and boundaries of components of the TPACK framework are not as clear as those which are applied in practice (Cox, 2008; Angeli & Valanides, 2009; Cox & Graham, 2009;

Graham, 2011). For example, Mishra and Koehler (2006) defined TCK as “the manner in which technology and content are reciprocally related” (p. 1028), which is too general of a definition to understand the term and utilize it in practice. The boundaries among TCK, TPK, and TPACK are confusing, and the examples provided that are related to the terms are even more confounding (Cox, 2008). Archambault and Barnett (2010) also affirmed the need for further research to minimize the confusion between and among the knowledge domains.

A TPACK instrument has been developed to assess teachers’ knowledge for successful technology integration by the pioneers of the TPACK framework (Schmidt et al., 2009). It includes parts of the same framework, including the main components of the TPACK framework such as TK, CK, PK, PCK, TCK, TPK, and TPACK. As Cox stated (2008), a more clarified instrument should be designed to measure TPACK. There are other researchers (e.g. Archambault & Barnett, 2010; Jamieson-Proctor, Finger, & Albion, 2010; Oster-Levinz & Klieger, 2010) developing TPACK questionnaires; however, none of their items include specific features of technologies and they were not developed for a specific content area.

In the content-related parts of the TPACK instrument developed by Schmidt et al. (2009), there are similar items which have been written the same for different disciplines. For example, in the TCK component, one of the items is “I know about technologies that I can use for understanding and doing Mathematics,” and the other three items are written the same for literacy, science, and social studies. First of all, it can be seen that the survey was the same for all teachers whatever their disciplines of study; so, the required knowledge for all teachers was proposed to be the same. This should also be questioned. Most importantly, can TCK only be measured by questioning whether teachers know about technologies that they can use for understanding and explaining their disciplines? The items assessing teachers’ knowledge are not specific enough as well as the conceptual framework (Angeli & Valanides, 2009).

As mentioned above, the components of the TPACK framework should be clarified and specified to determine what types of knowledge teachers should acquire specifically for successful integration. The researcher in the present study developed and validated a TPACK instrument that was specified for the subject matter, EFL. The instrument, namely the TPACK-EFL survey, was built on qualitative results collected from instructors who were experienced with a technology-related teacher education program. The developed TPACK-EFL survey was evaluated through two EFA rounds and a corroboration round.

During the development and evaluation of the TPACK-EFL survey, validated TPACK constructs were explored and conceptualized based on preservice EFL teachers' perceptions to identify validated TPACK constructs with specific knowledge types for each construct. Furthermore, the content-related TPACK constructs focused on a specific subject-matter of EFL; as a result, the study proposed a specified TPACK assessment tool for preservice EFL teachers.

1.2. Purpose of the Study

The purpose of this study is to develop and evaluate a TPACK assessment tool that is designed to assess preservice EFL (English as a foreign language) teachers' perceived TPACK levels. In addition to the development and evaluation of an assessment tool, this tool's development research provided lessons learned during the development and validation process of this tool. The researcher followed a vigorous path for a TPACK survey development. Through exploratory mixed methods with Instrument Development Model (Creswell & Plano Clark, 2007) followed by triangulated mixed methods, the researcher, first, investigated specific knowledge and skills required for successful technology integration into EFL within the TPACK framework. The aim of this investigation is using these knowledge and skills to develop a more specified TPACK survey which is called TPACK-EFL. The TPACK-EFL survey was administered to preservice EFL teachers to explore how they perceive TPACK constructs. Eventually, the study aimed to provide evidence

for validity and reliability of this specified TPACK survey, namely the TPACK-EFL survey, through three rounds of evaluation.

1.3. Research Problem and Research Questions

This research attempts to find answers that arise from existing literature which reveals problems related to validations of existing TPACK constructs, definitions of the TPACK constructs, boundaries among the TPACK constructs, specific examples that enable practice of the TPACK framework, and a lack of validated assessment tool specific for EFL teaching. With the purpose of finding answers for these problems, this tool research aims to develop and validate a specified TPACK assessment tool for preservice EFL teachers by investigating valid TPACK constructs and specific constituents of each construct. It also identifies lessons for the process of developing TPACK assessment tools for other researchers developing the TPACK assessment tool. The following research questions were answered based on the results of this study.

1. How did preservice EFL teachers perceive TPACK constructs?
2. What patterns of convergence emerged within cases on each technology-related TPACK construct?

1.4. Significance of the Study

Although there are many researchers who studied the TPACK framework, a few of them focus on the conceptual development of the TPACK framework (Cox & Graham, 2009; Graham, 2011; Cox, 2008; Angeli & Valanides, 2009). This study supported the conceptual development of the TPACK framework through an in-depth examination of TPACK constructs by applying both experts' and preservice EFL teachers' perceptions.

In addition to an in-depth examination of the TPACK constructs, the study provided a validated TPACK assessment tool for preservice EFL teachers. Existing TPACK surveys (Schmidt et al., 2009; Angeli & Valanides, 2009; Archambault & Barnett,

2010; Jamieson-Proctor et al., 2010; Sahin, 2011) are generally developed in a broad sense with generic items written similarly for different content domains. TPACK surveys developed in general neglect subject-specific use of technologies. Furthermore, the lack of specificity is seen as a possible reason for items failing to load on all seven constructs during a factor analysis (Koh, Chai, & Tsai, 2010) or as a possible reason for an ambiguity among the TPACK constructs (Graham, 2011; Angeli & Valanides, 2009). Even though recent instrument development studies (Sahin, 2011; Chai, Koh, & Tsai, 2011; Kaya & Dag, 2013) have explored the seven constructs of the TPACK framework, ambiguity among boundaries of adjacent constructs and application of the constructs in practice still exists (Graham, 2011; Angeli & Valanides, 2009; Archambault & Barnett, 2010; Cox, 2008).

Although most of the TPACK surveys had a broad sense for different content domains, there are content-specific TPACK studies concentrated on science (Jimoyiannis, 2010; Niess, 2005; Jang & Chen, 2010) and mathematics (Suharwoto & Lee, 2005; Richardson, 2009; Niess, 2005; Hardy, 2010; Holmes, 2009; Ozmantar, Akkoc, Bingolbali, Demir, & Ergene, 2010); however, there are no TPACK studies focusing on language learning (Chai, Koh, & Tsai, 2013a). This study offered a valuable contribution as it aims to develop a content-specific TPACK assessment tool for preservice EFL teachers.

As a final significant point, the current study followed a robust path to develop the TPACK-EFL survey. The researcher used the Instrument Development Model (Cresswell & Plano Clark, 2007) in which not only instructors' experiences but also standards and existing TPACK surveys were analyzed qualitatively to develop the TPACK-EFL survey. Then, the developed TPACK survey was evaluated quantitatively through two rounds of validation. This strengthened the content quality and construct validity of the survey which is different than the previous TPACK surveys. Finally, the TPACK-EFL survey was administered to assess preservice EFL teachers' perceived TPACK levels. The descriptive results were corroborated with qualitative data collected through interviews.

1.5. Definition of Terms

Technology

“Information and Communication Technologies (ICT) such as general purpose software, the Internet and related technologies, educational software, simulations, modeling tools, and more” (Jimoyiannis, 2010, p. 599).

Technology Integration

The use of educational technologies effectively for the process of teaching and learning based on the curriculum (Harris, 2008).

Technological Knowledge

Knowledge and skills to use technological tools and application with their affordances (Chai et al., 2011).

Pedagogical Knowledge

Knowledge and skills related to student learning including teaching methods and strategies, material development, lesson planning, assessment, and educational theories for different target groups (Mishra & Koehler, 2006).

Content Knowledge for EFL

Knowledge and skills related to the subject-matter of EFL including vocabulary for EFL, reading, listening, speaking, and writing skills.

Pedagogical Content Knowledge

Knowledge and skills to be able to teach a particular topic in a subject-matter area including teaching strategies, useful representations, students’ misconceptions, learning difficulties, and level of complexity for different age groups for that topic (Shulman, 1986).

CHAPTER 2

LITERATURE REVIEW

In this chapter, information gathered through relevant literature is presented in three sections. The first section introduces the TPACK framework in a basic level. The second section takes the framework in a more critical manner. It looks to see whether there are confusing points; if so, it discusses which points need rethinking by benefitting from relevant studies. This section includes subsections for TK, TCK, TPK, and TPACK which are technology-related TPACK constructs focused on in this study. Their definitions, examples, and items developed by different TPACK instruments are provided critically in these subsections. Finally, the last section is related to the specific content area, English as a foreign language (EFL).

2.1. Technological Pedagogical Content Knowledge (TPACK) Framework

Knowing technology is not sufficient to integrate technology into a teaching and learning process (Mishra & Koehler, 2006). Even though there are preservice trainings aiming to help teachers succeed in technology integration, most of them make technology separate from pedagogical content knowledge by teaching specific software and hardware. However, neither possessing adequate content knowledge nor having enough technological knowledge enable teachers to apply their technological knowledge in order to provide the content in an efficient way (Doering, Veletsianos, Scharber, & Miller, 2009). Teachers must have the required content, pedagogical, and technological knowledge with an ability to apply the knowledge coming into existence with an interaction among them. Technological Pedagogical Content Knowledge (TPACK) draws a conceptual framework providing what teachers should know and do for successful technology integration; therefore, recent research (Pierson & Borthwick, 2010; Doering et al., 2009; Jimoyiannis, 2010; Ozgun-Koca, Meagher, & Edwards, 2010) uses the TPACK model as a framework to investigate teachers' technology integration as in the present study.

According to Koehler and Mishra (2008), TPACK is “an understanding that emerges from an understanding of an interaction of content, pedagogy, and technology knowledge” (p.17). Figure 2 shows the complex relationship among content, pedagogy, and technology. It seeks to show how technology-related professional development programs should be implemented and assessed in practice by presenting a framework on the types of knowledge (Koehler & Mishra, 2009).

The TPACK framework is a logical step for developing and for assessing technology-related professional development programs by guiding the teachers and teacher trainers. Mishra and Koehler (2006) provided this conceptual framework by blending “pedagogical uses of technology” into Shulman’s “pedagogical content knowledge.” The framework represents the three bodies of knowledge as the following: Content Knowledge (CK), Pedagogical Knowledge (PK), and Technological Knowledge (TK). The three bodies of knowledge cannot be considered as separate according to the TPACK framework. Instead, they have a strong interconnection among each other (See Figure 2).

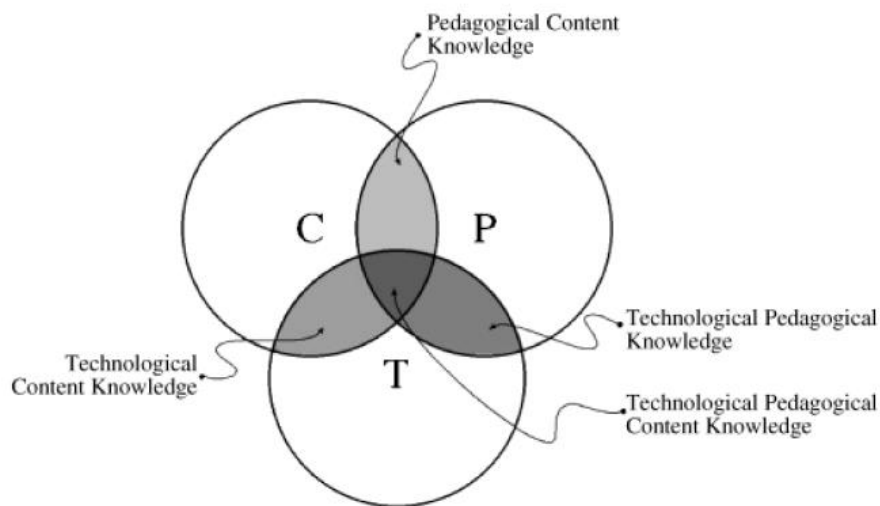


Figure 2.1 TPACK constructs (Mishra & Koehler, 2006)

As Figure 2 shows, four more knowledge bodies at the intersection points of the three main knowledge bodies, CK, PK, and TK, are proposed in the TPACK framework. One of the intersection points is Pedagogical Content Knowledge (PCK) which has been known as Shulman's construct and it forms the basis of the TPACK framework due to the fact that the framework was conceptualized by integrating the technology component to pedagogy and content interaction.

The other three of the intersection points, Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK), and Technological Pedagogical Content Knowledge (TPACK), have been introduced in the TPACK framework. They are the technology-related constructs of the TPACK framework in addition to one of the main knowledge bodies of the TPACK framework, TK. The TPACK constitutes the main intersection area in Figure 2 and it represents the required knowledge that teachers should acquire for successful technology integration.

2.2. Confusions and Gaps about the TPACK Framework and TPACK Surveys

According to Angeli and Valanides (2009), conceptualization of the TPACK framework is confusing due to the fact that the TPACK framework has been developed without epistemological issues. The TPACK framework provides body knowledge for the area but "never really measured or proposed instances of TPCK, despite the fact that in their discussion they drew conclusions about TPCK" (p. 158).

In addition to epistemological bases, Cox (2008) stated that the definitions and boundaries of TPACK are not clear enough. As they are not understood fully, the implementation of TPACK is not possible. Although there are researches studying about the development of TPACK, there is no evidence showing the existence of TPACK because none of the components of the TPACK framework have been explored empirically. It is difficult to implement the TPACK framework in practice due to the fact that the knowledge domains are intertwined (Archambault & Barnett, 2010).

The TPACK components could not be empirically explored by many researchers. Although pioneers of the TPACK framework (Schmidt et al., 2009) developed a TPACK survey by validating seven TPACK constructs through EFA, researchers who wanted to empirically verify the constructs (Koh et al., 2010; Lee & Tsai, 2010; Archambault & Barnett, 2010; Hsu, Liang, Chai, & Tsai, 2013; Liang, Chai, Koh, Yang, & Tsai, 2013; Shinas, Yilmaz-Ozden, Mouza, Karchmer-Klein, & Glutting, 2013; Lux, Bangert, & Whittier, 2011; Jamieson-Proctor et al., 2013) could not provide evidence for the existence of one or more of the TCK, TPK, and TPACK components.

Graham (2011) stated that a theoretical model should form a balance between simplicity and complexity, and the TPACK model could not establish this balance. The simple structure showing the interaction among the three bodies of knowledge, content, pedagogy, and technology covers the complex meaning of its constructs, because their definitions are not clear enough and their descriptions are too broad. For example, TCK, TPK, and TPACK constructs as presented in the framework are too extensive, and this is caused by some intersections among each other (Cox, 2008). Angeli and Valanides (2009) claimed the same issue by stating the deficiency in presenting the description of TCK, how technology can change the nature of content and pedagogy without causing difficulty, to emphasize “the lack of specificity” of the framework (p. 157). They stated that teachers should learn about which specific feature of technologies can transform the specific content for a specific discipline or transform specific pedagogical strategies.

TPACK assessment tools should provide specific knowledge and skills not only for validating TPACK components but also suggesting how teachers can gain knowledge of TPACK domains. They should give clues about the design of technology integration education by providing specific knowledge such as ability to achieve technology-based instructional planning which van Olphen, Hofer, and Harris (2009) provides as a conceptual tool to integrate technology efficiently. All these issues demonstrated that knowledge domains need to be studied more. As the focus of the current study is on the four technology-related TPACK constructs, TK,

TCK, TPK, and TPACK are elaborated separately with their definitions, confusions, gaps, and items from different TPACK surveys.

2.2.1. Technological Knowledge (TK)

Technology Knowledge encompasses the knowledge and skills of both non-electronic devices, such as books and boards, and digital technologies (Mishra & Koehler, 2006; Schmidt et al., 2009; Shin et al., 2009). Knowledge of digital technologies includes being able to operate digital tools, to be able to use certain software, and to be able to solve technical problems related to hardware and software problems according to the TPACK framework as stated by Mishra and Koehler (2006).

Although the researchers considered technology as both traditional and digital technologies (Schmidt et al., 2009), most of TK items in the instrument are related to digital technologies. These items assess teachers' ability "to solve their own technical problems", ability to "learn technology easily", ability to "keep up with important new technologies", ability to "frequently play around with the technology", ability to "know about a lot of technologies", "technical skills they need to use technology", and one experience-based item, "I have had sufficient opportunities to work with different technologies" (p. 145). As can be seen, the term technology is taken as a general term. There are no specific sufficient features of technologies mentioned such as searching for a source, creating audio or video recordings, publishing on a computer, using blogs, social networks, or news web sites, designing web-based sites, and communicating online.

There are other researchers (Archambault & Barnett, 2010; Koh et al., 2010; Lee & Tsai, 2010; Hsu et al., 2013; Liang et al., 2013; Shinas et al., 2013; Lux et al., 2011) that could achieve providing evidence for the existence of the TK construct although they could not empirically explore all of the seven constructs of the TPACK framework. However, specificity of TK items was still problematic for most of these surveys. For example, one TK item of Koh et al. (2010) was "I have the technical skills I need to use technology" which was too general for expecting the same

meaning for all of the participants more or less. TK items of Lux et al.'s (2011) survey were also written in a broad manner without considering technological affordances of technologies, although the researcher took TK from different dimensions such as “decide where technology can be detrimental to achieving an objective,” “decide where technology can be beneficial to achieving an objective,” and “recognize that technology may support and improve everyday life and that it may not.”

Several surveys provided some specified TK items but not with an adequate number. For example, Archambault and Barnett (2010) provided validity evidence only for three TK items that encompassed only troubleshooting. Koh et al.'s (2010) survey included only two specific TK items that were related to an ability to troubleshoot and an ability to learn technologies.

Although many TPACK surveys have problematic TK items, there are a few TPACK surveys whose seven constructs were validated and TK items were acceptable in terms of their quality, number, and validity evidences. For example, Chai et al.'s (2011) survey included six validated TK items that were specified with technological affordances such as using social media, using conferencing tools, creating a web page, troubleshooting, using computers technically, and learning technologies. Sahin (2011) also provided a TPACK survey validated with 15 specific TK items related to troubleshooting, knowing hardware and software, using word processors, spreadsheet programs, etc. These studies showed that specificity of TK items have a crucial importance while developing a TPACK survey.

2.2.2. Technological Content Knowledge (TCK)

Technological Content Knowledge is defined as the knowledge of the interaction between technology and content, and the knowledge of how technology changes the form of content representation by the pioneers (Mishra & Koehler, 2006). The authors explained the domain knowledge with a geometer's sketchpad example by stating that it is “a tool for teaching geometry,” “it changes the nature of learning,” and “proofs by construction are a form of representation.” In this example, it seems

that the technology, geometer's sketchpad, transforms not only the content but also the pedagogy and it is a technology related to teaching the content; therefore, the example is confusing rather than making TCK clearer as Cox (2008) also stated. Additionally, the TPACK instrument developed by the pioneers (Schmidt et al., 2009) of the TPACK framework includes, in fact, only one item, "I know about technologies that I can use for understanding and doing mathematics" for TCK, because only the name of the discipline is changing in other three TCK items.

TCK is also defined as "an understanding of the technologies that may be utilized in a given discipline and how the use of those technologies transforms the content of that discipline through representation or the generation of new content" (Cox, 2008, p. 148). Although this definition is clearer than the previous one, it is still not specific enough. Additionally, even though Angeli and Valanides (2009) did not use the same domains in ICT-TPCK, "a strand of TPCK," with the TPACK framework, there are more specific items such as "identification of suitable topics," and "identification of appropriate representations to transform the content." The items can be considered as a good approach to TCK despite the fact that the items are to assess ICT-TPCK, not TCK, and these are only two items related to TCK.

Many TPACK studies (Koh et al., 2010; Jamieson-Proctor et al., 2013; Archambault & Barnett, 2010; Hsu et al. 2013; Liang et al., 2013; Shinas et al., 2013; Lux et al., 2011) that endeavored to provide evidence for the existence of the seven TPACK components could not explore the TCK construct as a separate factor. Only the TPACK survey development studies that could achieve validating the seven TPACK constructs could find TCK as a separate factor except for Lee and Tsai (2010). Lee and Tsai (2010) provided five validated TCK items written specifically for use of the World Wide Web (WWW).

TCK items of many TPACK surveys (Liang et al., 2013; Koh et al., 2010), even the ones that validated the seven TPACK constructs (Schmidt et al., 2009; Chai et al., 2011; Sahin, 2011; Kaya & Dag, 2013), were not specific enough. One TCK item of Sahin's (2011) survey was "Using area-specific computer applications." That was the

only item independent from pedagogy and it was too generically written. Another example can be given from Chai et al.'s (2011) survey. At first look, their survey seemed to include four TCK items, but two of them were written for the first teaching subject and two of them were for the second teaching subject with the same word phrases. That is, there were only two TCK items for each teaching subject. These two items were also provided in a broad manner as they incorporated knowing and using content-related technologies without mentioning any technological affordances or subject-specific points.

Some of the TPACK surveys did not provide TCK items independent from pedagogy which might be the reason why they could not explore TCK as a separate factor. For example, Archambault and Barnett (2010) placed pedagogical terms (e.g. students, instruction, and curriculum) in TCK items which loaded into the same factor with TPK and TPACK items. This was the same even for Sahin's (2011) survey in which four TCK items were validated. Three of the four TCK items in Sahin's (2011) survey included pedagogical terms such as lesson plan, instructional technologies, and class activities.

Only several TPACK surveys that were developed for specific purposes provided well-written and validated TCK items. Lee and Tsai (2010) provided four validated TCK items that were written specifically for the WWW. Bilici-Canbazoglu, Yamak, Kavak, and Guzey (2013) used specific technological affordances for science education in the survey which they developed for preservice science teachers and validated the seven TPACK constructs.

2.2.3. Technological Pedagogical Knowledge (TPK)

Technological Pedagogical Knowledge is knowledge of existing technologies for educational activities, knowledge of how teaching is transformed by the technologies, ability to choose appropriate tools for certain pedagogical strategies, knowledge of strategies to use technologies' features, ability to use certain existing technologies for educational purposes, and ability to apply strategies to use technological tools (Mishra & Koehler, 2006). The definition of TPK may be the

most specified part of the framework. It includes knowledge of technologies that exist for educational knowledge such as grading and attendance; it is different than the definition of Cox (2008) in which TPK is “an understanding of the technologies that may be used in a given pedagogical context, including the affordances and constraints of those technologies, and how those technologies influence or are influenced by the teacher’s pedagogical strategies” (p. 148). Jimoyiannis (2010) defined TPK as “the knowledge of how technology can support specific pedagogical strategies in the classroom” and identified specific components for the discipline of science such as “ICT-based learning strategies, fostering scientific inquiry with ICT, supporting information skills, student scaffolding, and handling students’ technical difficulties.”

Although the definition is more specified than other domains, it could not be reflected by the survey items of the TPACK survey developed by the pioneers on the same level. The ability to choose appropriate technologies for pedagogical strategies and for students’ learning and the ability to adapt technologies for different settings are the points appropriately reflected into Schmidt et al.’s (2009) survey. On the other hand, one item is for evaluating the teacher education program and the other item that tries to assess teachers’ critical thinking about technology usage is a poorly written item as it was too general. There is no item related to, for example, the ability to use certain existing technologies for educational purposes or knowledge of existing technologies for certain tasks in the definition.

TPK was another construct that many researchers had difficulties in conceptualizing its boundaries and validating items during survey development. For example, TCK, TPK, and TPACK items merged in Koh et al.’s (2010) survey. TCK and TPK items loaded into a single factor in Jamieson-Proctor et al.’s (2013) survey and Liang et al.’s (2013) survey. TPK did not emerge in Lee and Tsai’s (2010) study. In Shinas et al.’s (2013) study, TPK and TPACK items were perceived as the same factor. On the other hand, TPK items were validated in Lux et al. (2011) and Hsu et al.’s (2013) surveys although the researchers were not able to validate all of the seven TPACK components in addition to the TPACK surveys in which seven TPACK components

were explored successfully (Schmidt et al., 2009; Chai et al., 2011; Sahin, 2011; Kaya & Dag, 2013; Bilici-Canbazoglu et al., 2013; Akman & Guven, 2015; Chai, Chin, Koh, & Tan, 2013b).

TPK items of existing TPACK surveys were more qualified than TCK items. They included use of technology for specific educational purposes such as monitoring students' learning (Chai et al., 2011), supporting students' learning (Sahin, 2011), enriching teaching practice (Bilici-Canbazoglu et al., 2013), facilitating students' learning (Hsu et al., 2013), helping students to achieve goals (Lux et al., 2011), preparing lesson plans (Akman & Guven, 2015), and promoting students' collaboration (Chai et al., 2013b). However, in a few of the studies (e.g. Bilici-Canbazoglu et al., 2013), TPK items were adequate in terms of variety and quality of TPK items. For example, Chai et al. (2011; 2013b) focused only on facilitating students' use of technology in all of the TPK items. A variety of four TPK items in Sahin's (2011) survey is also not sufficient to assess teachers' TPK.

2.2.4. Technological Pedagogical Content Knowledge (TPACK)

Technological Pedagogical Content Knowledge is described as “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 and to develop new epistemologies or strengthen old ones” by Mishra and Koehler (2006, p. 1029).

Cox (2008) defined TPACK as “a way of thinking about the complex relationships between technology, pedagogy, and content in a specific context which is represented through the carefully considered implementation of technology in a classroom setting in order to help students better understand a particular topic” (p. 148) which refers to the use of all kinds of knowledge effectively (Koehler & Mishra, 2008). Knowledge of content, pedagogy, technology, and the dynamic

relationship among these make teachers experts in teaching and learning so that they will be successful in teaching content (Harris, 2008).

Due to the fact that TPACK, as a knowledge domain, is the basis of the TPACK framework and represents interactions among all three bodies of knowledge, content, pedagogy, and technology, it is the most complex domain in the framework; therefore, its definition and assessment should be multifaceted. Although Mishra and Koehler (2006) approached the TPACK domain from content, pedagogy, and technology perspectives while defining it, they did not reflect this approach to the instrument they developed. TPACK items of the survey (Schmidt et al., 2009) are demonstrated in Table 2.1 with their critiques for each item. Generally, the items were written in too generic a form to convey the same meaning for preservice teachers.

Table 2. 1 TPACK items of the TPACK survey developed by Schmidt et al. (2009) with their critiques

<i>Items</i>	<i>Critiques</i>
I can teach lessons that appropriately combine mathematics, technologies, and teaching approaches.	Too general item... What are the specific knowledge and skills for combining?
I can teach lessons that appropriately combine literacy, technologies, and teaching approaches.	
I can teach lessons that appropriately combine science, technologies, and teaching approaches.	
I can teach lessons that appropriately combine social studies, technologies, and teaching approaches.	
I can select technologies to use in my classroom that enhance what I teach, how I teach, and what students learn.	Well-written item
I can choose technologies that enhance the content for a lesson.	Identical to the previous one
I can use strategies that combine content, technologies, and teaching approaches that I learned about in my coursework in my classroom.	Can be written in a more specified manner and without connecting to the coursework
I can provide leadership in helping others to coordinate the use of content, technologies, and teaching approaches at my school and/or district.	Should peer-support mission be placed in self-assessment TPACK survey?

Angeli and Valanides (2009) developed a new form of TPACK, ICT-TPCK, and assessed ICT-TPCK with five items to measure ICT-TPACK of the teachers as can be seen in Table 2.2. Table 2.2 shows the items with notes. Although the items are not specific enough, the authors approached assessing TPACK from a different point of view. They searched knowledge types of ICT-TPACK by approaching different

perspectives as in Mishra and Koehler's (2006) TPACK definition. That is, they identified ICT-TPACK as the knowledge from content, pedagogy, and technology perspectives as Cox (2008) stated.

Table 2. 2 ICT-TPACK items developed by Angeli and Valanides (2009)

<i>Items</i>	<i>Notes</i>
Identification of suitable topics to be taught with technology	TPACK from the content perspective
Identification of appropriate representations to transform the content	Related directly to TCK
Identification of teaching strategies difficult to be implemented by traditional means	TPACK from the pedagogy perspective
Selection of appropriate tools and appropriate pedagogical uses of their affordances	TPACK from the technology perspective
Identification of appropriate integration strategies	General

In an online teacher TPACK survey, items developed by Archambault and Barnett (2010), three factors were founded in which knowledge domains were mixed. The founded three factors are pedagogical content knowledge, technological-curricular knowledge, and technological knowledge. All of the four items related to the TPACK domain were founded under the technological-curricular knowledge factor. Although the authors considered these as TPACK items, they were actually not. The TPACK items can be seen in Table 2.3 with domains they should have been. Italic words in the items were the keywords for why they actually belong to a different domain indicated in the right column. As shown in Table 2.3, boundaries among

TPK and TPACK items were confusing, and that might be the reason for why they could not explore TCK, TPK, and TPACK as separate factors.

Table 2. 3 TPACK related items of an online teacher TPACK survey developed by Archambault and Barnett (2010)

<i>TPACK items</i>	<i>Domain in which they should have been</i>
My ability to meet overall demands of <i>online teaching</i>	TPK (no content knowledge)
My ability to use <i>technology</i> to create effective <i>representations of content</i> that depart from textbook knowledge	TPACK
My ability to use <i>online student assessment</i> to modify instruction	TPK (no content knowledge)
My ability to use <i>technology</i> to predict <i>students' skills/understanding of a particular topic</i>	TPACK

There are several researchers that could achieve validating existence of the TPACK construct; however, TPACK items of these surveys were still problematic as some of the TPACK items were written in too generic a manner (Chai et al., 2010; Chai et al., 2011; Sahin, 2011), or some of the TPACK items belong to a different construct other than TPACK (Sahin, 2011; Lee & Tsai, 2010). On the other hand, there are well-written TPACK items in the latest studies (e.g. Bilici-Canbazoglu et al., 2013) in which TPACK items were developed and validated for a specific subject matter area. Table 2.4 shows TPACK items of the TPACK-SeS survey developed by Bilici-Canbazoglu et al. (2013). However, there is still a need for more specific TPACK items in which technological affordances are also included in items.

Table 2. 4 TPACK items of TPACK-SeS survey developed by Bilici-Canbazoglu et al. (2013)

Items

I can use technological tools to determine students' misconceptions about science.

I can use technological tools to assess student learning of science.

I can apply my technological knowledge, content knowledge, and pedagogical knowledge all together to create an effective learning environment.

I can develop quality lesson plans using my technological knowledge, content knowledge, and pedagogical knowledge together.

I can use technological tools to assess students' prior knowledge about science topics.

I can use technological tools to address students' misconceptions about science topics.

2.3. Content-Specific Issues in English as Foreign Language

Content-specific approaches to the TPACK framework make the model clearer as it helps to understand the boundaries between content-related components and other components (Cox & Graham, 2009). Researchers (Akman & Guven, 2015; Bilici-Canbazoglu et al., 2013; Chai et al., 2013b) who have been able to validate all of the TPACK constructs by focusing on a specific subject-matter confirmed this claim.

In addition to features of technologies and how they transform the content and pedagogy, a content domain should also be specified (Angeli & Valanides, 2009). That is, teachers should learn which features of technologies have the capacity to change the representation of certain objectives or topics of certain content areas. Without mentioning a specific content, teachers' learning of technology integration that can be reflected into practice cannot be achieved, because teachers design their lessons building on "content-based learning activities" (Young, Hofer, & Harris, 2010, p. 28).

English language learning arts have four main skills including reading, writing, speaking, and listening. A TPACK application and a TPACK survey should encompass these specific skills so that preservice EFL teachers know how they can transform specific subject matters by integrating specific technologies (Young et al., 2010). That is, they should learn how they can use certain features of technologies for specific language skills and then they should be assessed through a specified TPACK survey.

van Olphen et al. (2009) suggested technology-integrated learning activity types for developing language skills such as listening to a story through a CD, web, or YouTube as a listening activity type, creating an audio/video recording as a speaking activity type, creating a comic through software as a writing activity type, and reading a diary or journal through the web, blog, or wikis as a reading activity type. According to the authors, technology transformed the foreign language content, and a new conceptual area emerged as viewing and watching a performance through the web, DVD, YouTube, and streaming video was given as an example activity type for viewing activity types.

Pope and Golub (2000) stated that technology changes the way of considering a text. That is, because of hypertext and its multimodal representations, text and reading and writing components of foreign language gain a different meaning. Although Cox (2008) presented this as an example of generation of content, it is related to form of representation, because teachers are changing the manner of teaching writing and reading due to transformation of content and even pedagogy by technology.

Golonka, Bowles, Frank, Richardson, and Freynik (2012) provided empirical evidence for different technologies including e-Portfolio, electronic dictionary, virtual world, social networking, etc. They reviewed studies that researched technologies for EFL learning and found whether they provided strong, moderate, or weak evidence for effectiveness of those technologies in EFL development.

There are other technological affordances that might be valuable for EFL teaching and learning. For example, students use language in a meaningful manner while

interacting with others through community building technologies such as blogs, forums, and wikis (Jonassen, Howland, Marra, & Crismond, 2008). Audio and video materials provide students a chance to expose native language in real contexts (Bernhardt, 2010). Golonka et al. (2012) provided strong empirical evidence in that computer-based communication tools promote students' interaction with native speakers; as a result, they can develop their language skills. The TPACK-EFL survey provides technological and pedagogical attributes that are specific for EFL teaching so that it can be used for preservice EFL teachers' technology-related education efficiently (Baser et al., 2015).

2.4. Summary

The TPACK framework (Mishra & Koehler, 2006) "offers teacher educators a way of conceptualizing and assessing preservice teachers' knowledge and abilities to integrate technology into their own teaching" (Baser et al., 2015, p. 1). Assessing teachers' TPACK through surveys is very popular among researchers (Koehler, Shin, & Mishra, 2012) because TPACK surveys can practically be applied across a wider audience (Graham, 2011).

Several researchers developed TPACK surveys and provided empirical evidence for validity and reliability issues (Koehler et al., 2012). However, many of them could not separately explore each TPACK construct (Archambault & Barnett, 2010). Therefore, concerns about existence of the TPACK constructs in practice have arisen, which might be because of ambiguity among boundaries of the TPACK constructs (Archambault & Barnett, 2010; Cox, 2008; Angeli & Valanides, 2009; Graham, 2011; Cox & Graham, 2009).

Boundaries among the TPACK constructs can be clarified by specifying the constructs' definitions and survey items. However, most of the TPACK surveys (Schmidt et al., 2009; Koh et al., 2010; Chai et al., 2010; Archambault & Barnett, 2010; Sahin, 2011; Yurdakul et al., 2012) which provided validity and reliability evidence included somewhat general items. Generalized items might cause bias and misinterpretation of items (Desimone, 2009). Moreover, they neglect technological

and pedagogical features that are particular to a subject matter area (Graham et al., 2009). “Items that are written to apply to multiple content areas fail to address content-specific pedagogical and technological practices associated within a given subject-matter” (Baser et al., 2015). Therefore, researchers (Bilici-Canbazoglu et al., 2013; Akman & Guven, 2015; Chai et al., 2013b) recently developed and validated TPACK surveys for specific subject matter areas. This study aims to develop and evaluate a TPACK survey for a subject matter of EFL as there is a need for a validated TPACK survey to assess preservice EFL teachers TPACK specifically.

CHAPTER 3

METHODOLOGY

This chapter provides detailed information about the research design and implementation. The researcher first provides overall research design and elaborates the design by explaining phases of the study in the research procedure. Next, after giving details about participants of the study, she presents data collection and analysis techniques for each phase. Eventually, she describes validity and reliability methodologies of the study.

3.1. Overall Research Design

The present study is a design and development research in which mixed methods were employed to solve the research problem described below. Richey and Klein (2007) categorize design and development research into two major types: product and tool research, and model research. This study is a product and tool research as it aims to discuss the design, development, and evaluation of a specific tool with providing lessons learned during the development and validation process of this tool (Richey & Klein, 2007).

The research problem for this product and tool research was what the valid TPACK constructs were for Preservice EFL teachers, and what the specific knowledge types were for the validated TPACK constructs. In an effort to solve this problem, this research focuses on the development and validation of the TPACK-EFL survey which assesses preservice teachers' self-perceived knowledge required for technology integration into EFL teaching. As Richey and Klein (2007) claimed, the researchers preferred not to focus on all phases of instructional systems design because the need for the TPACK-EFL survey was literature-based. Rather than analyzing needs for practice, literature was reviewed and the researchers found that a validated TPACK survey was needed for the subject matter of EFL. Therefore, this research scrutinized design, development and evaluation of the TPACK-EFL survey.

Through the design, development, and evaluation process of the TPACK-EFL survey, the research provided validation of the TPACK constructs, and identification of specific knowledge types for the validated TPACK constructs in addition to lessons learned through the development process of the TPACK-EFL survey for other researchers developing TPACK assessment tools. Details about design and development of the survey are presented in the Methodology section while evaluation results were provided in the Results section.

This tool development research used a mixed methods approach as is it is both practical and plausible (Richey & Klein, 2007) to explore specific knowledge types for the TPACK constructs, and to validate the TPACK-EFL survey. Its design was both exploratory and descriptive according to Richey and Klein (2007) because mixed methods were applied to *explore* specific knowledge types and validate those knowledge types, and then, to *describe* preservice EFL teachers' TPACK levels both quantitatively and qualitatively—this is known as triangulation according to Creswell and Plano Clark (2007).

The TPACK-EFL survey assessing preservice EFL teachers' TPACK in a more specific manner was developed and validated through an exploratory mixed methods design with an instrument development model (Creswell & Plano Clark, 2007) in which qualitative data were gathered to develop an assessment tool before its validation through quantitative data. First, specific knowledge types for successful technology integration into EFL were qualitatively investigated through expert interviews to develop the TPACK-EFL survey which is grounded in the TPACK framework. The developed TPACK-EFL survey was, then, tested quantitatively to validate TPACK constructs.

After evaluating the TPACK-EFL survey by validating its TPACK constructs through EFA, the revised TPACK-EFL survey was evaluated (Richey & Klein, 2007) by triangulating descriptive survey results with qualitative data. Triangulation design was applied to provide evidence for convergent validity of the TPACK-EFL survey. The survey was used to describe 88 preservice EFL teachers' perceived

TPACK levels. Then, 12 of these preservice EFL teachers were interviewed to corroborate the quantitative results with qualitative results (Creswell & Plano Clark, 2007). A valid survey would demonstrate consistent responses between the two methods (interview and survey) whereas inconsistent responses may indicate problems with convergent validity of the survey. Based on these results, the researchers evaluated the final TPACK-EFL survey.

Figure 3.1 shows the overall research design model of the study. The first qualitative data were collected from the instructors through interviews to explore experts' views about required knowledge and skills for successful technology integration. The analysis of the interviews was used as an input for instrument development. The developed survey was, first, validated through two rounds of EFA. Next, it was applied to describe preservice EFL teachers' self-perceived TPACK levels. These quantitative survey results were, then, supported by qualitative data collected from preservice EFL teachers through individual interviews. Results of the study were interpreted based on data shown as capitalized in Figure 3.1 as represented by Creswell and Plano Clark (2007). The research procedure, including the qualitative and quantitative phases of this merged mixed methods study with an exploratory and triangulation design, is presented in the next section.

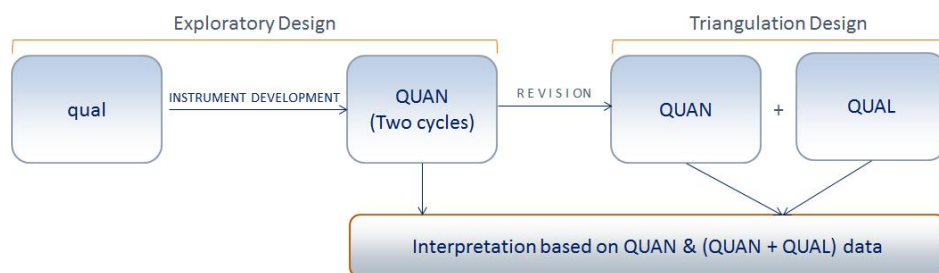


Figure 3.1 An exploratory design followed by a triangulation design

3.2. Research Procedures

This tool development research applied an exploratory mixed methods design followed by a triangulation mixed methods design. The designs were administered under two phases: Development, and Validation. The TPACK-EFL survey was designed and developed in the development phase, and its details can be found in the next section. The developed TPACK-EFL survey was evaluated in the validation phase, and its results will be presented in the Results section. Figure 3.2 illustrates the research procedure of development of the TPACK-EFL survey.

3.2.1. Development

The development and validation phases were based on an exploratory mixed methods design with an instrument development model (Creswell & Plano Clark, 2007) in which qualitative data were used to develop the TPACK-EFL survey before testing it quantitatively. In the development phase, qualitative data were collected through interviews, relevant literature including national and international standards, and existing TPACK surveys. Survey items were generated based on the analysis of these qualitative data. Generated items were first examined and improved with the help of experts, and then they were scrutinized by using data collected through a cognitive interview. Details about these stages can be found in the next sections.

The initial stage of the development phase consisted of the first qualitative part of this study. Experts were interviewed to collect data about knowledge and skills required for preservice EFL teachers to successfully integrate technology. Analysis of the interviews were used as an input to generate items of the TPACK-EFL survey as described in Creswell and Plano Clark's (2007) instrument development model.

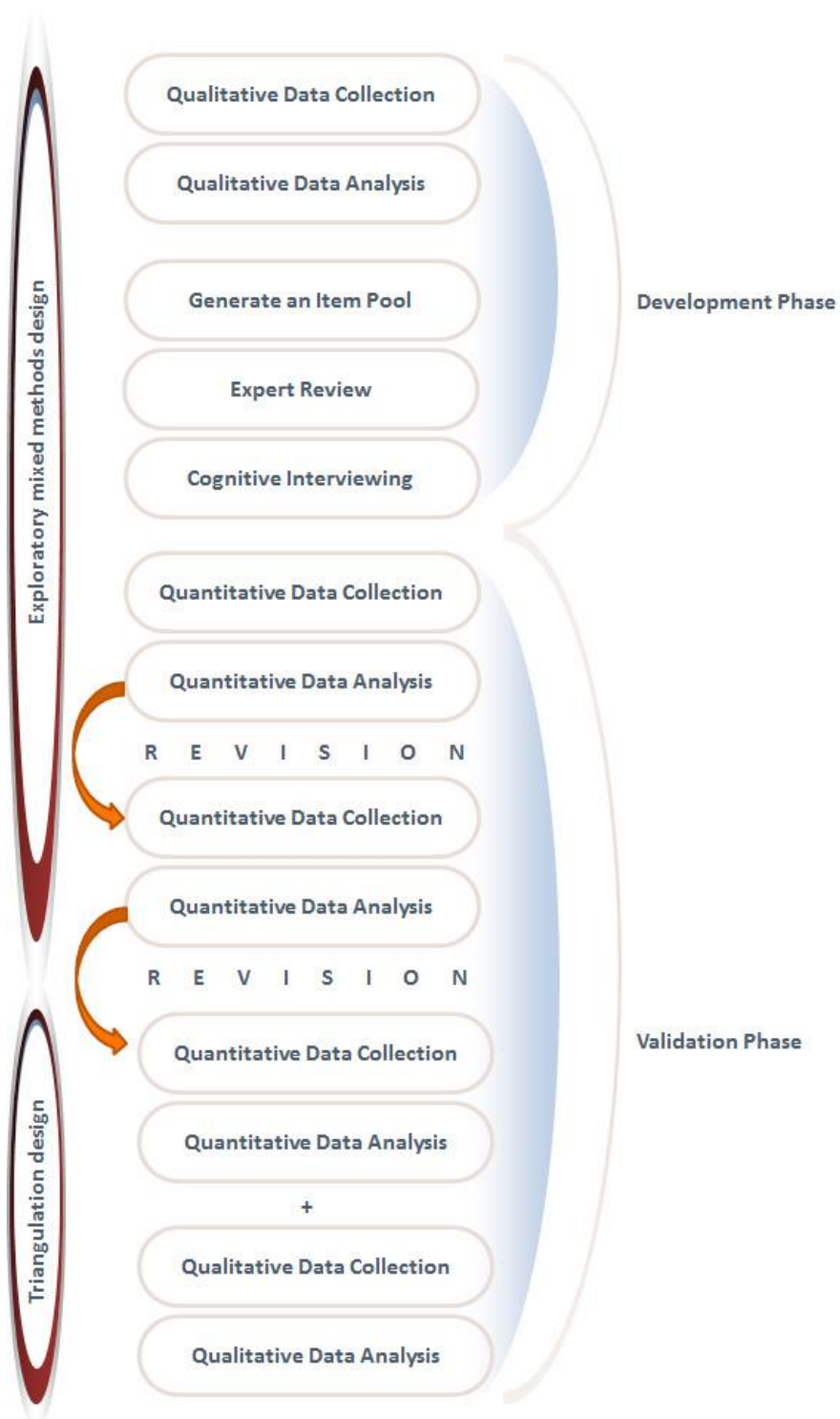


Figure 3.2 The procedure for the exploratory design followed by the triangulation design (adapted from Baser et al., 2015)

National and international standards that are related to technology, pedagogy, and EFL were also analyzed for item generation. Details about the standards can be found in the Data Collection section. Additionally, existing TPACK surveys (e.g. Schmidt et al., 2009; Sahin, 2011; Koh et al., 2010; Jamieson-Proctor et al., 2010; Chai et al., 2010; Lee & Tsai, 2010) were examined to improve development process, content, item specificity, structure, and validity and reliability level of the TPACK-EFL survey.

Based on the analysis of these qualitative data, an initial item pool was developed for each construct in the TPACK framework (Mishra & Koehler, 2006). The item pool was revised to eliminate redundant items, and to ameliorate the language of the items. After the item pool was finalized, an expert review was employed to enhance the instrument's content validity. An expert group including instructors who were experienced with a technology-related teacher education program for the department of Foreign Language Education (FLE) evaluated the survey items. They suggested some revisions to adapt items for the target group and the subject matter of EFL, to make the items more appropriate for the dimensions of the instrument, and to add other variables that might be related to the constructs. Survey items were revised based on their suggestions.

As the final step of the development phase, a cognitive interview was conducted with a preservice EFL teacher to see what preservice EFL teachers understand from the items and to make required revisions in the structure and the language of the survey. At the end of this stage, the instrument was ready to be examined for construct validity and reliability with 50 items including 13 TK items, 7 CK items, 6 PK items, 6 PCK items, 6 TCK items, 6 TPK items, and 6 TPACK items.

3.2.2. Validation Phase

The TPACK-EFL survey was administered in three rounds of validation to provide evidences for construct validity of the survey. First, the TPACK-EFL survey was administered to 174 preservice EFL teachers. The results showed that the preservice EFL teachers did not perceive all of the seven components described in the TPACK

framework in the first round of validation, whose outcomes are elaborated in the Results section. Therefore, two preservice EFL teachers were interviewed to be able to explore why preservice EFL teachers did not perceive the three adjacent constructs (TCK, TPK, and TPACK) separately. Based on this exploration, the TPACK-EFL survey was revised for the second round of validation.

The revised TPACK-EFL survey, that included 50 items, was replicated for a different sample group in the second round of validation. 204 preservice EFL teachers completed the TPACK-EFL survey. The TPACK-EFL survey including seven factors was validated in this round of validation whose results can be found in the Results section.

The third round of validation included both quantitative and qualitative data. The TPACK-EFL survey whose content and construct validity was maintained was used to assess preservice EFL teachers' perceived TPACK levels. The survey was administered to a different sample group including 88 preservice EFL teachers. Descriptive results of these data were triangulated through interviews conducted with 12 of the 88 preservice EFL teachers. Data collected through interviews were analyzed with the purpose of determining the teachers' levels for technology-related TPACK constructs, namely TK, TCK, TPK, and TPACK. The researcher looked for an alignment or a misalignment between the teachers' TPACK-EFL scores and interview results.

3.3. Participants and Sampling

The sampling was considered for two phases of the study: development and validation. Methods for sampling and number of participants for each phase can be found under relevant sections.

3.3.1. Development

For the development phase, two groups of experts were included in the study. The first expert group was interviewed to apply their knowledge of technology integration into EFL. Experts were drawn through purposeful sampling to reach

instructors who had experience with technology-integration-related courses offered for the department of FLE. Therefore, they were reached from the departments of Computer Education and Instructional Technology (CEIT) and FLE at a university in Turkey. Six instructors who offered technology integration courses (Instructional Technologies and Material Development and Computer Assisted Language Learning) for the department of FLE participated in the interviews. Five of the instructors were from the departments of CEIT, and one of them was from the department of FLE.

For content validity issues, the TPACK-EFL survey was examined by another expert group. This group of experts included seven instructors holding expertise in at least one of the following areas: instructional technology, pedagogy, foreign language, and measurement and evaluation. The experts were purposefully selected due to their expertise areas related to the TPACK core knowledge domains (technology, pedagogy, and EFL) and survey development.

Finally, one preservice EFL teacher was selected randomly from the university the researcher studied for a cognitive interview. He was chosen among preservice EFL teachers who completed the technology integration course.

3.3.2. Validation

In the first round of the validation phase, 174 preservice EFL teachers participated in the study. Then, 204 preservice EFL teachers were included in the second round of the validation phase. Sample sizes for both rounds were adequate for EFA according to MacCallum, Widaman, Zhang, and Hong (1999) who suggested the minimum ratio as 100 for factor analysis. Furthermore, the number of the participants was very close to five times the number of variables (Hair, Black, Babin, & Anderson, 2010) for the first round of validation in which the final number of items was 40. For the second round of validation, the sample size ($N=204$) was more than five times the number of variables (39).

For the quantitative part of the third round of validation, 88 preservice EFL teachers participated in the study. The preservice teachers who participated in the validation phase were purposefully sampled. Preservice EFL teachers who were in third and fourth years of EFL education were selected as they had already completed the course “Instructional Technology and Material Development”, which was related to technology integration into EFL. The researcher assumed that preservice teachers who participated in this phase had basic computer skills, and they had ideas about technology integration into the instruction of their subject through the technology integration course that they had taken.

For the qualitative part of the third round of validation, interviewees were selected among the sample group of 88 preservice EFL teachers. Due to the fact that the number of students in the target group ($N=88$) was high for an in-depth analysis, internal sampling was applied to study this large number of participants qualitatively (Bogdan & Biglen, 2007). Therefore, 12 of the 88 preservice EFL teachers were selected by using maximum variation and snowball sampling as explained below.

Maximum variation sampling was used with an aim for increasing the variation while studying the small number of participants (Yildirim & Simsek, 2005). It provided researchers a chance to represent a population better with a higher variation in the sample. In order to maintain maximum variation, two students from each of the four technology integration classes were selected so that a higher level of credibility could be maintained. Moreover, information-rich cases were reached to understand the phenomenon more clearly and in detail through snowball sampling (Patton, 1990). Snowball sampling was applied by selecting preservice EFL teachers who had a potential to give rich data. To achieve this, the interviewees were asked with whom the researcher should have conducted the interview to get rich data at the end of the interviews. The researcher continued to perform interviews till interviewees suggested the same names for interviews and the researcher thought saturation was maintained. As a result, 12 preservice EFL teachers were interviewed for the last round of validation.

3.4. Data Collection and Instruments

Details about data collection procedure and instruments that were used to collect data can be found for each phase below.

3.4.1. Development

The development phase included interviews and documents such as national and international standards and existing TPACK surveys. The interviews were conducted with six instructors who were experienced with technology integration into EFL teaching. The aim of the interviews was to explore specific knowledge and skills required for preservice EFL teachers to integrate technology successfully. Semi-structured interviews were executed individually at instructors' offices. They were guided by the interview schedule (see Appendix A) developed by the researcher. The questions were organized to reach instructors' thoughts about required knowledge and skills for successful technology integration embarking from their experiences in the Instructional Technology and Material Development course given for the department of FLE. The researcher conducted the interviews and recorded them to examine after the interviews. The average interview duration was 59.33 minutes.

Professional standards which were related to teaching, technology education, and EFL education were also searched for the development phase. Both national standards and international standards were incorporated in this phase. Which standards were used to generate which construct's items is demonstrated in Table 3.1. As national standards, Teacher Qualifications and English Teacher Qualifications of the Turkish Ministry of Education (2008) were analyzed to generate PK, PCK, and TPK items. Additionally, international standards were examined to benefit from their content and language. The following international standards were applied while generating survey items (see Table 3.1).

- *Technology competencies* (Krueger, Hansen, & Smaldino, 2000) within the project of INTIME (Integrating New Technologies Into the Methods of Education)

- *Technology Standards Framework of Teachers of English to Speakers of Other Languages* (TESOL, 2008)
- *World-Readiness Standards for Learning Languages* (the National Standards Collaborative Board, 2015)
- *The National Educational Technology Standards* (NETS) and performance indicators for teachers built by the International Society for Technology in Education (ISTE, 2008)
- *Five Core Propositions* established by National Board for Professional Teaching Standards (1989)
- *Professional Standards for Teachers* developed by the Training and Development Agency for Schools (TDA, 2007)
- *Iowa Teaching Standards* (Iowa Department of Education, 2013)
- *Wisconsin Educator Standards for Teachers* (the Wisconsin Department of Public Instruction, 2015)

In an effort to generate items of the TPACK-EFL survey, existing TPACK surveys were also examined. The ERIC database was searched to reach existing TPACK surveys. The researcher scrutinized TPACK surveys of Schmidt et al. (2009), Sahin (2011), Koh et al. (2010), Jamieson-Proctor et al. (2010), Chai et al. (2010), and Lee and Tsai (2010).

After the item pool was developed, an expert review was employed to provide evidences for content validity of the TPACK-EFL survey. Data were collected from the experts through a content validity testing sheet in Appendix G. The experts reviewed the items in accordance with their expertise. For example, the instructors from the department of Educational Sciences reviewed items of PK, TPK, and TPACK, or the instructor from the department of EFL education reviewed the items of CK, PCK, TCK, TPACK constructs.

Table 3. 1 National and international standards used to generate the TPACK-EFL survey (Baser et al., 2015)

Sources	TK	CK	PK	PCK	TCK	TPK	TPACK
Technology competencies of INTIME	X						
World-Readiness Standards for Learning Languages		X					X
The ISTE NETS and Performance Indicators for Teachers			X			X	X
Turkish Ministry of Education Teacher Qualifications			X				
National Board for Professional Teaching Standards			X	X			
The Framework of Professional Standards for Teachers – the Training and Development Agency			X	X			
Iowa Teaching Standards			X				
Wisconsin Educator Standards – Teachers			X				
Turkish Ministry of Education English Teacher Qualifications				X		X	
TESOL Technology Standards Framework	X				X	X	X

The experts were asked to check whether the items were clear enough and appropriate for the target audience. They added comments for each item when they thought items should have been revised. In addition to items' usefulness for the

target audience, the experts checked the items' appropriateness for each TPACK construct. For this step of review, the researcher presented definitions of the TPACK constructs to the experts in addition to the validity sheets. The experts added comments for the items that they perceived as inappropriate for the relevant construct. Finally, the experts noted their thoughts about variables that are relevant to the constructs. They checked certain variables such as sex, year, and institution as appropriate or inappropriate. Additionally, they noted variables that they thought they are relevant. Finally, they provided any suggestion related to the survey.

As the final stage of the development phase, a cognitive interview was conducted with a preservice EFL teacher. A preservice EFL teacher was applied to explore potential problems in terms of language and structure of the TPACK-EFL survey in practice before implementing the survey with a large group of preservice EFL teachers. The cognitive interview was conducted in the same conditions with the main data collection except that he was asked to read and think aloud. The researcher recorded the process and took notes during the administration of the survey. Additionally, she employed the probes in Appendix H to be sure the interviewee understood the items in the same way they were supposed to be conveyed.

3.4.2. Validation Phase

After the TPACK-EFL survey was developed, it was, first, applied to 179 preservice EFL teachers who were the third and fourth year students in the department of EFL education. The survey was administered by the researcher in a classroom environment throughout the span of a few weeks. One hundred seventy-four completed surveys were analyzed in this round as five of the cases had missing data.

Based on the results of the first round of validation, the TPACK-EFL survey was revised to improve the clarity of the items and differentiate the items of the three adjacent constructs, TCK, TPK, and TPACK. The revised TPACK-EFL survey was applied to 204 preservice EFL teachers in a classroom environment for the second round of validation. The researcher administered the survey to a different group of

third and fourth year students in the department of FLE throughout the span of a few weeks.

For the third round of validation, both quantitative and qualitative data were incorporated. First, quantitative data were collected through the revised TPACK-EFL survey. Eighty-eight preservice EFL teachers completed the survey to assess their TPACK levels to integrate technology into EFL teaching. The survey was administered by the researcher in a classroom environment. She collected data in four class hours.

Qualitative data collected through interviews were used for qualitative part of the third round. The interviews were conducted with 12 of the 88 preservice EFL teachers. As they were semi-structured interviews, the researcher used the interview schedule (see Appendix B) to guide the interviews. The interview schedule was created by the researcher who prepared questions to gather information about preservice teachers' experiences. Open-ended questions were included so that the researcher could get an in-depth examination of preservice teachers' experiences (Lodico, Spaulding, & Voegtle, 2010).

The researcher did not aim to directly ask about preservice teachers' knowledge for the constructs to judge their TPACK levels. Rather, she aimed to reach their TPACK levels by getting information about their experiences for each technology related TPACK construct. Then, she created narratives in which preservice teachers would be expected to describe how they perceive their levels for technology related TPACK constructs.

The 12 preservice teachers were interviewed individually and the interviews were performed face-to-face in an office room. The researcher recorded the interviews each of which lasted 40.92 minutes on average.

3.5. Data Analysis

The study including development and validation phases incorporated both multiple quantitative and qualitative data sets. The researcher used various methods to analyze

these data sets. Details about analysis methods are presented under each relevant section below.

3.5.1. Development

The qualitative data gathered through interviews conducted with the instructors were analyzed through content analysis techniques. The audio recordings were examined to generate initial item pools. The instructors' sentences were written in the form of items. After the items were written by listening to the audio records of the interviews, they were revised to convey meanings in a better way. Then, redundant items were deleted, and the remaining ones were chosen and revised based on the relevant literature, including existing TPACK surveys and national and international standards.

After generating items based the interview analysis, national and international standards were examined through content analysis. The aim of this analysis was to incorporate all core themes that were included in the standards. In an attempt to achieve this, core standards were written in the form of items and added to the item pool if they were not included in the items based on the interview results. Redundant items were deleted. Some items based on the interview results were revised to represent the required skills in a better way with the help of the language of the standards.

As there were some problematic issues related to generally-written items, ambiguous boundaries (Cox, 2008; Archambault & Barnett, 2010), and validity and reliability of existing TPACK surveys, the researcher analyzed existing TPACK surveys so as to avoid experiencing similar problems for the TPACK-EFL survey. Therefore, development process, content, item specificity, survey structure, and validity and reliability evidence of existing TPACK surveys (Schmidt et al., 2009; Sahin, 2011; Koh et al., 2010; Jamieson-Proctor et al., 2010; Chai et al., 2010; Lee & Tsai, 2010) were examined by the researcher. Items of the TPACK-EFL survey were revised based on this examination during the development phase. The researcher aimed to write items in a more specific, clear, and subject to the area of EFL.

After developing an item pool, experts were asked to check content validity of the survey. The researcher examined completed content validity sheets one by one. When an expert checked one item as inappropriate for the target audience or any construct, the researcher read the comments of the expert for that item and investigated the ways to solve the problem. For some comments, minor revisions were sufficient to fix the problem. However, for some comments, the researcher revised the items and reapplied the expert's review until the conflict was resolved. This process was repeated for each expert review.

Based on the experts' reviews, the researcher made revisions to provide examples for technological terms, to clarify the items, and to avoid pedagogical terms for the TPACK domains not related to pedagogy. For example, most of the experts found it difficult to understand the term "system control" in the second TK item for preservice EFL teachers; therefore, the item was rewritten to convey the correct meaning by using simpler and more understandable terms. The most frequent suggestion provided by experts was about providing examples in brackets for technologies mentioned in the items to in order to be clearer. Moreover, many items were revised to get rid of incorporating more than one issue based on the experts' suggestions. As a final revision, the rating scale was changed from an agreement scale to a self-efficacy scale with the help of suggestions given by the expert of measurement and evaluation.

The researcher also analyzed the cognitive interview with an aim to explore potential problems. Both the interview record and notes of the researcher were examined. With the help of the probes the researcher used during the interview, problems related to the items were found. These problems and revisions used to fix the problems can be seen in Appendix H.

Except for minor comprehension problems and difficulty in understanding the introduction part of the survey, the interviewee did not face any problems. The researcher made required revisions for those problems as they can be seen in

Appendix H. As the revisions were minor, she did not need to conduct more cognitive interviews.

3.5.2. Validation Phase

In the first round of validation, the TPACK-EFL survey was administered to 179 preservice EFL teachers. Missing data were handled through the listwise deletion method and 174 completed surveys were valid for the analysis. In the second round of validation, 204 completed surveys were analyzed.

For both rounds of validation, data were analyzed through exploratory factor analysis (EFA). EFA with maximum likelihood estimation was applied to identify the factor structure of the TPACK-EFL survey. Oblique rotation with a direct oblimin method was employed to rotate the axis for a more accurate factor structure. Oblique rotation was preferred over orthogonal rotation because orthogonal rotation was used for scales whose factors that are uncorrelated (Costello & Osborne, 2005). “Given the nature of the TPACK constructs, the likelihood of correlations among factors was strong and warranted an analysis that considered the relationships among the factors” (Baser et al., 2015). Finally, Cronbach’s alpha was used as reliability coefficients to estimate each dimension’s internal consistency.

For the third round of validation, 88 completed TPACK-EFL surveys were analyzed through descriptive statistics in an attempt to portray preservice EFL teachers’ self-perceived TPACK levels. Analysis began by calculating mean TPACK-EFL scores of the 88 preservice EFL teachers for each technology-related TPACK constructs. Mean TPACK-EFL scores were found for 88 preservice EFL teachers to determine the average level of the group. TK, TCK, TPK, and TPACK scores were also calculated for each of the 12 preservice EFL teachers. Then, the 12 preservice EFL teachers’ TPACK-EFL scores were compared with these average scores and analyzed to see whether they had relatively high or low scores for each technology-related TPACK construct.

After determining the 12 preservice EFL teachers' level of knowledge through surveys, interviews conducted with the 12 preservice EFL teachers were analyzed. The researcher looked for an alignment or a misalignment between the teachers' TPACK-EFL scores and interview results. That is, qualitative data were used to assess consistency of the qualitative results and quantitative results for each technology-related TPACK construct by corroborating the TPACK-EFL scores with interview results.

A holistic-content perspective was used to analyze the interviews conducted with the 12 preservice EFL teachers. The aim of this perspective was focusing on the whole story to determine the preservice EFL teachers' TPACK levels qualitatively. Specific narrations based on certain themes were interpreted by considering the whole interview (Demertzi, Bagakis, & Georgiadou, 2009). The themes were determined before the analysis based on the TPACK framework (Mishra & Koehler, 2006). Rather than using all constructs of the framework, technology-related TPACK constructs were chosen as themes, namely TK, TCK, TPK, and TPACK.

As Lieblich, Tuval-Mashiach, and Zilber (1998) summarized the process of holistic-content analysis, the researcher first read an interview many times until she was sure that she comprehended the meaning of each sentence. Then, she wrote a general impression about technological abilities for that case. Next, she focused on themes of technology-related TPACK constructs. She reread the whole interview by concentrating on each theme. While reading, she marked themes of TK, TCK, TPK, and TPACK for relevant parts in the interview. After completing marking for the themes, she followed each theme to note her conclusions about preservice teachers' knowledge levels for each technology-related TPACK constructs. She created a narrative for the case by adding these notes to her general impression. She reported these narratives with relevant excerpts (see Appendix I for Turkish version of the excerpts) in the Results section by focusing on the preservice EFL teachers' perceived TPACK levels. This process was repeated for each case.

3.6. Validity, Reliability, and Trustworthiness of Research Methodologies

“To [be] convince[d] [the] findings are genuinely based on [a] critical investigation of all data and do not depend on a few well-chosen examples” (Silverman, 2000, p. 176), validity and reliability issues should be taken into consideration carefully in qualitative research as well as quantitative research. As this study involves both qualitative and quantitative data, certain procedures were applied for trustworthiness, validity, and reliability.

3.6.1. Trustworthiness of Qualitative Research Methodologies

In a qualitative study, trustworthiness is a parallel term to validity and reliability in quantitative research (Lincoln & Guba, 1985). External audit, content-related validity, a pilot study, and stability procedures were utilized to maximize the trustworthiness of the qualitative research methodologies in the study.

External Audit

The researcher performed holistic-content analysis of the interviews. An external audit was included in the research to evaluate the accuracy of the qualitative data analysis and provide evidence for dependability and confirmability of this qualitative part of the study (Lincoln & Guba, 1985). The external audit read each interview and its narrative generated by the researcher and they discussed the case to interpret the researcher’s analysis to reach a consensus as stated by Lieblich et al. (1998).

Content-Related Validity

In order to present evidence about the content validity of qualitative instruments, the researcher asked the experts on the TPACK framework, in IT, and in qualitative research to check the qualitative instruments to see whether they are appropriate or not for the aim of the study (Fraenkel & Wallen, 2006). They were modified based on the experts’ reviews. After the questions were affirmed by the experts, they were piloted as described in the next section.

Pilot Study - Dependability

In qualitative terms, to provide evidence for dependability, interview schedules were piloted before real implementation. An interview schedule for instructors was piloted with an instructor of the IT&MD course offered by the department of Mathematics Education. For the interview schedule conducted with preservice EFL teachers, the questions were asked of two preservice teachers who were not participants in the main data collection. During the pilot data collection procedure, the questions were revised to maintain the richness of the data collection. Furthermore, after the pilot data were analyzed, the questions were also reexamined to learn whether they served to answer the research questions or not. Required modifications were performed to maintain a clear interview schedule.

Stability

Stability is suggested by Denzin and Lincoln (1994) to provide replicability in qualitative research (as cited in Cohen, Manion, & Morrison, 2007). This increases transferability of qualitative research. Utilizing almost the same words, time, and place for all respondents reduces the threats to reliability, because this provided an opportunity to assure equal conditions for all respondents (Oppenheim, 1992 as cited in Cohen et al, 2007). In the present study, semi-structured interviews were included to increase the rate of replicability so that preservice teachers were asked the same questions with almost the same wording, although the order of the questions might be different and extra questions might be added to make the interview questions more meaningful and to get more information according to the interview progress. Moreover, preservice teachers answered the questions at the same place and at almost the same hour in order to handle reliability threats.

3.6.2. Validity and Reliability of Quantitative Research Methodologies

To provide evidence for validity and reliability of quantitative data collection, the following techniques were employed during the study: content-related validity,

construct validity, convergent validity, and internal consistency with a coefficient Cronbach's alpha.

Content Validity

Content-related validity refers to “the degree to which the questionnaire actually measures or is specifically related to the traits for which it was designed” (Best & Kahn, 1993, p. 219). The TPACK-EFL survey was delivered to the experts with a definition of what the scale will measure, the aim and the background of the survey, and information about the sample (Fraenkel & Wallen, 2006). Experts were provided with the following forms (see Appendix G) to get in-depth feedback:

- Comprehensibility of the items to the target group and their appropriateness for the content
- Items' potential dimension structure
- Relation to the other variables

Experts provided some suggestions to make items clearer and more appropriate for the target group, the subject matter of EFL, and the TPACK constructs. They also offered variables that might be related to the TPACK constructs. According to their suggestions, some items were revised or rewritten.

In addition to the expert review, a cognitive interview was applied to establish content validity of the TPACK-EFL survey. Cognitive interviews enable researchers to explore the difference between proposed items and participants' inferences from the proposed items (Kane, 2006). Based on this exploration, the researcher revised the TPACK-EFL survey.

Construct Validity

After the TPACK-EFL survey was developed, exploratory factor analysis (EFA) was employed to explore the underlying factor structure of the latent variable, required knowledge and skills for successful technology integration, and to measure it (Field,

2009). Two rounds of validation were applied to maintain construct validity of the survey. One hundred and seventy-four preservice EFL teachers for Round One and 204 preservice EFL teachers for Round Two participated in the validation phase. These sample sizes are adequate numbers for the minimum ratio of N according to MacCallum et al. (1999), Gorsuch (1983), and Guilford (1954). Results for both rounds of EFA are presented in the Results section in detail.

Methods Triangulation

A triangulation of methods was employed to provide evidence for valid and reliable data. Different methods were incorporated into the study to enrich the results of the study and to check for the consistency of findings (Yildirim & Simsek, 2005; Lincoln & Guba, 1985). The quantitative TPACK-EFL survey results were corroborated with the qualitative data collected through interviews. In order to understand the specific kinds of knowledge required for successful technology integration, experiences of preservice teachers were applied so that their perceived self-efficacy levels for successful technology integration could be understood in-depth through qualitative methods.

Internal Consistency

Evidence for internal consistency of the developed TPACK-EFL survey was provided by Cronbach's alpha for each round of EFA within the validation phase. Reliability coefficients are presented in the relevant parts of the Results section.

3.7. Assumptions

The study has the following assumptions:

- The participants provided accurate information in the interviews,
- The participants of the study assessed their knowledge and skills appropriately as the TPACK-EFL survey was a self-assessment measure as Abbitt (2011) stated.

- Multivariate normality is one of the assumptions of the maximum likelihood method which was used as an estimation method for exploratory factor analysis during the validation process of the TPACK-EFL survey. The researcher examined univariate normality because PASW did not allow testing multivariate normality. As most of the variables were found to be univariate normal, multivariate normality was assumed.
- The measures in the study were sufficiently reliable and valid to make accurate results.

3.8. Limitations

One limitation of the current study is the use of EFA to evaluate the construct validity of the survey. While the results presented strong evidence for construct validity of the survey, additional evidence would be provided by also conducting confirmatory factor analysis. That being said, how researchers conducted EFA was satisfying in terms of the validity and reliability evidence of the survey. “Rather than conducting EFA on a construct-by-construct basis (e.g. Schmidt et al., 2009), this study explored the factor structure among all of the developed items” (Baser et al., 2015). Next, the researchers used oblique rotation rather than orthogonal rotation which was used in several studies (see Koh et al., 2010; Lee & Tsai, 2010). Due to the fact that there is obviously a relationship among TPACK constructs, using oblique rotation techniques was more appropriate for the EFA of this survey (Costello & Osborne, 2005).

Additionally, underlying factor structure which was found in EFA results supported the TPACK framework established by Mishra and Koehler (2006). The results and conclusions are limited to the participants investigated; therefore, they cannot be generalized to the population; however, they might be beneficial in providing insight into required knowledge for successful technology integration into EFL teaching and how preservice EFL teachers perceive technology integration, TPACK knowledge, and technology-related teacher education programs.

In addition to the generalization issues, researcher bias cannot be eliminated totally; but it could be minimized with the help of reliability constraints we used such as external audit for the interview analysis and Cronbach's alpha coefficients for internal consistency of the TPACK-EFL survey.

CHAPTER 4

RESULTS

This chapter presents the findings of the study concerning the research questions stated earlier. First, the researcher provides EFA results that evaluate construct validity of the TPACK-EFL survey. Then, triangulation of descriptive survey results and interview results are presented to evaluate convergence of technology-related TPACK constructs of the TPACK-EFL survey.

4.1. Auditing the TPACK Constructs through the TPACK-EFL Survey

The TPACK-EFL survey was developed based on expert interviews, national and international standards, and existing TPACK surveys. It was, first, administered to 174 preservice EFL teachers to provide evidence for construct validity of the survey. Then, 204 preservice EFL teachers completed the survey to reexamine the factor structure of the TPACK-EFL survey. Exploratory factor analysis (EFA) with maximum likelihood estimation (MLE) was applied to evaluate appropriateness of the survey for both rounds of validation.

4.1.1. Results of the First Round of Validation

Before conducting the EFA, Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity values were analyzed to provide evidences for adequacy of sampling and appropriateness of factor analysis. The KMO value was calculated as .94 which was much bigger than .60; therefore, it was accepted as relatively large according to Tabachnick and Fidell (2001). Bartlett's test (BTS value= 6361.22, $p < 0.001$) was found significant; so, it could be assumed that it may be possible to explore an underlying structure of the scale.

The first draft of the TPACK-EFL survey (see Appendix C) including 50 items was analyzed to find out the number of factors for the first round of validation. First, six factors were found according to their eigenvalue values greater than 1. However,

when the factor loadings were examined, it was observed that the last factor included no factor loadings which are bigger than .30 (Hair, Anderson, Tatham, & Black, 1995). Then, the scree plot was examined and it revealed that the sixth factor could be taken as cut point; so, the five-factor structure was appropriate according to the scree plot. In terms of the meaning of the items included under each factor, the five factors were also suitable and could be named as Technological Knowledge (TK), Content Knowledge (CK_E), Pedagogical Knowledge (PK), Pedagogical Content Knowledge (PCK_E), and Teaching with Technology Knowledge (TTK_E).

The final model incorporated five factors explaining 69.21% of total variance in preservice teachers' self-efficacy for technology integration into foreign language teaching. The percentage can be accepted as relatively high due to the fact that it was accounted for more than 60% of the total variance. Moreover, it was slightly smaller than the explained variance of the six-factor-structure, 71.81.

Item33 (TCK) was removed from the analysis due to the fact that it did not have any loading coefficients higher than .30 on any factor and item23 (PK), item38 (TCK), item40 (TPK), item42 (TPK), item11 (TK), item10 (TK), item37 (TCK) were deleted because of cross loadings to two factors with close coefficients which were more than .30.

When the five-factor structure of the remaining 41 items was analyzed, all items had high factor loadings which were higher than .30 (Stevens, 2002) with only one factor except for three items (see Table 4.1). The three items belonged to PCK_E and had a correlation with that factor more than .50; on the other hand, they also had a correlation higher than .30 with PK_E and CK_E factors which could be rational as PCK is the intersection of PK and CK according to the TPACK framework (Mishra & Koehler, 2006). Consequently, the results of the exploratory factor analysis could provide evidence for the five-factor structure model of the first draft of the TPACK-EFL survey.

Table 4. 1 EFA results and reliability coefficients for Round One

	Label before	Factor				
	EFA	TTK _E	PK	CK _E	TK	PCK _E
TTK _E : alpha = .96						
item49	TPACK	.91				
item50	TPACK	.90				
item43	TPK	.83				
item45	TPACK	.82				
item44	TPK	.80				
item47	TPACK	.79				
item41	TPK	.73				
item46	TPACK	.71				
item39	TPK	.70				
item48	TPACK	.65				
item36	TCK	.59				
item34	TCK	.51				
item35	TCK	.42				
PK: alpha = .93						
item25	PK		-.96			
item26	PK		-.86			
item24	PK		-.66			
item22	PK		-.53			
item21	PK		-.42			
CK _E : alpha = .93						
item16	CK			.90		
item14	CK			.86		
item18	CK			.85		
item17	CK			.83		
item19	CK			.70		
item15	CK			.65		
item20	CK			.53		
TK: alpha = .89						
item3	TK				.82	
item4	TK				.77	
item6	TK				.73	
item2	TK				.72	
item8	TK				.67	
item9	TK				.60	
item1	TK				.60	
item12	TK				.58	
item13	TK				.52	
item7	TK				.52	

Table 4.1 (continued)

	Label before	Factor				
	EFA	TTK _E	PK	CK _E	TK	PCK _E
PCK _E : alpha = .94						
item31	PCK		-.30			.65
item28	PCK					.60
item27	PCK		-.37			.54
item32	PCK	.32				.54
item29	PCK		-.33			.52

Although the five-factor structure was reached through EFA, the researcher realized that the reason for perceiving items of the three adjacent constructs (TCK, TPK, and TPACK) under the same factor might be the perspective of the written items. Two preservice EFL teachers were interviewed to understand how they perceive TCK, TPK, and TPACK. Understanding how they perceive TCK was really problematic; on the other hand, they comfortably answered the questions related to TPK and TPACK. They could answer questions related to TCK only when the interviewer asked how they developed their own language skills by using technology. Whenever their knowledge of EFL-related technology was questioned in a different manner, they also included their pedagogical knowledge to their answers because they tied EFL development to EFL teaching.

In the first round of validation, preservice EFL teachers interpreted EFL-related technologies in the TCK items were used for educational purposes. For example, when they read the TCK item, “I can design multimedia (slide show, video, etc.) to present an English topic”, they considered it was a skill for designing multimedia which teaches an English topic. Eventually, the researcher realized that the perspective of TCK should have been changed. Therefore, she decided to reconsider TCK from a different perspective that might enable preservice teachers to perceive TCK independent from pedagogy. The TCK items were rewritten based on this new perspective which is explained in the next section.

Internal Consistency of the First Round of Validation

Evidence for internal consistency of the first draft of the TPACK-EFL survey was maintained through Cronbach alpha which was calculated as .89 for TK, .93 for CK_E, .93 for PK, .94 for PCK_E, and .96 for TTK_E. Cronbach alpha values did not increase when any item for each factor was deleted. Additionally, item-total correlation of all items was determined as more than .60 except for three corrected item-total correlation of all items that was determined as more than .60 except for a few items in TK_E. Item5 was deleted because of a low item-total correlation coefficient while the other two items' coefficients were much closer to .60; therefore, they remained. As a result, the first draft of the TPACK-EFL survey was composed of 40 items.

4.1.2. Results of the Second Round of Validation

For Round Two, the researcher rewrote TCK items by considering the new definition of TCK as knowledge and skills for developing preservice teachers' own language skills by using technology. Additionally, she revised items of the other TPACK constructs based on the results of the first round of validation. Eventually, 50-item TPACK-EFL survey including 10 TK items, 7 CK items, 7 PK items, 6 PCK items, 5 TCK items, 5 TPK items, and 10 TPACK items was created for the second round of validation. The second draft of the TPACK-EFL survey (see Appendix D) was ready for the second round of validation.

Before conducting EFA, KMO and Bartlett's test of sphericity values were analyzed to understand whether there existed an underlying factor structure for the TPACK-EFL survey and correlations among TPACK variables. The KMO value was calculated as .93, which was much greater than .60; therefore, the value was accepted as relatively large according to Tabachnick and Fidell (2001). Bartlett's test (BTS value= 5837.00, $p < 0.001$) was found to be significant, so the possibility of exploring an underlying structure of the scale was assumed.

A 9-point Likert scale that included 50 items was analyzed through EFA with MLE. There were low loadings and cross loadings for 11 items; therefore, those items were

excluded from the EFA and the researcher reconducted the analysis for the remaining 39 items (see Appendix E).

According to the Kaiser Goodman Rule, there were six factors whose eigenvalues values were greater than 1. However, a seven-factor structure was explored when the scree plot was examined. The researcher examined both factor structures. A seven-factor structure showed best fit in terms of high factor loadings, a lack of cross loadings, and consistency with the TPACK framework. Additionally, the seven-factor structure explained the largest percent of total variance in preservice teachers' TPACK.

In the seven-factor structure, all of the survey items loaded into relevant factors except for three TPACK items. Therefore, the researcher labeled the seven factors identical to the TPACK framework: Technological Knowledge (TK), Content Knowledge (CK), Pedagogical Knowledge (PK), Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (PK), and Technological Pedagogical Content Knowledge (TPACK).

According to the EFA results of the first round of the validation phase, the items that were initially written as TCK, TPK, and TPACK items were loaded into one factor. In the second round of validation, the TCK items were revised (see Table 4.2) from a different perspective in which preservice EFL teachers use technologies for their own language development. As a result, the preservice EFL teachers perceived TCK items as separate from TPK and TPACK items in the second round of validation. Although validating TCK as a separate factor is important, only two of the TCK items highly loaded into the TCK factor and the third TCK item had a clear but low loading which was slightly lower than .30 (Hair, Anderson, Tatham, & Black, 1995; Stevens, 2002) as shown in Table 4.3.

Table 4. 2 TCK items of the first and second draft of the TPACK-EFL survey

TCK items in the 1 st round of validation	TCK items in the 2 nd round of validation
I can design multimedia (e.g. video, slideshow, etc.) that presents EFL topics.	I can take advantage of multimedia (e.g. video, slideshow, etc.) to express my ideas about various topics in English.
I can reach resources related to EFL by using search engines.	I can benefit from using technology (e.g. web conferencing, discussion forums) to contribute at a distance to multilingual communities.
I can make required arrangements (file uploading, group forming, etc.) in collaborative learning environments.	I can use collaboration tools to work collaboratively with foreign persons (e.g. Second Life, wiki, etc.).

In addition to the issues related to the TCK items, three TPACK items loaded on the TPK factor (see Table 4.3). The items were related to “deciding to use technology (Item 33)”, “designing learning materials (Item 34)”, and “using multimedia to support language learning (Item 35)”.

Table 4. 3 EFA results and reliability coefficients for Round Two (Baser et al., 2015)

#	Factors						
	TK	CK	PK	PCK	TCK	TPK	TPACK
TK: alpha = .89							
item3	.84						
item4	.83						
item2	.81						
item5	.68						
item1	.67						
item6	.62						
item9	.61						
item7	.48						
item8	.47						

Table 4.3 (continued)

#	Factors						
	TK	CK	PK	PCK	TCK	TPK	TPACK
CK: alpha = .88							
item10		-.90					
item13		-.78					
item11		-.76					
item12		-.74					
item14		-.42					
PK: alpha = .92							
item18			.91				
item17			.66				
item19			.65				
item20			.46				
item16			.45				
item15			.44				
PCK: alpha = .91							
item24				.93			
item23				.78			
item25				.77			
item21				.50			
item22				.38			
TCK: alpha = .81							
item26					-.26		
item28					-.84		
item27					-.81		
TPK: alpha = .91							
Item30						.63	
Item31						.62	
Item32						.55	
item29						.51	
TPACK: alpha = .86							
Item38							.69
Item36							.52
Item39							.50
Item37							.47
Item34						.47	
Item33						.43	
Item35						.42	

Internal Consistency of Round Two

As a measure for internal consistency of the TPACK-EFL survey, Cronbach's alpha provided satisfactory results. The Cronbach's alpha coefficients for each TPACK factors found as .89 for TK, .88 for CK, .92 for PK, .91 for PCK, .81 for TCK, .91 for TPK, and .86 for*TPACK (see Table 2). This result indicated that all of the coefficients were high enough because they were larger than .70 as an acceptable value for a reliability coefficient according to Fraenkel and Wallen (2008).

Cronbach alpha values did not increase when any item for each factor was deleted. There is only a slight increase in the 14th item under the CK factor which can be neglected when it is considered that there is no cross loadings. And when the 33rd item under the TCK factor is deleted, Cronbach's alpha increases from .81 to .88; therefore, the item has been rewritten for the following implementations.

4.2. Evaluating Convergence That Emerged within Cases in Each Technology-related TPACK Construct

Detailed development and two cycles of validation process by using Creswell's instrument development model provided a valuable assessment tool to describe preservice EFL teachers' perceived TPACK levels. However, EFA results showed that adjacent TPACK constructs, namely TCK, TPK, and TPACK, might still have had some problematic issues. Due to the fact that all of these constructs related to technology and that TK is the subsequently added cycle of the TPACK framework, items of the technology-related TPACK domains (TK, TCK, TPK, and TPACK) were needed to be examined once more.

Triangulation design was used by corroborating descriptive results of the TPACK-EFL survey with qualitative data to evaluate the TPACK-EFL survey summatively. First of all, the TPACK-EFL survey was used to identify average TPACK levels of the 88 preservice EFL teachers. The teachers described their perceived TPACK knowledge by rating the items from 'Nothing/None' (1) to 'Very Little' (3) to 'Some' (5) to 'Quite a Bit' (7) to 'A great deal' (9) in the TPACK-EFL survey.

Figure 4.1 shows mean scores (M) and standard deviations (SD) for each TPACK construct.

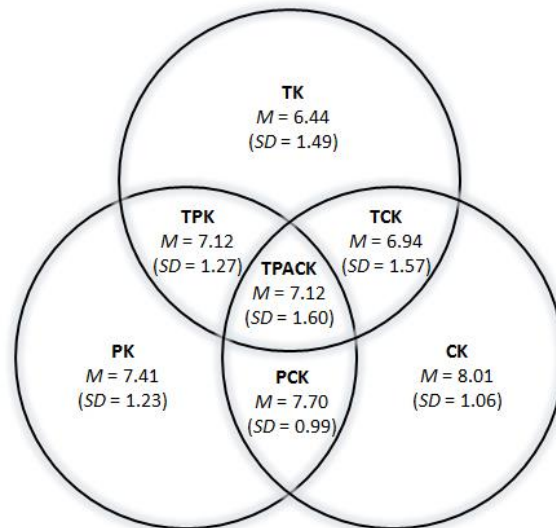


Figure 4.1 Means and standard deviations of the 88 preservice EFL teachers by TPACK construct

As demonstrated in Figure 4.1, the mean scores for the seven constructs ranged from 6.44 to 8.01. All of the 88 preservice EFL teachers perceived their TPACK levels to be above 6 which means a level between ‘Some’ (5) and ‘Quite a Bit’ (7). Overall, the TPACK mean score for seven TPACK knowledge domains is 7.25 which is above ‘Quite a Bit’ (7). These scores showed that the preservice EFL teachers thought that their TPACK knowledge is fairly high. However, the TK mean score (M_{TK}) was quite low in comparison to mean scores of other constructs and mean scores of other technology-related TPACK constructs; in particular, M_{TCK} , M_{TPK} , and M_{TPACK} are not as high as M_{CK} , M_{PK} , and M_{PCK} . These results demonstrated that mean scores for technology-related TPACK constructs were lower than the others.

Due to the fact that this assessment phase focuses on technology-related TPACK constructs (TK, TCK, TPK, and TPACK), 12 of the 88 preservice EFL teachers were also interviewed to explore their perceived levels of technology-related TPACK constructs qualitatively. Narratives were generated from the interviews conducted. These narratives were analyzed through holistic-content analysis to verify the survey results of the 12 preservice EFL teachers. For this verification, the 88 preservice EFL teachers' mean scores for TK, TCK, TPK, and TPACK were considered as base-lines to take the 12 teachers' mean scores as high or low. That is, survey scores of the 12 preservice EFL teachers were determined to see whether they were above or below the total mean scores of the 88 preservice EFL teachers. Then, these quantitative results were corroborated with holistic-content analysis results of 12 narratives to explore whether the qualitative data were aligned with quantitative survey results.

When the mean scores of the 88 preservice EFL teachers were taken as base-lines, the results indicated that mean scores of one-third of the 12 cases are above the total mean scores; mean scores of one-third of the cases are below the total mean scores; mean scores of one-third of the cases are both above and below the total mean scores. Eight of the 12 narrative cases were aligned with their survey scores while five of the 12 narrative cases were misaligned with their survey scores (see Table 4.4). Holistic-content analysis results and descriptive survey results for each aligned and misaligned case are presented in the next section.

Table 4. 4 TPACK-EFL survey scores of aligned and misaligned cases by technology-related TPACK constructs

Cases	TK	TCK	TPK	TPACK
Aligned				
1	8.67	8.67	6.86	8.50
2	5.56	7.67	7.43	7.00
4	8.22	7.67	8.71	9.00
5	5.45	5.00	6.71	5.25
6	7.67	9.00	9.00	9.00
7	6.34	8.00	6.00	4.75
8	5.33	4.33	6.42	5.00
11	8.11	8.00	7.71	8.50
12	7.34	5.00	6.14	7.50
Misaligned				
3	2.56	5.34	5.00	5.00
9	7.00	8.00	8.00	8.00
10	3.89	5.00	6.00	5.50
<i>M_T</i>	6.44	6.94	7.12	7.12

4.2.1. Aligned Cases

Nine of the 12 narrative cases were aligned with their survey scores. Among these nine cases, all mean scores of four aligned cases (case-1, case-4, case-6, and case-11) were above the total mean scores of the 88 preservice EFL teachers (M_T). All mean scores of two cases (case-5, and case-8) were below M_T . Finally, some of the mean scores of three cases (case-2, case-7, and case-12) were above M_T while some of their mean scores were below M_T . Holistic-content analysis results and survey scores can be found for each aligned case below.

Case-1

According to the descriptive survey results, case-1 had a high level of knowledge for all technology-related TPACK domains except for TPK ($M_{TPK}=6.86$) which was just below the 88 preservice EFL teachers' TPK mean score ($M_{TPK}=7.12$). She perceived her level for the other knowledge domains as $M_{TK}=8.67$, $M_{TCK}=8.67$,

and MTPACK=8.50 which were considerably higher than her classmates' mean scores (MTK=6.44, MTCK=6.94, and MTPACK=7.12). Figure 4.2 illustrates her perceived level for TK, TCK, TPK, and TPACK by comparing it with the 88 preservice EFL teachers' knowledge levels.

As she had a considerably high level of knowledge for the three TPACK domains and a TPK knowledge level that was just below average, how she rated TPK items was examined. It was seen that she rated most of the TPK items above 'Quite a Bit' (7) except for two items. She rated the item related to 'guiding students for ethical technology usage' as 4 which was between 'Very Little' (3) and 'Some' (5) and the item related to 'using technology (e.g. online discussion platforms) to develop higher order skills' as 'Some' (5). This detailed examination signified that her TPK level might also be high. Her low rating for these items might be because of her perception of students' tendency to use technology non-ethically and superficially rather than her low level of TPK. This result showed that this case highly needs the support of holistic-content analysis results.

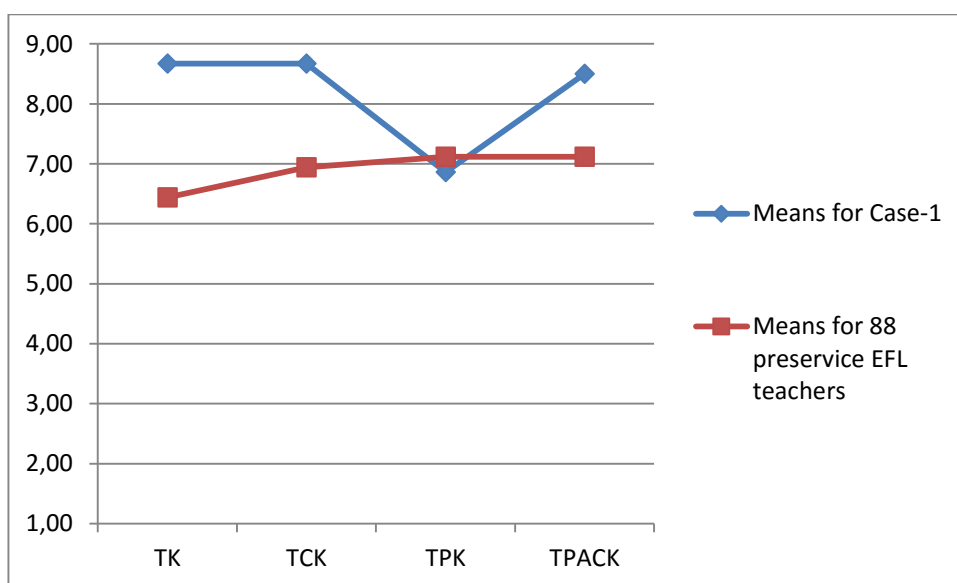


Figure 4.2 Survey scores of case-1 in comparison to scores of the 88 preservice EFL teachers

Holistic-content analysis results showed that she was quite self-confident in using technology and integrating technology into EFL teaching. She saw using technology as a requirement to keep pace with the age, and she thought technology was an essential element for educational activities. There were no disadvantages of technology both for daily life and for education according to her. The following excerpts are drawn from her interview to show her attitude towards technology and technology integration:

Technology is keeping up with the times. That is, technology was using a wheel in prehistoric times [while] it is using an iPad today. In other words, I can say that technology is going in the same direction with the new era. (C1_ATTaTI) Q1

I do not think that [technology] brings disadvantages. In fact, it might be [disadvantageous] in terms of unsocialising or robotizing people; but I don't think that it is very important. (C1_ATTaTI) Q2

As we cannot consider an education which lags behind the times, technology should be advancing to provide an education which is more sophisticated. (C1_ATTaTI) Q3

Her TK was at a high level. She was very comfortable while talking about using technology. Although she did not name all of the specific technologies she knew, she described herself as an active computer user and saw using computer as an essential skill that all preservice teachers have to possess. She was confident as much as she did not need to mention her ability to use certain technologies (e.g. projectors) specifically, because she found those technologies as a cinch to use. Yet, she stated she was good at using Web 2.0 tools such as Prezi and Kerpoof. Finally, she stated that she found it easy to manage usual technical problems such as cable issues. The following excerpts showed her TK perceptions:

I am already an active computer user, but I think learning to use Web 2.0 tools was very helpful for people that cannot even open a PowerPoint slide show [rather than for me]. (C1_TK) Q4

I showed them (students) a story that took 5 minutes. I could only have made them listen, but I provided them with the chance to both listen and watch by projecting to the screen with the help of a projector. (C1_TK) Q5

A teacher that knows how to use PowerPoint is ok but after a while...For example, I had no idea about Prezi till this year. Maybe, I have prepared hundreds of presentations during my time in high school [but] I had not used anything other than PowerPoint. If I had known about Prezi, I would have created much more effective presentations. (C1_TK) Q6

[For example], a teacher's knees should not knock together when a projector is shut down (spontaneously). She should have hardware knowledge as much as she can check cables (of a projector). It is not that hard. (C1_TK) Q7

Although she mentioned only two TCK examples, her statements showed how she confidently used those technologies to develop her language skills in an efficient way. She, unlike most of the others, suggested ESL (English as a second language) labs and international platforms rather than using audio and video tools to develop her language skills. She pointed out that she used ESL labs to practice her EFL skills even when she had only 5 minutes. Also, she noted that she used an international platform in which she could practice her speaking by communicating with native speakers. Yet, she stated she wanted to learn more software; but this was not because she thought her knowledge for content-related technologies was insufficient. It was because she wanted to expand her horizons for EFL related technologies. All these points indicated that she has a high level of TCK as can also be seen in her following statements:

There is an ESL lab as I said before. For example, there is an airport announcement in the ESL lab and three multiple-choice questions under the announcement. If I have three minutes of free time, I am doing this... A teacher who is aware of this website can find different materials for different target groups and for different topics; but a teacher who is not aware of this website still tries to listen to tapes of books. (C1_TCK) Q8

I am still using a website. I could not remember the name of it. We enter the information about the languages we know and those we want to learn into the website. You can upload your photo, enter your profile information such as your country, your age, languages you know, and languages you want to learn. It adds your profile to a group. For example, I want to learn Greek and I know English and Turkish. It connects me to people who want to teach Greek and learn English and enables us to interact with each other. (C1_TCK) Q9

Her perceived TPK level was also high due to the fact that she provided detailed TPK examples which she could use confidently. She was self-assured about what kinds of technologies she should use for different groups of learners. She illustrated how she designed a few technology-integrated lessons. She described how to use still pictures to teach vocabulary or how to use video to develop students' listening skills. Finally, she exemplified how she could use technology to promote students' motivation by describing how to use social networks to increase students' motivation. The following excerpts indicated some of her statements related to her high level of TPK perceptions:

Writing words on board is meaningless if you (for example) teach [new] words to young students, but [a teacher] can show pictures of them through a projector. Let's say s/he teaches animals. However, it becomes boring if s/he applies this for preparatory class students in the university. (C1_TPK) Q10

For example, we prepared a lesson plan for elementary school students to teach vocabulary. To do this, visualization was necessary. It can be by hanging visuals on paper to the board; but projecting visuals to the screen is attractive for students and a big picture on the screen reaches more students. It is also cost-effective. That is, it is effective as it reaches more people and it is cheaper. Therefore, we show, for example, a picture of a lion and then write the word lion. We did this. (C1_TPK) Q11

A teacher motivates students in class, but it is not very permanent. However, let's say s/he clicks on a "like" button on a website similar to Facebook where everyone can see each other so that students are affected by each other. That is, if the teacher likes some of the students' [pages] when s/he was at home, s/he can use it for [students'] motivation. I think it is much more beneficial than doing this in class by taking a notebook and giving a plus sign. (C1_TPK) Q12

Her specific TPACK examples indicated that she also had a high level of TPACK. She stated she could use Web 2.0 tools to teach EFL when she became a teacher. For example, she mentioned that she could use Kerpoof to teach vocabulary. She also had the ability to use an asynchronous communication platform in which her students could communicate only in English to develop their writing skills. Finally, she was quite self-confident in using tablet PCs in developing students' speaking skills. On the other hand, she needed to experience technologies that she could use to develop students' EFL skills out-of-classroom.

In fact, Web 2.0 tools were beneficial in terms of teaching English. For example, there was Kerpoof which I can use in the future. I can use it while teaching vocabulary when I become a teacher. Now, I am preparing a lesson plan and using Kerpoof in this lesson plan. We

have not completed it yet but we will teach speaking in the lesson plan.
(C1_TPACK) Q13

For example, I can create a forum where students communicate only in English. Using Turkish is forbidden and everything can be seen in the records, because making them speak in English in class is not possible. They speak in Turkish in any case in class, but they cannot write in Turkish in the forum. It is also very beneficial for their spelling as they communicate by writing there. (C1_TPACK) Q14

Overall, she had a high level of perceived knowledge for all technology-related TPACK domains. Although she provided advanced technologies as examples for TCK, TPK, and TPACK (e.g. an international platform to practice her speaking, social networks to motivate students, and an asynchronous communication tool to develop students' written communication) in comparison to other interviewees, she was still very motivated to learn more advanced technologies with the help of her high level of confidence in her ability to learn technology. Holistic-content analysis results supported that she also had a high level of TPK which provided information to interpret her TPK score, which was slightly lower than average, appropriately. These results indicated that holistic-content analysis results were aligned with her high survey scores.

Case-2

Descriptive survey results for Case-2 were both above and below the total mean scores of the 88 preservice EFL teachers. Figure 4.3 illustrates her scores in comparison to her classmates' scores for TK, TCK, TPK, and TPACK. According to the results, her TK and TPACK mean scores ($M_{TK}=5.56$, $M_{TPACK}=7.00$) were below average ($M_{TK}=6.44$, $M_{TPACK}=7.12$) while her TCK and TPK mean scores ($M_{TCK}=7.67$, $M_{TPK}=7.43$) were above the total mean scores of the 88 preservice EFL teachers ($M_{TCK}=6.94$, $M_{TPK}=7.12$).

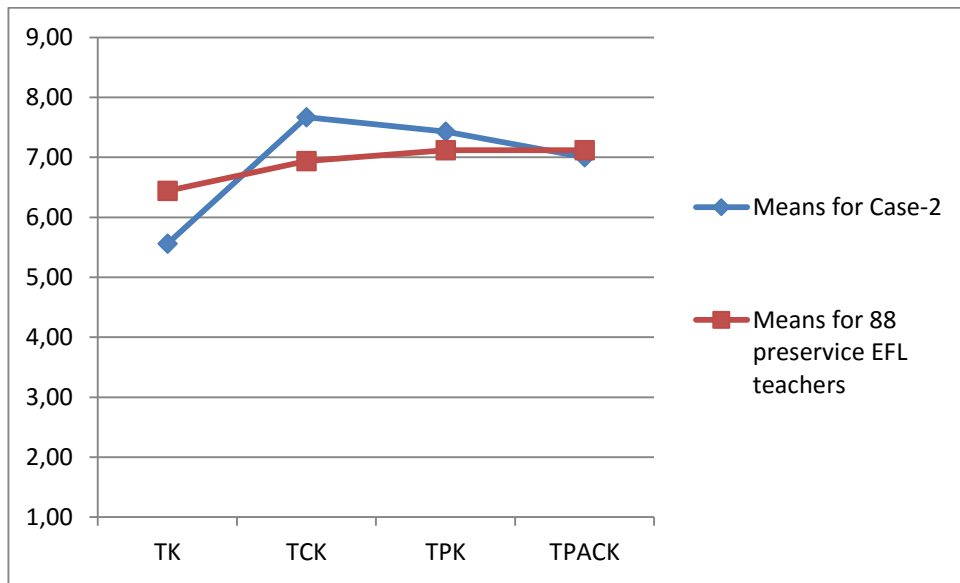


Figure 4.3 Survey scores of case-2 in comparison to scores of the 88 preservice EFL teachers

Holistic-content analysis results revealed that she trusted herself in using technologies with which she had an experience; however, she was not confident in using advanced technologies. Although she had a positive attitude towards technology and technology integration into education, she found it difficult to use technology in educational activities. The following excerpts reflect her attitudes:

Technology is a good thing...Actually, I was more interested in technology during my university years, because we did not have an Internet connection during high school. When I came to METU, opportunities increased. Accessing computers was easier here, but I am generally good at electronic devices. (C2_ATTaTI) Q15

Instead of always talking to students, showing visual or audio things attracts more attention. We can do this better with the help of technology. (C2_ATTaTI) Q16

Technology might have negative effects on education. While preparing it, it is necessary to conduct enough research, because the Internet is a

huge place. I mean we have to be picky, because there are unnecessary things; we should also be qualified users. We should know how to find the relevant information. (C2_ATTaTI) Q17

In terms of TK, case-2 needs to be analyzed more carefully. Although her M_{TK} is below average, holistic-content analysis results showed that she had a remarkable knowledge of TK at first look; therefore, the researcher decided to examine her ratings for TK items one by one. This in-depth examination indicated that she rated most of the TK items with ‘Quite a Bit’ (7) to ‘A great deal’ (9). However, she declared she had ‘Nothing’ (1) about classroom equipment (e.g. projector, smartboard, etc.) and online collaboration tools. These results were supported by holistic-content analysis results. She found using projectors very easy but not the same for Smart Boards. She did not even need to learn how to use Smart Boards because she did not believe that she would have a chance to use them in the future. She thought she would need training to use them effectively if Smart Boards would be provided in schools. She trusted her ability to use digital technologies, but she stated that she was not very confident using some Internet technologies, because she had a remarkable experience with Internet for only two years.

On the other hand, that 2-year experience allowed her to gain her an ability to use Internet for searching and to use Web 2.0 tools competently. Additionally, she stated she was good at using Office programs such as word processors and presentation tools (except for their advanced properties) which supported her rating of ‘Some’ (5) for the TPACK-EFL item related to Office programs. To summarize, she relied on her TK but she found her knowledge insufficient for certain technologies (e.g. Smart Boards, certain online technologies, and Office programs) to some extent. The following excerpts show her perceptions about these points:

You know it is like knowing very simple things. For example you should first know how to conduct research. I mean, if someone is looking for academic information, I should do an academic search

instead of looking for it in Google. It is a small detail, but we should know. (C2_TK) Q18

When making a presentation, knowing how to at least use PowerPoint and [other] Office programs or preparing a handout using Word is a must [for preservice teachers], because nowadays no one prepares anything hands-on. Those programs are so simple. Even if I do not know how to use advanced features of the program, I can still use the programs. (C2_TK) Q19

A Smart Boards is nice, really nice. It should be used in all schools, but we should find something that can attract little children's attention. We need to be trained when Smart Boards are provided for schools. We do not know how to use them. (C2_TK) Q20

Her level of TCK was high enough. She stated that she used audio and video technologies to develop her language skills and she suggested EFL learners to use different versions of them in accordance with different age groups. She benefitted from e-books to learn grammatical rules. She used and found native news Web sites to be beneficial to develop language skills. Although she did not describe how she used these technologies in detail, she listed technologies that were beneficial for her own language development well enough as can be seen in the following excerpts:

For example, we learned [English] with songs always. We can make students listen to a song, then show its lyrics and make examinations based on them by using computers with an Internet connection... If they are small kids, they can watch cartoons. Those can be useful. They can watch movies.(C2_TCK) Q21

For example, I downloaded electronic books while studying grammar. I used them by myself. (C2_TCK) Q22

When I was a little girl, my cousins used to listen to [language] cassettes at home to learn a language. Nowadays for example, we use

listening topics from the BBC news website instead of cassettes. We practice listening skills on that site and write reports. It is very useful.
(C2_TCK) Q23

Most of the scenarios in which she used technology were for pedagogical purposes without considering the specific subject matter of EFL. She exemplified uses of multimedia to gain attention or to concretize topics many times. She stressed the importance of using technology in accordance with the target audience and adapting technological materials in accordance with standards. Finally, her confidence in designing technology-integrated lessons showed that she had a high level of TPK. Some of her statements which represented her TPK perceptions are as follows:

For example, I learn what kinds of songs students like. Next week, before I make an introduction to a topic with a theme I determined before, I play a movie clip of a song or an animation that they will like. This way, I can make students like [the topic] and encourage students' engagement. (C2_TPK) Q24

The students' level is also important. It is not meaningful to use the same technology for preschool students and high school students. For high school students, we can use more instructive things than visual or audio [components]; however, we can prepare cartoons or something more concrete [than a text] for preschool students. Abstract things can be taught in a concrete way with computers. (C2_TPK) Q25

A teacher should associate technology with the lesson appropriately. For example, I will teach eight words today. If the words in presentations and the videos and the words to be taught are different from each other, I provided too much unnecessary information. It means that technology is used in a wrong way. We should be picky and effectively adapt technology to the lesson. (C2_TPK) Q26

As mentioned before, she used technology for pedagogical purposes independent from EFL. She generally did not prefer using technology for the main topic as can be seen in the following excerpts. She had only experience with integrating Web 2.0 tools to teach an EFL topic. Although she developed a presentation tool and an animation that taught the topic, she stated that it was very difficult for her. She applied EFL teaching methods such as task-based learning and the communicative approach in a traditional way. Also, she expressed that she needed to learn what kind of tools could be used for which part of EFL teaching. All of these illustrated that her level of TPACK is not high enough which might be partly caused by her perception that integrating technology was difficult and time-consuming as can be seen in the excerpts:

We prepared a story [using Web 2.0 tools]. We picked the topic. My topic was the 'if condition'. I prepared it by using Prezi. I also created an animation including [my topic of] 'if condition'. I wrote a story. Those were very difficult for me, because I am not a creative person.
(C2_TPACK) Q27

I do not use technology much in task-based [learning], because there are things that the students should do rather than a teacher in that method. But, for example, if I make them play a game which is generally a group work, I can prepare the game by using Internet technology or I can show them from there. I do not use technology much also in the communicative approach, because it is again generally about interaction between the teacher and student.
(C2_TPACK) Q28

We wrote a lesson plan as part of a project work. We would have been trained [for that]. It would be more effective if you use technology while teaching at the beginning, middle, or at the end of the lesson in that way; use technology in that way; you can find things you want to teach by using technology from that site; you can make a search like

that... knowing that information would be more helpful. We would feel more knowledgeable [in order to integrate technology]. (C2_TPACK) Q29

I use technology in order to entertain students if I feel that the students get bored. To tell the truth, I do not absolutely think I should integrate technology in that lesson. Maybe, I use it with an initial eagerness during the first years of my teaching; but for later, I think it is difficult to prepare and implement it. (C2_TPACK) Q30

Overall, Case-2 had a high level of knowledge for TCK and TPK while her TK and TPACK was not high enough. Although she was good at using technologies with which she had an experience before, she was not confident in advanced technologies. She tended to use technology to support general pedagogical strategies such as motivating, gaining attention, or visualizing rather than embedding it into main learning activities. These results were aligned with her TPACK-EFL survey results. That is, holistic-content analysis results for TK, TCK, TPK, and TPACK supported the survey scores of case-2.

Case-4

Survey scores for case-4 demonstrated that she perceived her knowledge of TPACK domains considerably high in comparison to the mean scores of the 88 preservice EFL teachers. The distinction between her TPACK mean scores and mean scores of the 88 preservice EFL teachers can easily be seen in Figure 4.4.

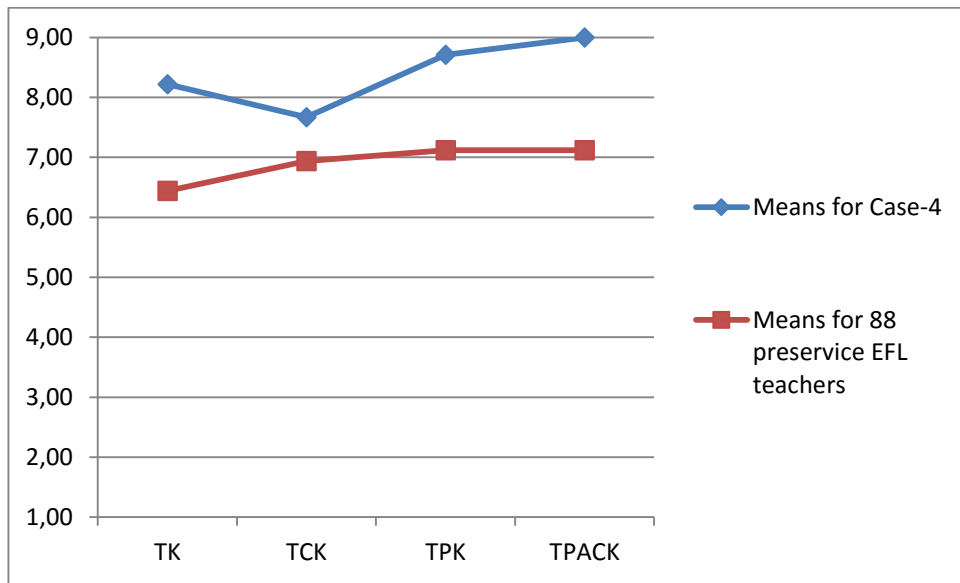


Figure 4.4 Survey scores of case-4 in comparison to scores of the 88 preservice EFL teachers

M_{TK} (8.22) of case-4 was much higher than the mean score of 88 teachers' TK ($M_T=6.44$). She also declared that she exempted from a course given to provide basic technological knowledge, namely "Introduction to Information Technologies and Applications" which can be another piece of evidence for her high level of TK. She assessed her TCK as 7.67 while the total mean score of the 88 preservice EFL teachers (M_T) for TCK was 6.94. She perceived her TPK as 8.71 which was much higher than the total mean score ($M_T=7.12$) for TPK. Finally, she noted her TPACK as 'A great deal' (9) which was the highest rate in the survey while the total TPACK mean score for the 88 preservice EFL teachers was 7.12.

According to the results of the interview conducted with case-4, she has a positive attitude towards using technology in general and integrating it into education. The following excerpts show her positive attitude with her statements:

We have to keep up with the times. [Technology] is the thing we have to absolutely use nowadays. ... I think it is a must, because when we consider this age, anything would be a big problem for us without information. In the simplest terms, even arranging this interview is

done with the help of technology. I think our lives would get locked without technology. (C4_ATTaTI) Q31

If we look at the side of education, absolutely it is a must. For example, you might work for a school which does not have a computer...But I think we will need to use it even by using our own resources. (C4_ATTaTI) Q32

Interview results also showed that her technological ability was quite high. She stated that she was good at technology such as using Office programs, searching the Internet for resources, and possessing basic hardware and software knowledge. That is, her TK was at a high level except for using Smart Boards, which is an issue for most of the other teachers.

For example, we will submit a piece of work. A friend could not arrange page setup. She needed to divide the page into 2 columns. One side will be in English and the other side will be in Turkish. She was asking about how she could do that in Word. She must have known those things: dividing the paging into two columns, or using a page horizontally or vertically.... Very basic things actually. I think it is like that. (C4_TK) Q33

Internet is needed as long as you can use it appropriately. At least, while doing research...I think there is nothing you cannot reach as long as you know how to do it. At least, even if you do not know Office at all, you can learn it by yourself as long as you were able to surf the Internet properly. Accessing the Internet is also not very difficult...I believe you can learn this by yourself just like I am a person who has learned them on my own since I was 7 years old. If a teacher is eager to use technology for his students, he can learn even if he knows that it will take days or weeks. (C4_TK) Q34

A teacher should absolutely have knowledge about computers. When he is faced with either hardware or programs, he should be able to say this is used for this. These are basic knowledge. (C4_TK) Q35

She stated that she used audio and video technologies to develop her own language skills by giving specific examples for those kinds of technologies. Although she only mentioned audio and video technologies, her confidence in using those technologies to develop speaking and listening skills and various scenarios she provided to develop her language skills with those technologies demonstrated that she perceived her level of TCK as high. The following excerpts show her highly perceived level of TCK.

When I was a prep student, it was impossible for me to watch a movie without subtitles... I developed [my listening skills] on my own mostly with movies by closing the subtitles or using English subtitles. Now, I do not need subtitles or I am mostly listening and looking at subtitles only when a word is pronounced very quickly... (C4_TCK) Q36

For example, there are websites including pictures based on a specific context. It also contains quizzes under the pictures. We can answer quizzes while listening at the same time and can eventually see our scores. (C4_TCK) Q37

She mostly mentioned TPK examples with a high level of TPK. She was confident in using multimedia to support students' learning, preparing a technology integrated lesson plan, using or deciding appropriate technologies for different standards and age groups, using technology to capture students' attention, and using technology to manage students' learning. She narrates her level of TPK with the following statements:

I am preparing a lesson plan. We prepared many lesson plans this semester. As far as I experienced it, we do not need too many technical skills. As long as you can use Office [programs], you can prepare

many materials for your classes. There are also easy tools that you can use to create a video or a simple picture over the Internet. I used an online game in which students find pictures by writing their names for one of my lessons. (C4_TPK) Q38

The age of the target group has a great importance...For example, here in our class, if someone says I have prepared an animation for you and you will learn this, we just laugh; but when you give this to a primary school student, it will attract them. If you show the same thing 10 times, I believe that primary school students will watch it with a great pleasure. It is also important to know the interest area of the age group. (C4_TPK) Q39

For example, I am thinking about a speaking class. I ask students to talk to each other in 3-pupil groups. I do not have a chance to listen to all of the groups at the same time. I can ask them to write a summary of their personal talk and send it to me as an e-mail the next day. In this way, I can enable them to develop their writing skills, and I can also understand how much they understood about what they have spoken and how much information they can transfer. I can have a chance to develop their many skills at the same time. Because I use e-mail technology, I think I would proceed by using technology. (C4_TPK) Q40

Her perception about her TPACK level was also at a high level. She thought that she was capable of promoting EFL teaching methods by using technology, using technology to support students' independent learning of EFL, and using communication technologies to support students' language learning.

I guess the easiest method to apply technology would be “total physical response”. It is for teaching imperatives. We can teach imperatives by completely speaking in English and making small kids move in the classroom. I think it is possible to use that method with

technology. If we use technology, I believe it will be much more helpful for many students, because if my English teachers would not pronounce something in that way, I would not pronounce it in this way now. I have many wrong pronunciations. At least, if I find them over the Internet and use them with the help of computers, I think students can learn them in the correct way at the beginning. Actually, we can use technology for many approaches through the same way. (C4_TPACK) Q41

Because we do not focus much on speaking and listening in this country, I think we should emphasize these skills very much. I will try to develop these skills more. I can assign students these kinds of things and want them to develop these skills. If I will focus on grammar, I think I will give assignments that they do not approach as an obligatory homework but rather ones where they have fun and they can work on them together probably with the help of the tools that I comfortably prepared at home like puzzles. (C4_TPACK) Q42

As a not-in-class activity, I can at least create certain chat environments to develop students' spelling or ability to express themselves [in English]. (C4_TPACK) Q43

Overall, she has a positive attitude towards technology integration into EFL teaching and learning and this attitude supports her level of TPACK knowledge domains positively. These results showed that holistic-content analysis results were aligned with her survey scores.

Case-5

Survey results showed that case-5 perceived her TPACK levels below the mean scores of the 88 preservice EFL teachers. Figure 4.5 shows mean scores of case-5 and total mean scores of the 88 preservice EFL teachers for TK, TCK, TPK, and TPACK. Her TK mean score was 5.45 while the total mean score of the whole class

for TK was 6.44. Her lowest mean score ($M_{TCK}=5.00$) was the TCK mean score which was 6.94 for the 88 preservice EFL teachers. Her TPK mean score ($M_{TPK}=6.71$) was quite close to the mean score of the 88 Preservice EFL teachers ($M_{TPK}=7.12$); however, it was still below average. Finally, she perceived her TPACK as 5.25 which was below the TPACK mean score of the 88 Preservice EFL teachers ($M_{TPACK}=7.12$).

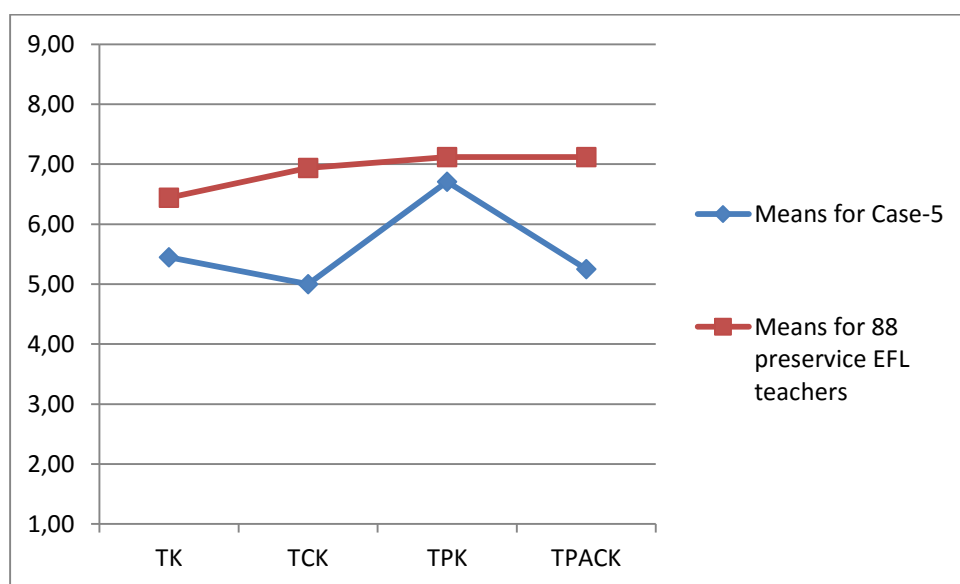


Figure 4.5 Survey scores of case-5 in comparison to scores of the 88 preservice EFL teachers

Holistic-content analysis results of case-5's narrative also indicated that her perception for technology-related TPACK domains was not high. Although she perceived technology as tools that simplify our lives in general and for educational activities, she had some adverse thoughts about their use which can be seen in the following excerpts:

Technological things are generally computers that make our lives easier...If they spend too much time with computers they would be

totally in a virtual environment. Then there may be negative results. (C5_ATTaTI) Q44

It should be used [in education] for sure. For example, Smart Boards are very advantageous for both teachers and students. Also, they might be more attractive. There may be games for small kids to make lessons more enjoyable. (C5_ATTaTI) Q45

Everything has an advantage and a disadvantage. I think technology has a disadvantage in terms of a teacher. When a [technological] problem occurs, she has to fix it. She must have adequate knowledge [to fix the problem]. For example, if a computer breaks down, she should be able to know how to fix it. (C5_ATTaTI) Q46

Case-5 did not trust her knowledge of TK in general. She stated she felt incompetent in using technology. She gives specific examples for her low level of TK. She thinks she needs to learn how to use tablet PCs and she did not know basic knowledge about software and hardware. She thought she did not have sufficient knowledge to use Office programs except for PowerPoint. Also, she was worried about troubleshooting.

For example, when we came to the registration last year, we did not know how to register through the Internet. I do not know it very much; I feel that I am inadequate [in using technology]. (C5_TK) Q47

They can teach tablet PCs. Still, teachers do not know how to use them but they distributed them to the students. I think it should be taught to teachers because if we do not know them, we cannot use them...Nowadays, the most popular things are tablet PCs. They should teach them as soon as possible, because that way I know what we are going to do when they give them to us...We have not done anything with tablet PCs. Once they provided it last week for us to use it, but I did not understand it much. (C5_TK) Q48

For example Word and Excel. I do not know anything about Excel. They can teach Excel, because there are many things to do in Excel. There are formulas and etc. and I know nothing about them. They make teachers' work easier. For example, a teacher examines the exams. A student gets this from the first exam, then gets this from the second exam; and she will, for example, calculate her average. I guess there is something like that in Excel. They can show those and other features. They can teach us in detail. Excel and Word might be.
(C5_TK) Q49

During the interview, she continuously mentioned that she did not know technologies that might benefit the subject-matter area of EFL. Although she was aware of certain multimedia technologies (e.g. CD, songs, and movies) and specific websites to follow news in the target language, she stated that she did not use them, which might be because of her feelings of incompetency for TK and TCK. That is, she somehow mentioned some technologies but not because she had experience with those technologies. Her statements indicating her low level of TCK are as follows:

We have learned some technologies. But, I think it was not very effective. We have learned Prezi, etc. They are ok; but they are not the things that we can use in the future. For example there was GoAnimate, which was very simple. There should have been more appropriate programs that can be used in class rather than GoAnimate. (C5_TCK) Q50

There are CDs...For example, there is a Rosetta CD, which is very well-done as far as I have heard about it. One of my friends is studying by using it. She told me that it was very good. I guess it is about communication. That is, it does not include heavy grammar.
(C5_TCK) Q51

I guess there is not much [technology] for speaking...There might be some for vocabulary...For example, there was somethings for kids on

the BBC website. First, listening was provided, and then, for example, you teach vocabulary from there. They can also see [the words] visually. Even one of our friends made us watch a video about Christmas, and then, he taught new words from the video like snow, etc. It was nice... (C5_TCK) Q52

Even though she mentioned her usage of multimedia for pedagogical purposes without including EFL subject matter, her level of TPK was not high enough. First of all, she had quite a limited experience with regards to TPK. Next, she was not confident enough to manage anticipated problems of technology, because she thought she did not have sufficient knowledge to overcome those problems. Moreover, she knew that deciding technologies that would be beneficial for objectives of lessons was very important for a teacher, but she was not sure about her ability to achieve this. The following excerpts show her TPK perception qualitatively:

For example, a video or something like that might be displayed by using a computer at the beginning of a lesson in order to attract students' attention... We use technology in demos. In general, we use it in a presentation. I do not use it other than that. (C5_TPK) Q53

A teacher has to fix it when there is a problem; therefore, there is a disadvantage in terms of a teacher as I said. Also in terms of students—for example, there are distance educations. Those are disadvantageous for students. Students do not see their teacher [face-to-face]; they cannot ask a question that comes to their minds, etc.... I am worried about problems that might arise because of technology... For example, we have not learned such kinds of things in the CEIT course. I mean there was a lab session but the instructor taught only [Web 2.0] tools like GoAnimate in the lab, and we were doing [activities related to those tools]. There was nothing like 'if

there is a problem that occurs in the class, how we can deal with it.'

(C5_TPK) Q54

She was not self-confident about her TPACK level, because she thought she did not know any technologies that would be really beneficial; as a result, she stated she could not apply technology integration with her existing knowledge level. For example, she did not know from which technologies she could benefit to develop students' speaking skills. Although she mentioned using movies, it was actually a TPK example, because she used movies as a facilitator for starting a discussion rather than using technology to develop speaking. She considered tablet applications to be beneficial, but she did not know how she could use them to teach EFL.

Definitely, we have not learned much [about technology integration into EFL teaching]. I mean, I only know Prezi. GoAnimate was given; but they are not enough for us to integrate technology. (C5_TPACK) Q55

What can be done with tablet PCs, what kinds of programs are more efficient, etc. should have been shown in the course. Now, even I cannot know which program I should install to the tablet...For example, let's think about our case of English. How to use tablet PCs, because they are more effective in speaking, listening or reading...Such things are possible. I think we can learn which one by practicing it. One day, you use it in listening and decide whether it is effective or not. If it is not effective, you use it for other skills next time. (C5_TPACK) Q56

Overall, she did not trust her abilities to integrate technology due to her low level of knowledge and insufficient experience. She had limited knowledge of technologies related to EFL, teaching methods, and teaching EFL. This made her reluctant to try to integrate technology in practice (e.g. lesson plan assignments, microteaching, etc.). As a result, her confidence related to TPACK and other technology-related TPACK constructs was not high enough, which was aligned with her survey scores.

Case-6

Survey results showed that case-6 is highly confident in using and integrating technology into education. She remarked that she had been exempt from the course given for teaching basic technological knowledge. Figure 4.6 shows her mean scores for TK, TCK, TPK, and TPACK in comparison to the mean scores of the 88 preservice EFL teachers. As can be seen in the figure, her TK mean score was 7.67 and her mean scores for TCK, TPK, and TPACK was rated as the highest rating in the scale, ‘A great deal’ (9). These highly assertive scores were much higher than the mean scores of the 88 preservice EFL teachers ($M_{TK}=6.44$, $M_{TCK}=6.94$, $M_{TPK}=7.12$, $M_{TPACK}=7.12$).

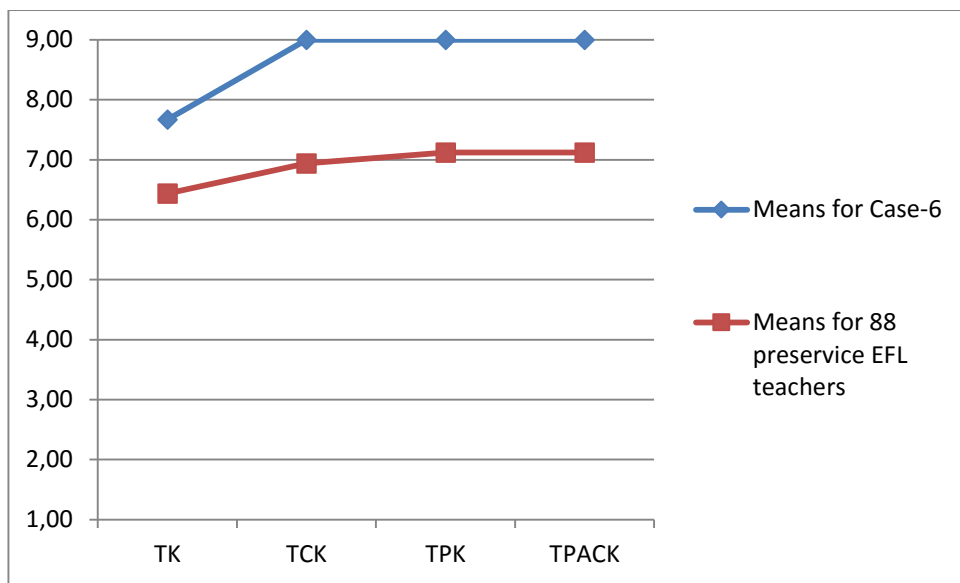


Figure 4.6 Survey scores of case-6 in comparison to scores of the 88 preservice EFL teachers

Qualitative analysis results showed that case-6 was quite inclined to use technology in her daily life and for educational purposes. She believed that technology increased

instructional quality. Her positive thoughts about technology and technology integration into education can be seen in the following excerpts:

Technology is a set of inventions that facilitate life. (C6_ATTaTI) Q57

I think technology can be positive. Because our lives already improve parallel to the technology, education needs to develop with technology. Technology makes a life easier; so why doesn't it make education easier? If we apply technology accurately, not as an aim or using it like robotics, I think it would be helpful for education. (C6_ATTaTI) Q58

Her level of TK was high which can be seen in her self-confident statements (see the following excerpts) in general and her statements for specific technological tools such as Web 2.0 tools, Office programs, Smart Boards, and projectors. She used to believe that learning how to use a computer was a big deal in the past but later she considered that everybody knows how to use a computer. She was also an active technology user, because she thought teachers should be able to use all available technologies. She was very confident in using Office programs as much as being able to guide her students while they use Office programs.

She was one of the few preservice EFL teachers who had had a chance to use Smart Boards. She was confident that she could use one in the future; however, she thought it was not an accessible tool like computers which might be the reason for rating her using classroom equipment as 'Quite a Bit' (7) in the survey while most of her other ratings were 'A great deal' (9). Finally, she was also good enough in troubleshooting.

A teacher should know Word at first. For example, when I tell my students "write something, and print them", I wait for my students to ask me about which font, what font size, and how many spaces they should use. Thus, to answer these questions, I should know Word, do similar things, and be familiar with it. Also, if I ask my students to prepare a PowerPoint slide show without knowing how to use

PowerPoint, how can I expect them to do this if I do not even know?

(C6_TK) Q59

Our professor demonstrated how to use Smart Boards. I voluntarily tried somethings such as writing a text and drawing, but ultimately it is not as accessible as a computer. If it is available in my work place, I am planning to absolutely use it though. (C6_TK) Q60

If a projector does not work, I try to fix it. If I cannot, I turn the laptop to the class. I guess we must have technical knowledge to some extent such as plugging in or unplugging cable connectors, or required knowledge to fix other basic problems. I should know how to use a tool in class as much as I know how to use a vacuum cleaner at home by reading its instructions. I must know the tool's instructions and its unexpected situations, because I must use it like electronic devices I use at home. It is a tool that I use in class and I need to control it.

(C6_TK) Q61

She was also self-assured in TCK. She stated that she used audial and video technologies to develop her listening skills regularly for a long time; she communicated with foreign people through international websites to develop her speaking and writing skills, and she benefitted from online dictionaries to develop her vocabulary. Her high level of TCK can be comfortably seen in specific names of technologies she used while developing her language skills.

My method to learn English was songs. It is a classic method, but I learn English from songs and series indeed...The thing which I focused on was to practice extensive listening out of class after learning basic grammar at school. I regularly listened to songs, watched the TV series from a computer, mp3 player, CDs, etc. for 10 to 12 years. (C6_TCK) Q62

Saying that people should talk in English seems very superficial to me. I'm Turkish, and you are Turkish, too. This might cause a mental limit on students as they might think why we speak in English if we are both Turkish. For example, there is a website called Omegle in which you talk to foreigners in English. I need to express myself there, so we can reach a conclusion, or, I feel relaxed there as it is an authentic environment which is close to real life. (C6_TCK) Q63

I developed my writing as follows: I frequently wrote to foreign people who I met through chat sites or foreign people who I have already known well. I talked to them often. After a while, I was writing in English very quickly; but I could not speak in English as fast as I wrote in English. My writing has developed much, but my speaking has not developed quite well. Later, I tried different things for speaking. Thus, it is important how you practice for each skill. (C6_TCK) Q64

She was especially good at TPK. She believed that whatever she used as teaching methods she should have beneficial technologies to increase the effectiveness of those methods. This belief promoted her use of various technologies that might be beneficial for her instructional activities. She was very motivated to enrich learning environments by using visual and audio affordances of technology. She was highly experienced in designing lessons by using technology. She said she generally used technological learning materials, because she thought technology increased the quality of her classes. Case-6 was confident in deciding when technology would benefit her teaching and deciding which technology she should use in accordance with target audiences. She cared about managing anticipated problems which can be seen in her backup plans, and she was aware of problems that technology might cause in a learning environment. While this awareness might lead many teachers not to use technology in class, she was motivated to monitor students and to increase their awareness for using different technologies.

The Internet has a huge amount of information, and we can easily reach everything through the Internet. For example, I might not teach a topic to students only because of a lack of media and technology, but I should increase quality my classes while I can easily access the Internet. When I reach information or an image, I think the quality of the lesson gets higher as the lesson becomes more valuable or conveys more information. The class gets richer as we can access everything from the Internet very quickly. If we cannot access the Internet in class, it turns into a limited [environment]. Thus, the Internet enriches [the classroom environment]. (C6_TPK) Q65

First of all, it depends on the target group. We try to prepare colorful lesson plans for children, but they should not be very colorful or animated to distract students' attention. What did I do? There is a song telling the body parts. I found two versions of this song. One of them was too colorful that I needed to remember what I was doing while watching that song. I have to think about students' reaction when I demonstrate it to the students. Therefore, I chose the less attractive version of this song... While selecting a technology, you need to find appropriate materials for your target group rather than using any technology you have. (C6_TPK) Q66

A backup plan requires being coordinated. Everything should have an alternative. For example, I found a nice visual activity in the computer and integrated it into my lesson plan. I can print out this visual activity. If a problem exists, I can photocopy this printout in an instant. For instance, my main activity in the class is based on PowerPoint, and if the electricity goes off, I'm done. Or, I try to open a PowerPoint document, but it does not open. If it is my own file, I would have sent it to my 35 e-mail addresses; so, I can open it from one of them. (C6_TPK) Q67

Although she mostly used technology for pedagogical purposes without focusing on EFL, she perceived her TPACK as high, and she trusted her ability to use technology effectively to teach EFL. She mentioned detailed examples for technology integration into EFL teaching. Although they were, in fact, using technology for general pedagogical purposes, this was not her perception. She saw those lessons as successful examples of technology integration to teach EFL. One of her detailed technology-integrated lesson plans can be seen in the following part of the interview:

What am I doing? I can say I design. I have some ideas, and my friends have ideas, too. We come together; everybody adds something; and we prepare materials. For example, we did these [she showed guilty and policeman plates], and they attracted people's attention. There were, also, a text, true-false, and fill-in-the blanks activities. Everybody can do them, but I try to improve and try to teach EFL in a better way by using technology...For example, we had prepared a demo before. In terms of creativity, it was very good. When we did it for the second time, I wrote a song with the words I would teach. I composed a song with a theme of Mission Impossible. We taught words that are used in a detective theme. There was also a PowerPoint slide show for vocabulary. There was a repetition, make a sentence, and stages. I used them to teach new words in the main activity of conveying meaning. Additionally, there is a leading part in which we provided clues and asked students to guess what we are going to teach at the beginning of the class. I also used technology for that part. I showed photos and asked them common points between two photos.

(C6_TPACK) Q68

She did not use technology to develop students' language skills directly. She used technology to provide more realistic context to promote students' speaking and to enrich the learning environment. Although there were some misconceptions about TPACK, it is obvious that she perceived her TPACK as high, and she stated some of her TPACK skills clearly. In addition to these highly detailed lesson plans, she

identified her high level of TPACK with her ability to integrate her knowledge domains for successful technology integration, ability to guide her students to use technology for language development, and ability to develop herself professionally for better EFL teaching with new technologies. She stated she was able to apply what she designs for teaching EFL in practice by integrating knowledge for her ability to select technology, her ability to use technology, her knowledge of subject matter, and her management skills. She was able to guide students' independent learning by leading them to use certain technologies like certain websites. She was interested in developing herself professionally by benefitting from new technologies and believed that she could learn new technologies by using updates of existing tools and maintaining a search for different and better tools. Some of her statements related to these specific TPACK items can be seen in the following excerpts:

I have lesson plans based on technology, and I apply them. I chose the technology; I should also think about the content I have to teach. I need to integrate technology into this content. I can only achieve this by using my management skills. (C6_TPACK) Q69

I want to integrate technology into my classes. I need to always be one step ahead of my students. Therefore, I need to make a search continually. Let's say, I'm interested in websites such as Kerpoof and GoAnimate. I search them to learn what kinds of sites they are. They are Web 2.0 tools. I search to look for other Web 2.0 tools. I can continually develop myself this way. (C6_TPACK) Q70

Overall, holistic-content analysis results showed that she perceived her knowledge and skills for TK, TCK, TPK, and TPACK as quite high. She was very interested in technology and reflected this interest to her instructional plans and experiences. She was highly motivated to enrich her learning environment by using technology, and she believed technological affordances contributed much to a rich learning environment to teach EFL. As a result, holistic-content analysis results of the

narrative generated from the interview conducted with case-6 confirms her survey scores.

Case-7

Descriptive survey results demonstrated that she rated her knowledge for technology-related TPACK domains below average except for her TCK. That is, her TCK mean score was above the TCK mean score of the 88 preservice EFL teachers while her TK, TPK, and TPACK mean scores were below the 88 preservice EFL teachers' mean scores. Figure 4.7 indicated her mean scores in comparison to the 88 preservice EFL teachers' mean scores for TK, TCK, TPK, and TPACK. As seen in the figure, she perceived her TK as 6.34 which was just below the mean score of preservice EFL teachers ($M_{TK}=6.44$). Her TCK mean score ($M_{TCK}=8.00$) was above the TCK mean score of her classmates ($M_{TCK}=6.94$). On the other hand, she rated her TPK ($M_{TPK}=6.00$) and TPACK ($M_{TPACK}=4.75$) much lower than her classmates ($M_{TPK}=7.12$, and $M_{TPACK}=7.12$).

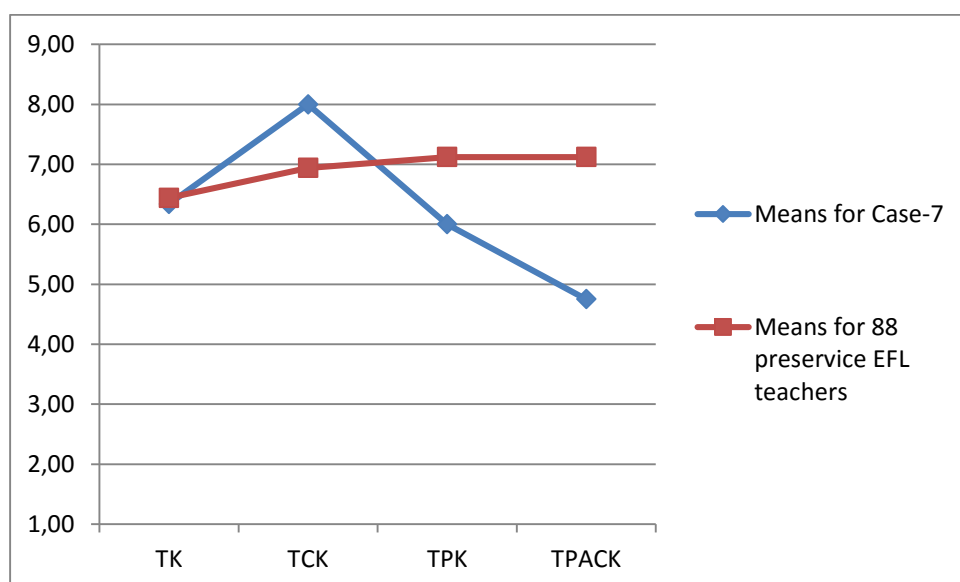


Figure 4.7 Survey scores of case-7 in comparison to scores of the 88 preservice EFL teachers

In general, case-7 was not self-confident in technology and technology integration according to the holistic-content analysis results. Although she strongly agreed that technology should be integrated into education, she was not very interested in having required knowledge for integrating technology into EFL teaching. She had only knowledge that she had to possess because of course requirements. The following excerpt shows her attitude toward technology integration:

I think it should begin to be widely used in educational and instructional processes, because if technology is in every field of our lives, it should be in education, as well. For example, tablet PCs' distribution to schools is very good. (C7_ATTaTI) Q71

Her TK was not high enough to provide a basis for other technology-related TPACK constructs. She was neither bad at using technology nor was she motivated to learn different technologies. She thought that she only knew basic technologies like preparing slide shows and viewing videos by using computers. For example, she thought she did not know anything about smart technologies. Although she had some experience about tablet PCs, she found herself inadequate in using tablet PCs. Finally, she had experienced some Web 2.0 tools, but she was not sure that she could be able to use them effectively because of her low motivation to use them. As a result, her weak experiences with certain technologies resulted in a TK level which cannot be considered as high according to interview results as can be seen in the following excerpts:

As I said, my technological knowledge is limited...I know that much because I have been taught that much. There are many things that I do not know...I have not searched them on my own, or I have never tried to learn them by myself. (C7_TK) Q72

I saw a smart class in our department, and I took some courses in that class. However, none of the professors use it. I have never seen how a Smart Board is used. I cannot even get closer to that technology...We can learn everything about a smart class by practicing like we did in

lab sessions. It is nonsense if this training lasts a whole semester; but, at least, we might gain competency with training with 6-7 hours.
(C7_TK) Q73

For example, I have used tablet PCs before, but when our professor asked me to find somethings, I had a difficulty with it although I have used it before; moreover we, as a young generation, have a higher tendency to use it. (C7_TK) Q74

Although her TK was not considered high, holistic-content analysis results showed that she perceived her level of TCK as high. She thought certain tablet PC applications such as e-books might be very beneficial to use in developing reading skills or to use for individualized listening practices. She stated she used online dictionaries to develop her language skills and e-books to develop her pronunciation skills. She suggested online games especially for young learners to develop their language skills. To conclude, she answered questions related to TCK quite shortly like the rest of the interview, but she provided many examples for technologies that might be beneficial for EFL and she was quite confident about using those technologies in language development. The following excerpts specify her high level TCK:

For example, tablet PCs are very advantageous in our field as they can be used for personal purposes, especially e-books. Everybody can individually concentrate better on what s/he listens to by using headphones of, for example, iPads rather than a speaker. They mostly benefit in terms of this...I always listen to an e-book to develop my pronunciation. (C7_TCK) Q75

I frequently use online dictionaries such as Oxford, etc. Oxford has also CDs. Furthermore, I use music CDs to develop my listening.
(C7_TCK) Q76

Her level of TPK was not high enough. She had concerns about managing students while using technology. She was confident in using teaching methods but not sure about using those methods to integrate technology into education such as deciding when to use technology and reflecting its usage into a lesson plan appropriately. Even though she described in which part of the lesson she would use technology, she was confused about using technology for which standards, what the purpose of using technology was, or for what types of standards she could use technology. She was not confident in supporting teaching methods by using technology. The following excerpts show her perceived TPK level:

It is really difficult. Teachers cannot control all students one by one. This can only be achieved by using technology. For example, programs might be used in tablet PCs. I do not know how it can be done. You know better. I do not have enough knowledge...Teachers cannot inhibit students' abusing technology. This can be prevented only by technology. You setup such a software with which students cannot use sites or software that you do not want. I do not think that I can prevent abuse with a classroom management course that was given to me. (C7_TPK) Q77

In addition to the ability to use a technology, we need to integrate it to the lesson plan to know when and how to use that technology. It is not enough to open the program and show it to students. I might have this ability, maybe; but these things should be taught in the lecture. (C7_TPK) Q78

According to the holistic-content analysis results, case-7 also had a low level of TPACK which was caused by limited knowledge about technologies that can be effective in EFL teaching. She answered most of the questions related to her TPACK perception with unconfident short answers as can be seen in the excerpts below. Although she believed she was capable of integrating Web 2.0 tools into EFL teaching, she thought she could not use them in higher-level classes and she did not

want to be a K-12 teacher. Furthermore, she thought communicating with native speakers using communication technologies was not worth spending the effort. She stated that she needed to learn how to integrate technologies into EFL teaching in practice, for example, through microteaching. The following excerpts are exemplars of her TPACK perception:

As I said before, because my technological knowledge is limited, I do not know which technologies are used [in EFL teaching].
(C7_TPACK) Q79

Web 2.0 tools did not attract my attention because I do not think to become a teacher. (C7_TPACK) Q80

One can speak with native person; but I do not think it would be. I think no one deals with it. Communication is a very difficult job in Turkey, isn't it? You have to arrange everything such as a time difference, etc. No one deals with it. Do I deal with it? Maybe at the university level, but absolutely not in the elementary level.
(C7_TPACK) Q81

Overall, she had a high level of TCK. When she needed to develop certain language skills, she benefitted from technology such as an e-book, online dictionaries, and games. On the other hand, she was not very interested in technology and using technology for pedagogical purposes; therefore, her perceived level of TK, TPK, and TPACK was not high. She perceived her knowledge as inadequate to integrate technology into EFL teaching for now. As a result, holistic-content analysis results were aligned with her descriptive survey results.

Case-8

Case-8 perceived her level for technology-related knowledge types as low according to the descriptive survey results. That is, all of her mean scores for technology-related TPACK domains were below the mean scores of the 88 preservice EFL teachers as can be seen in Figure 4.8. Her mean score for TK was 5.33 which was

less than the total mean score of the 88 preservice EFL teachers ($M_{TK}=6.44$). She marked her TCK as 4.33 which was far below average ($M_T=6.94$). Although her TPK mean score ($M_{TPK}=6.42$) was the closest mean score to the average, it was still below the total mean score of the 88 preservice EFL teachers ($M_T=7.12$). Finally, her mean score for TPACK items was 5.00 while the 88 preservice EFL teachers' TPACK mean score was 7.12.

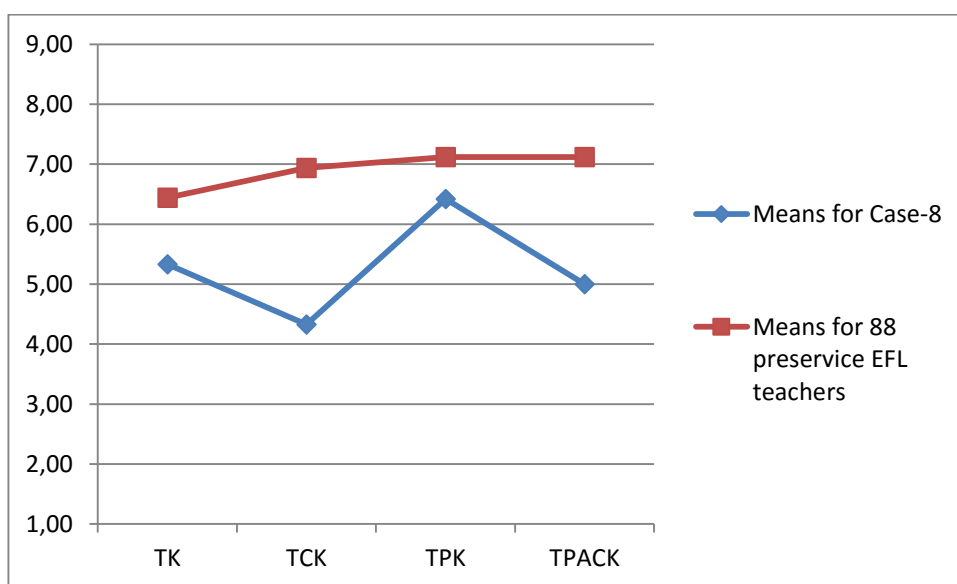


Figure 4.8 Survey scores of case-8 in comparison to scores of the 88 preservice EFL teachers

According to the holistic-content analysis of the interview conducted with case-8, she perceived her knowledge of TK, TCK, TPK, and TPACK as low. Although she had a positive attitude toward technology and technology integration, she was overly sensitive for disadvantages caused by misuse of technology. Her statements related to her stand point in terms of technology, technology integration, advantages, and disadvantages of technology for education are as follows:

You can demote it to a much shorter time when you teach a topic which might originally take a few hours by using visuals. If you also use audio, the time gets much shorter. I think technology is helpful in this manner. (C8_ATTaTI) Q82

When we cannot use the material in a proper way, it might lead to where we cause confusion in students' minds. How can we use it? It partially depends on the technological education we take. In fact, it is one of the biggest problems I face. Because I have not experienced technology since my childhood or my school has not given that kind of education, I, even as a student of education, do not know how I can use it. (C8_ATTaTI) Q83

Especially in terms of teachers...If s/he does not know how to use technology, there are many disadvantages. If s/he does not know how to use it, the time s/he uses to teach a topic might increase adversely. (C8_ATTaTI) Q84

She was not confident in using technology, because she did not use technology very much during her educational life. She wanted to use Office programs more practically and to learn the spreadsheet program which she rated as 'Some' (5) in the TPACK-EFL survey. She stated she did not know how to use tablet PCs. She had difficulty learning software that might be helpful. For example, she stated she did not know what kinds of programs she could use for a better sound quality. On the other hand, she noticed she used Web 2.0 tools for her own educational activities as a student. Her excerpts relevant to these points are below:

Actually, I do not have much information. It might be caused by my little interest in technology. (C8_TK) Q85

The foremost is Office programs. We cannot expect a professional ability from teachers as we do from architects or engineers. However, in order to do somethings quicker and more practically, I think use of

basic programs, especially Office programs, should be taught. That is the knowledge that I am lacking. (C8_TK) Q86

Our professor did an introduction about the use of tablet PCs; but because it was just one hour, I did not gain much knowledge. Actually, it is insufficient. I know nothing about how to use tablet PCs; it might be because I do not have a tablet PC. (C8_TK) Q87

Let's say I am an English teacher, and I want my students to practice listening. But I do not know which program I should use to open the video to achieve a good quality of sound or a picture. If appropriate education is given to me, I comfortably can use these (multimedia). (C8_TK) Q88

Case-8 also thought that she had inadequate TCK. She did not know much about technologies which might be useful for developing her language skills. She considered that she should have knowledge about technologies for EFL which should be different than technologies for mathematics unlike Web 2.0 tools. She stated that she only used audio and video technologies to develop her language skills. The following excerpts exemplify her TCK perception:

Is it enough? I think it is not, because programs we use were mostly to make a presentation, or mostly for children. I do not know what else it could be used for; but I guess it might be different for different departments. For example, you should provide different technologies for students in the department of Mathematics and students in Foreign Language Education. I do not know. (C8_TCK) Q89

Actually, it is not sufficient to have technological knowledge; at the same time, it is also not enough to have knowledge about our subject-matter area; we should have knowledge related to the intersection point of these two. However, I do not know whether I can give many examples for that knowledge because knowledge that I have gained

since now was not related to the combined use of these two. Therefore, I might not give examples as much. (C8_TCK) Q90

I have benefitted from technology in simple ways. I used cliché as continually-given examples: watching movies, listening to music, etc. (C8_TCK) Q91

Her perceived TPK level was not high enough to declare she was capable to use her knowledge for general pedagogical purposes efficiently. Even though she believed that she could use multimedia to promote efficiency of a learning environment, she found those technologies simple. She thought she could use visual principles while developing materials or worksheets but she still found herself inadequate in using visuals for educational purposes. She thought she could be able to develop materials by using Web 2.0 tools such as Kerpoof, but it should be developed. She thought online technologies could be very helpful in promoting students' interaction with their teachers; however, she did not have enough knowledge to have and use such a technology except for Google Groups. She needed to learn how to support certain pedagogical methods by certain kinds of tablet PC applications. To summarize, she had some knowledge of technological pedagogy, but she was not confident in using her knowledge and she found her existing knowledge inadequate.

I have realized now that we, actually, use very simple things. Especially when we consider teaching vocabulary, technology that we mostly use is playing a song from YouTube, or providing [new] words through a presentation. It is not sufficient... (C8_TPK) Q92

If interaction is important between students and teachers or students and tools, programs for that purpose can be developed. They can be developed in a lab environment by having multiple programs added to the environment. I do not think that I am sufficiently prepared for this. (C8_TPK) Q93

I can return to the topic of Google Groups about use of online communication tools. I might repeat it as it is very popular nowadays. These are very simple points actually; you can reach few students or teachers only by using an e-mail. Use of more advanced communication technologies should be given in the course. (C8_TPK) Q94

Finally, her level of TPACK was not high enough, because she did not feel confident in using technology to support students' language learning. She stated that she needed to experience what kinds of technologies would be beneficial for various EFL activities. She did not know alternative technologies other than audio and video technologies so that they could use them effectively to teach EFL. She has explored some kind of EFL-related applications using a tablet PC, but she did not have adequate knowledge to integrate them into EFL teaching. The following excerpts show her relevant statements:

If we learn how to integrate technology into one topic, let's say if I gain a basic knowledge in that I can do this activity while teaching a main topic in this manner, then everything will be much easier. Now, it is very difficult to integrate it appropriately. (C8_TPACK) Q95

If our professor provides more intense information about how to use tablet PCs, I learn how to integrate it. Now, we learned it superficially, and many of us had not seen a tablet PC before. (C8_TPACK) Q96

Overall, she was not confident about her knowledge of technology (TK) and EFL-related technology (TCK). She had concerns about applying her TPK into practice because of her limited experiences. Finally, her limited knowledge and experiences related to technology, technology-related content, and pedagogy resulted in a low level of TPACK as she described with her own sentences. All these qualitative results indicated that her low level survey scores were aligned with holistic-content analysis results.

Case-11

Descriptive survey results for case-11 showed that he perceived his TPACK knowledge domains much higher than the mean scores of his classmates. That is, all of the mean scores for case-11 were above the total mean scores of the 88 preservice EFL teachers. Figure 4.9 shows his mean scores and total mean scores of the 88 preservice EFL teachers for TK, TCK, TPK, and TPACK, respectively.

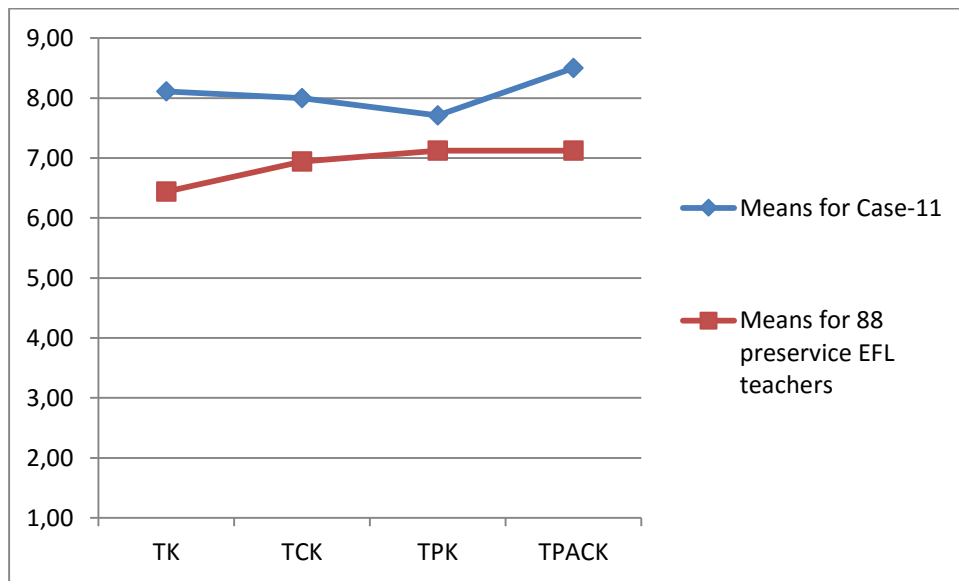


Figure 4.9 Survey scores of case-11 in comparison to scores of the 88 preservice EFL teachers

Case-11 perceived his TK as 8.11 while the TK mean score of the 88 preservice EFL teachers was 6.44. His high level of TK can also be seen in the demographic information he provided in which he noted he was exempted from a course on basic technological knowledge, namely “Introduction to Information Technologies and Applications”. He assessed his TCK as 8.00 whereas the 88 preservice EFL teachers’ mean score for TCK was 6.94. He considered his TPK as 7.71 which was higher than the 88 preservice EFL teachers’ mean score of TPK ($M_{TPK}=7.12$). Also, as the

highest mean score, his TPACK mean score was 8.50 which was above the total TPACK mean score of the 88 Preservice EFL teachers ($M_{TPACK}=7.12$).

According to the holistic-content analysis results, case-11 was very talented with technology in general and he had a positive attitude towards technology and technology integration into education which can be seen in his following statements:

Technology is tools that make our lives easier...In fact, it does not make our lives difficult; we might not anticipate possible problems sometimes. If we take precautions for those problems, it does not complicate our lives. It depends on us. (C11_ATTaTI) Q97

We need technology also in education, because what it provides for education is very important. For example, it offers visual and audio affordances. (C11_ATTaTI) Q98

I might have learned faster if topics were presented to us more enjoyably by using technology. (C11_ATTaTI) Q99

His talent and positive attitudes made him confident about TK. Except for using Smart Boards, he had a high level of TK in using Web 2.0 tools, adjusting computer settings, troubleshooting, using Office programs, using basic technological terms, and using classroom equipment. He easily adapted to using Web 2.0 tools; he was confident in adjusting computer settings since he was a child; he found it easy to solve usual problems that might be caused by technology; he was successful in using Office programs so much so that he was exempted from a course teaching Office programs; he had learned to use technological terms appropriately; he stated that he was able to use classroom equipment such as computers and projectors. On the other hand, he needed more practice in using Smart Boards. His statements relevant to his abovementioned TK perceptions are as follows:

I am really interested in computers and technology; my interest might partly come from my dad. I have had a computer since I was in third grade. I continually deal with it. I had times I deleted system files as I

thought they were unnecessary; but I have learned somehow.
(C11_TK) Q100

At least, one can solve minor problems that may arise in computers, because it is time-consuming to wait for a responsible person to fix the problem during a lesson. Or, sometimes, the Internet connection might be cut off. I encountered this problem too frequently this year. An instructor calls a responsible person; then s/he plugs in a cable connector in a second, and it is over. At least, teachers need to be aware of this. They are not very difficult. (C11_TK) Q101

It was related to writing in Microsoft Word, making a font bold, increasing font size, etc. There was no computer-related education in the high school. Later in the university, I exempted the course, IS100. I had already known its content. (C11_TK) Q102

I am not very knowledgeable about Smart Boards or how to conduct distance education even though I am talented in technology. I have difficulty using it if they provide me with a Smart Board and a computer and ask me to connect distantly through that Smart Board. It might take 10 minutes to resolve it, but it decreases lesson time. Therefore, I wish more practice would be provided. (C11_TK) Q103

Although his level of TCK was high enough, his examples of TCK were limited while talking about subject-matter technologies for EFL in comparison to TK examples. He tended to mention using technologies for pedagogical purposes in general rather than for content-specific purposes. Getting his perception of TCK was difficult, because he had an idea that no technology could be used for the subject matter of EFL. While relating technology and EFL, he stated that:

None of the programs we learned were created with the purpose of teaching English or with the purpose of designing activities to teach

English. They can't be right, because I can use those programs to teach Math or Turkish as well as English. (C11_TCK) Q104

Nevertheless, he stated that he could develop his listening skills through using audio technologies. He found e-dictionaries useful to develop his own vocabulary and pronunciation. He also mentioned communication technologies which he could use to develop speaking skills. Although he stated that there could not be technologies that were only focused on EFL, he was confident in using certain technologies to develop his language skills. Excerpts related to these TCK examples can be seen in his statements below:

We had a book with a CD. There were some listening activities on that CD. We were listening to those activities. We completed note taking and fill in the blanks parts from the CD. (C11_TCK) Q105

For example, they can use an audio dictionary as an example for electronic dictionaries. Electronic dictionaries are also technologies other than computers. I used to have one. It was very useful to develop my pronunciation. I used to write a word on it and I could learn both its meaning and its pronunciation only by pushing a button. Also, I could learn how it is pronounced in British English and American English. It is helpful to develop vocabulary and pronunciation. (C11_TCK) Q106

We have a chance to communicate with, for example, native speakers by using various communication technologies. I can develop my speaking and listening through this way. (C11_TCK) Q107

He had a high level of TPK in general due to the fact that most of the positive experiences he mentioned during the interview were about relating technology to pedagogy without focusing on EFL subject matter. He was confident in managing anticipated technological problems, developing educational materials by using technology, selecting technology which would be beneficial, using multimedia to

support students' learning, and designing lessons by using technology. On the other hand, he had concerns about using LMS to support his teaching. His statements related to TPK as follows:

For example, we want to practice by filling in the blanks. We will fill in the blanks on computers. We, for example, design an activity with the programs we learned before for this activity. For example, our instructor asks us to do this. She wants us to use visual or audio materials. She asks for these (practice with fill-in-the-blanks by using audio and video tools). We search for these on the Internet, or create activities by using programs that we learned before and use these in lesson plans. (C11_TPK) Q108

For example, let's think about primary school students who are unfamiliar with abstract things. In order to teach abstract words to these students, they need to be able to touch on them, see them, or smell them. I can't do this for abstract words; but I can, at least, find visual materials that I can use to teach through computers. I can teach through this way. Or, when we, again, consider primary school students, their concentration time is 2-3 minutes at most. In order to make them sit in their seats, I need to show a cartoon, or a picture. But the purpose of that cartoon should not be to entertain students; rather, I should teach, (for example), simple past tense through that cartoon. To achieve this, I need to create it myself. For example, "What did you do?" is written in a speech balloon. Through this way, I instill simple past tense into students. On the other hand, it takes 5 minutes to give grammatical rules of past tense and students write its rules in their notebooks. But, I teach it through a cartoon or a picture; it takes 10 minutes, but students learn faster and more permanently. (C11_TPK) Q109

When we think about the benefits of technology, for example, we have distance education. Formerly, teachers and students would be required to gather in a certain place and then return to their homes by getting necessary materials to provide distance education. But now, a student anywhere in the world can meet at any time with a student in Turkey. In this respect, I can benefit from the Internet or technology, for example, when an English project with a group will be done.

(C11_TPK) Q110

Finally, his TPACK was at a high level. He exemplified how he could use communication technologies to develop students' speaking and listening skills. He stated how he could promote students' active language learning by using technology. He was able to benefit from technology to support students' collaboration while developing their language. Finally, he could support EFL teaching methods such as task-based learning and communicative approach by using technology. The following excerpts present these TPACK examples with his statements:

For example, you will get tickets at the airport. This is used. How we can do this... A woman in the office, for example, says 'Welcome.' 'Welcome' is written. A guy [customer] over there needed to say 'Thanks.' This is left blank and a student is asked to write 'Thanks' in that blank. If the student writes 'Goodbye,' it warns the student that it is a wrong answer. When s/he writes 'Thanks,' it gives a notice like 'Correct answer.' We can do something like that. When we think about task-based [learning], the purpose is to teach chunks and grammatical rules in certain events in daily life such as getting tickets at the airport, or changing tickets at the airport [these are different from each other]. I can design such a program as an example.

(C11_TPACK) Q111

For example, we communicated with Stephanie Kress in other classes. We had a virtual meeting with her. She gave a seminar for us. We did

this as an extracurricular activity. This [practice of communication] showed that I can use it in the future, because she is in the U.S. and we do not have a chance to invite her here. As for me, I can comfortably bring about a meeting between students and native speakers. (C11_TPACK) Q112

For example, using a slide show is teacher-based [as] students are not active in that. Things that make students active can be used. For example, students can, at least, be given homework on the computer. They can do homework on the computer. This is already a learner-based application, because I can provide students with the chance to develop their language learning with their own use of technology rather than the teacher's use. (C11_TPACK) Q113

Overall, holistic-content analysis results showed that he was confident in technology and technology integration. He described how he could confidently use certain technologies in general, to develop his language skills, for pedagogical purposes, and to teach EFL. This means that his narrative analysis confirms his high survey scores for TK, TCK, TPK, and TPACK domains.

Case-12

According to the survey results, case-12 perceived his level of TK ($M_{TK}=7.34$) and TPACK ($M_{TPACK}=7.50$) above the total mean scores of the 88 preservice EFL teachers ($M_{TK}=6.44$, $M_{TPACK}=7.12$) while his mean scores of TCK ($M_{TCK}=5.00$) and TPK ($M_{TPK}=6.14$) were below the total mean scores of his classmates ($M_T=6.94$, $M_T=7.12$). Figure 4.10 illustrates his mean scores for TK, TCK, TPK, and TPACK by comparing them with the total mean scores of his classmates.

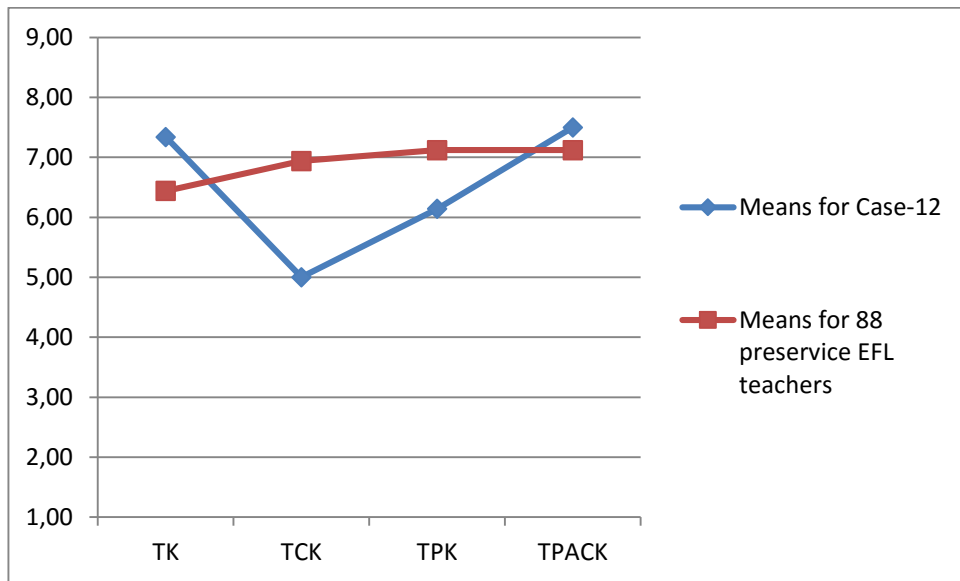


Figure 4.10 Survey scores of case-12 in comparison to scores of the 88 preservice EFL teachers

Holistic-content analysis results showed that he was confident in technology and integrating technology into EFL teaching. Possibly, his positive attitude played a big role in his confidence. His general attitude towards technology and technology integration was truly positive as can be seen in the following excerpts:

Technology is everything that we can see now. Computers in this room, this table, I mean everything...It is everything that can be seen as agents which make any job easier for people. (C12_ATTaTI) Q114

When technology or rather materials are used appropriately, much more information will be transferred, and it increases the capacity of students' understandings in comparison to old-fashioned methods. I absolutely support it... I believe technology will be mostly beneficial, or it will be helpful for most of the students when it is integrated. (C12_ATTaTI) Q115

He had a high level of TK except for using Smart Boards and troubleshooting. He was confident in using computers in general. Furthermore, he was good at using Office programs and Web 2.0 tools. He stated he did not need to learn Web 2.0 tools one by one, because it was sufficient for him to experience a few examples to learn the others which showed that he perceived himself as capable to learn digital tools on his own. On the other hand, he did not have an opportunity to experience Smart Boards although he was very motivated to learn how to use them; therefore, he stated that he did not know how to use them. Finally, he stated that they (he, his friends, and the instructor) could not solve a technical problem which a staff member could troubleshoot in a few minutes. Although he did not state that he was bad at troubleshooting, it was clearly seen that he had concerns about troubleshooting. His perceived level for using Smart Boards and troubleshooting was not high; however, he was truly confident in using technologies he had a chance to experience such as computers (in general), Office programs, and Web 2.0 tools. His statements relevant to his TK perception are as follows:

Most of us know how to use a computer. Course-319 included things that we had already known. How to prepare a presentation, or how to use Word and Excel are the things we have already known. (C12_TK) Q116

What we did in that course...We prepared a storybook and a postcard as similar activities. Some of them were unnecessary; we could have learned them by ourselves. (C12_TK) Q117

For example, we take a course here. There is a PC in every classroom. A problem occurs today. We could not fix it and someone is called. He deals with it for a few minutes and solved it. However, a teacher's knowing how to fix it would have prevented time lost there. (C12_TK) Q118

He found insufficient his knowledge of EFL-related technologies although he was good at using audio and video tools to develop his language skills and using online

dictionaries to develop his vocabulary. He thought they should have been taught more diverse technologies. Furthermore, he stated he could not benefit from any technology to develop his grammar knowledge. Although it was difficult to decide his perceived level of TCK, the researcher concluded that his TCK was not high enough, because he perceived that EFL-related technologies he knew are not sufficient.

There are certain online dictionaries with pictures. For example, I used to use one of them. When a word was entered, a picture was also displayed. There was also Cambridge and Collins. When you opened an ordinary dictionary, it does not have the same effect. At least, you see the word with its picture. It is unnecessary to buy a dictionary in terms of money and effort you spend to find a word. It is sufficient to type the word in a computer. (C12_TCK) Q119

I can say that technologies taught were not sufficient. For example, as I mentioned about level of knowledge before, the only example was concept maps [for someone whose level of English knowledge is intermediate]. While doing assignments in that [course], we thought we were dealing with childish jobs, because we have learned activities only for students whose knowledge level was below intermediate level. There might be some programs that can be used for different levels [other than Web 2.0 tools]. I wish we could have learned them in the course. (C12_TCK) Q120

I could not find any [technology] for grammar. I see it as a thing that will be memorized. It is a thing that should be understood by extensive use. Actually, it can be handled by doing listening practice, exposure, or using structures, and reading again. I do not know any other technology [for that]. (C12_TCK) Q121

His TPK level could be also considered as low. Unlike his classmates, he provided a few TPK examples. He had concerns about managing anticipated problems while

using technology in classroom. Moreover, in addition to learning how to use Smart Boards, he thought they needed to learn how to integrate Smart Boards into instructional processes. Other than using multimedia to appeal to students' multiple senses, he did not provide his perceptions about technologies supporting any pedagogical approaches. The following excerpts present his TPK perceptions:

They taught [doing] a contingency plan so that we have an alternative plan for an emergency...However, problems which arise because of technology lead teachers not to use technology. If everything depends on a computer or a technological tool, a class hour is wasted when that tool does not work. One of the biggest issues for teachers is being able to teach curricular topics on time. An error that a tool gives might touse all plans. (C12_TPK) Q122

For example, there is a Smart Board that nobody knows how to use. If there is a book that provides how Smart Boards are used, we read it seriously, because we do not have an idea about that and we need to know how to use it. It is quite beneficial if we are provided information about how, in which parts, and in what manner it is used in the lecture of the course and we prepare some projects in the lab session. (C12_TPK) Q123

For example, we can add visuality with a presentation or something else. How much visualization can we provide by drawing something on a board? We can use video or develop materials with the help of technology. Through this way, we can increase students' understanding by applying multiple intelligences. (C12_TPK) Q124

His perceived TPACK level can be considered as high, because he had integration scenarios on his mind related to technologies that he was good at. He thought he was capable of integrating Web 2.0 tools into EFL teaching. He could also use communication technologies to provide students a chance to speak with native speakers. On the other hand, he thought there was no effective technology to develop

students' writing skills. However, he did not perceive that as a lack of knowledge, because he did not need learning materials other than traditional ones to develop students' writing. His relevant statements are as follows:

I believe I can integrate technology, because if I am proficient about a topic and I know for which level and how I prepare [a lesson], I can integrate technology into the lesson. (C12_TPACK) Q125

For example, let's compare a speaking class and a writing class. There needs to be a native speaker in a speaking class for students to talk to so that they can understand English appropriately and be familiar with [an English] accent. Most of the teachers in Turkey are not native speakers. I can fill this gap by making students listen to an example of a native speaker in a speaking class. (C12_TPACK) Q126

Overall, although he was talented in technology, he did not see his knowledge of technologies sufficient for developing language skills and supporting pedagogical strategies. He needed to learn more diverse and advanced technologies to be satisfied in those knowledge domains. On the other hand, he was confident that he could teach EFL effectively by integrating technologies that he was capable of using. As a result, holistic-content analysis results supported his survey scores in that he perceived his TK and TPACK as high while his TCK and TPK are somehow at a low level.

4.2.2. Misaligned Cases

Holistic-content analysis results of three cases did not completely support their descriptive survey results. In these cases, the TPACK-EFL survey and holistic-content analysis of interviews did not reveal parallel results for preservice teachers' perceived TCK and TPK levels. For their perceived TK and TPACK levels, alignment was maintained.

All of the mean scores of case-9, one of the misaligned cases, were above average while the mean scores of case-10 and case-3 were less than the total mean scores of

the 88 preservice EFL teachers. Descriptive survey results and holistic-content analysis results of each misaligned case are presented in detail below.

Case-3

The TPACK-EFL survey results for case-3 revealed that she had a low level of knowledge for technology-related TPACK domains. As Figure 4.11 shows, all of her means scores for TK, TCK, TPK, and TPACK were below the mean scores of the 88 preservice EFL teachers. She rated her TK as 2.56 which was much lower than the TK mean score of her classmates ($M_{TK}= 6.44$). Her TCK mean score was 5.34 while her classmates' TCK mean score was 6.94. She perceived her TPK and TPACK as 5.00 which were also lower than the mean scores of the 88 preservice EFL teachers ($M_{TPK}= 7.12$, $M_{TPACK}= 7.12$).

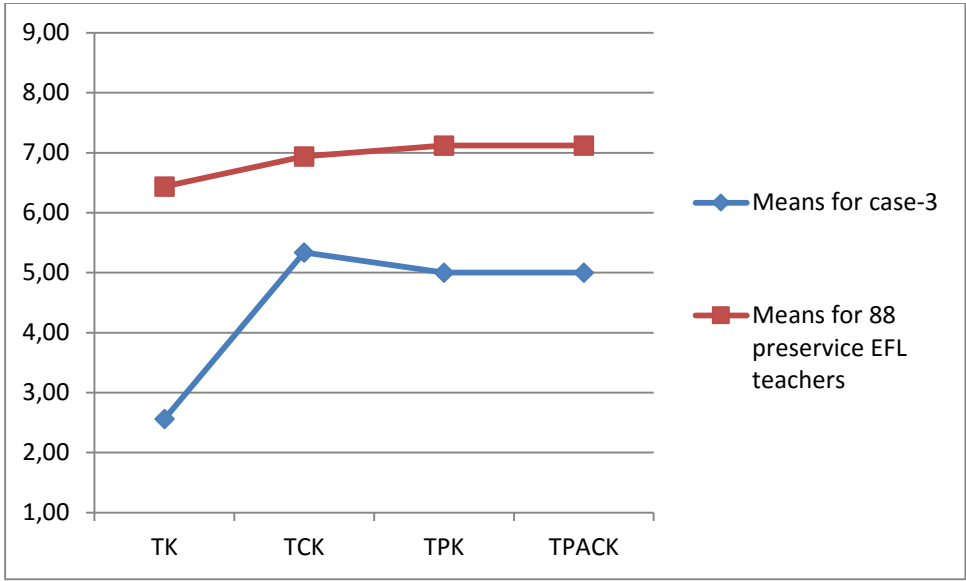


Figure 4.11 Survey scores of case-3 in comparison to scores of the 88 preservice EFL teachers

Holistic-content analysis results showed signs of her existing knowledge as well as her lacking knowledge for technology-related TPACK domains. According to holistic-content analysis results, she approaches technology both in a positive and

negative manner. She thought technology brought some disadvantages such as waste of time and safety problems in addition to its affordances for the globalized world. However, she insisted on the need for integrating technology into education without stating any harm for education. Her attitude towards technology and her positive attitude towards technology integration can be seen in the following excerpts:

Technology is an overall system that I could not decide whether it is beneficial or harmful. Because there are many benefits of it, it occurs with a good purpose but it also does much harm. It has as many drawbacks as advantages. (C3_ATTaTI) Q127

That is to say globalized, in short here, we can learn instantly the things that occur kilometers away. We can meet people. Namely, with respect to communication, it has many important benefits. However, people misused it. Hence, with this perspective it should be used more wisely. The important thing is awareness. (C3_ATTaTI) Q128

However in education, with good causes, it is a system which could be used perfectly. I take sides with technology in that way. If we make good use of technology it is on our side. It connects all people, because it emerged in good purposes and we can form a global education. In other words it gets beyond the Turkish education system. Every tasks gets easier and technology is present in education for either visualization or any other senses. (C3_ATTaTI) Q129

She used technology, but she was reluctant to use technology at the same time because of its disadvantages such as being time-consuming or being exposed to risks. Although she confidently used certain technologies such as Web 2.0 tools, video editing software, and projectors, she found her technological knowledge insufficient when it was compared with students' knowledge. She was not confident in using advanced technologies or advanced properties of technologies. She stated that she did not know Office programs at an advanced level. Her following statements related

to TK showed that she had a relatively low level of TK although she was able to use a few simple technologies:

It was very good in the lab part [learning Web 2.0 tools]. I mean it gained our favor and we especially use Prezi. In other words, there is no PowerPoint. We use Prezi, we like it. We were quite used to it. It was good that it did not remain as just a course. (C3_TK) Q130

For example, we are the generations of the 90s. We were not exactly born into technology. However, this new generation was born into technology and education cannot be taught without it anymore because they were born this way. We seem to stay behind, because we were not exactly born in that way. However, they cannot be without [technology]. (C3_TK) Q131

Excel and Word are fundamental software. In other words, we can open and use these software a bit but most of us do not know their advanced features. For example, I especially do not know Excel. (C3_TK) Q132

Her level of TCK was high enough. She was able to use various technologies such as multimedia, ESL labs, and international chat rooms to develop her language skills. She mentioned audio and video technologies she frequently used and she suggested using them for different age groups insistently. She stated she benefitted from ESL labs to practice her language skills. Finally, she was able to use chat rooms to practice her writing with international members of those chatrooms. As can be seen in the following excerpts, she was remarkably confident in using those technologies and saw the benefits of them in developing EFL skills which could be understood from her suggestions for other language learners.

Podcasts are good, I suggest listening to them a lot also online quizzes and such things. In other words, for both exam periods and for learning, they are enjoyable. [By choosing] the proper one for their

ages, people can do them in their spare time as an extracurricular activity. (C3_TCK) Q133

For example; I had begun to learn Italian and I had to find someone who can speak Italian; I think that it can be helpful in these situations. We are writing something like “What did you do during the weekend?” He wants to improve his Turkish, I want to improve my Italian. I write in Italian, he writes in Turkish. Then we correct what each other wrote. In other words, it is very good in those websites...There are names and ages of people. What languages they want to improve appear. You enroll. People who want to talk are talking but I just write to my partner. (C3_TCK) Q134

According to the holistic-content analysis of case-3’s interview, she used technologies mostly for supporting her instructional practices which might be effective also for other subject matter areas. That is, those practices signified her high level of TPK. For example, she was comfortable in using multimedia to support students’ learning. She mentioned that she frequently used slide shows, audio, or video for her teaching practices. She was able to use technologies in accordance with target audiences. She was confident in communicating with students by using technologies (e.g. using social networks to support students’ learning out of class). She knew how she could use social networks effectively to support students’ learning. She exemplified her technology integrated lesson plans which included slide shows, videos, audios, and learning management systems. She was worried only for managing students when she used technology in a classroom environment. Her statements relevant to her TPK perceptions as follows:

Things that attract their attention should be used. For example if they are kids we made a story book or animation. These can be used easily. It can both teach and entertain and in this way it can both popularize technology and the course. Besides, it should reach students online.

For example, I am not in the classroom and if there is something missing, then he can form an online class. There can be discussions. There can be questions in students' minds; if it is not enough in class, it can be held online. While people are on Facebook, they should be able to make a discussion. In my point of view, an online class is very reasonable. (C3_TPK) Q135

We prepare a lecture plan. At the beginning, to introduce the topic to the students, for instance, we may tell a story or we can show a related video. Then, while teaching the subject, we prepare a presentation or a PowerPoint, namely it becomes the easy step. After that, we can watch a related video; we can make them listen to a song. Well, after the lecture has finished, we can make them listen to a song to make it more enjoyable. We can make gaps in the lyrics, and they can fill them. For example if it is a song, as far as we cannot sing we make them listen to it. Certainly there is something—the era of writing on the blackboard and writing there has ended already. We show some written things on there for enabling them to take notes or there is metu.online or there is metu.net. We can upload them. In other words, you can use schema, if you had written on the black board then we upload to METU online; there is technology in any case. (C3_TPK) Q136

Controlling students can be difficult in class, because computers intervene between teacher-student relationships. I mean there can be difficulty in controlling steps. (C3_TPK) Q137

She was good at using technology for general pedagogical purposes; but this was not the case for teaching EFL. Her scenarios for technology integration included only supportive technologies such as for recording, or for showing a case to promote students to talk. None of the scenarios incorporated technologies to develop students' language learning directly or to promote EFL teaching methods (e.g. task-based

learning, communicative approach) directly which showed her level of TPACK was not high enough. She stated she did not know how to use technology for task-based learning. Similarly, she was not sure whether she could be able to use communication technologies to support the communicative approach. The following excerpts reflect her TPACK perceptions:

[In task-based learning] the purpose is to observe something, to teach something. I use presentations to teach something mostly. However, in task-based learning the goal is to observe what is done. Hence, there is nothing that I am going to present so I would not use a presentation...I do not know how to use [technology]. (C3_TPACK) Q138

For example, [in task-based learning] I can suggest to another person to make a video or record a sound, I mean I would use these. In other words people are real ones and in communication nothing else can be used, just to observe what they have done can be used. (C3_TPACK) Q139

If we look at it in a traditional sense, there should be nothing in between. I mean, due to the fact that it is communication, two people should be face-to-face. Sure there is technology, and it can be online but it can have negative effects. (C3_TPACK) Q140

Overall, she was able to use technology to develop her language skills and to support her pedagogical strategies in general rather than to teach EFL. She was motivated to use technologies that she practiced before; however, she was not confident in integrating technologies that directly develop students' EFL skills which might be caused by her insufficient TK at an advanced level. As a result, holistic analysis indicated that her TK and TPACK were at a low level while her TCK and TPK was good enough. These results were not aligned with her survey scores which showed a low level for everything.

Case-9

Survey results for case-9 demonstrated a high level of TK, TCK, TPK, and TPACK, because his mean scores for these knowledge domains were above average. The difference between his mean scores and the 88 preservice EFL teachers' mean scores can easily be seen in Figure 4.12. His TK mean score was 7.00 while the 88 preservice EFL teachers' mean score for TK was 6.44. All of his ratings for TK items were above six except for the item related to adjusting settings such as installing software and setting up an Internet connection, which he rated as two. His mean scores for TCK, TPK, and TPACK were 8.00 which were higher than the means scores of the 88 preservice EFL teachers ($M_{TCK}=6.94$, $M_{TPK}=7.12$, $M_{TPACK}=7.12$).

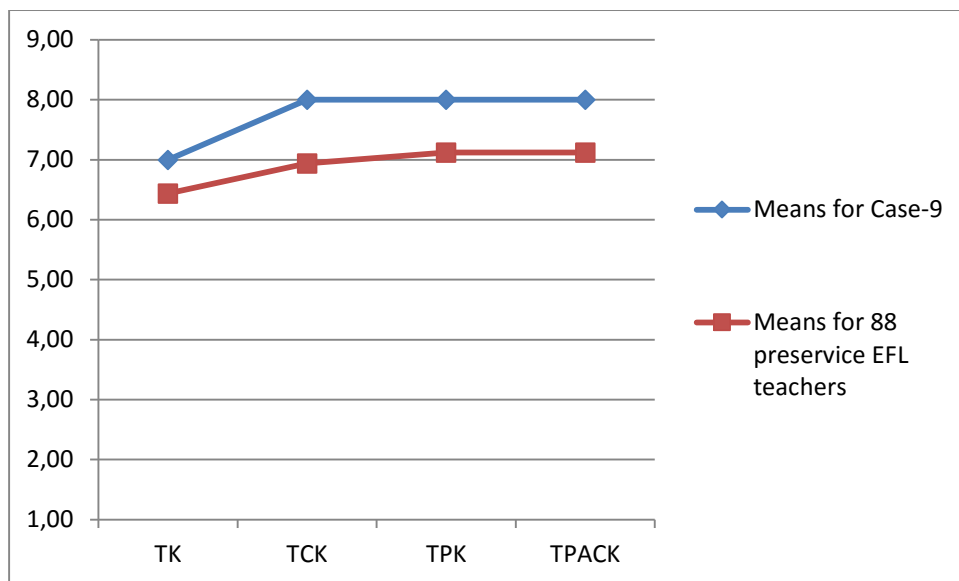


Figure 4.12 Survey scores of case-9 in comparison to scores of the 88 preservice EFL teachers

Holistic-content analysis of the interview conducted with case-9 showed that he had a high level of knowledge for successful technology integration. Although he had a negative attitude towards technology and technology integration into education, his

rich experiences with technology since he was a high school student positively affected his level of knowledge related to technology integration. In addition to his negative attitudes, he also thought technology was beneficial in enriching a learning environment. The following excerpts reflect his views of technology and technology integration:

When we look at the development of technology, always we see that they are inventions that are made for people's benefits but their purpose of use always devolves. If we think in terms of education, maybe it is seen as helpful for people with its preliminary designs for now, but I think that it can be used badly for education in the future. Why I am thinking in this way? Now, when we look there are tablet projects. Probably there will be others in our educational life but it seems to be that they are things that enter our life with the purpose of removing teachers from classes. (C9_ATTaTI) Q141

He reflected his high level of TK with statements for specific technologies. He stated he has rich experiences related to computer and projector usage since he was a high school student. He found Web 2.0 tools easy to use which means he trusted his ability to learn how to use these tools with little guidance. He was confident in using tablet PCs and Smart Boards about which most of the interviewees stated their insufficient experiences.

Actually, we did not have a school which has great facilities. There were projectors, and computers. We did not use anything else. Actually, our classes had a few people; there were 5 girls and a boy. This boy was me so my teacher made me do everything. Thus, I learned everything. (C9_TK) Q142

We mostly learn how we can benefit from certain websites in the labs. I mean I think that if a person knows those websites, he can solve them quite easily. It is important, of course, that someone should show them

but there was no need to teach them in a quite detailed way. (C9_TK)

Q143

Holistic-content analysis results indicated that his TCK was not high enough. Although he provided two TCK examples, his perception of TCK is not high enough to declare that his TCK was aligned with his high survey score for TCK. He stated he used audio and video tools and an international Web site to develop his language skills. However, he did not provide any details about his usage of these technologies. He only stated that he listened to music, he watched movies, and he tried to correspond through an international web site. There was no sign he was an active user of those technologies to develop his language skills. It was like he had used those technologies a few times. Moreover, when the interviewer asked follow-up questions to get more details, he answered that he could not find technologies to develop his speaking, and he did not have a chance to use technology to develop his language skills. Some of his statements related to his TCK can be seen below:

We were told to improve a foreign language; read, listen to, and talk. I listened to music, I watched movies. (C9_TCK) Q144

I could not find more opportunities to talk, but there were some suggested chat sites and I logged into them and tried to write to people that I did not know, because there was no opportunity to talk. I could not find [that kind of technology]. (C9_TCK) Q145

The fewest number of examples he provided was for TPK. He only acknowledged that he could use multimedia for the purpose of appealing to students' multiple senses as all of the other preservice EFL teachers mentioned in the interviews. His relevant statement is as follows:

For example, the Prezi presentation web site, which we learned in the 319 course, is a different thing, a pleasant thing. It can attract students' attention. Besides this, we were making animations. (C9_TPK) Q146

He left unanswered the interviewer's follow-up questions related to TPK and did not talk about anything else that associated technology with pedagogy. He stated that he did not prefer to use online assessment tools. He did not know about technologies to support pedagogical strategies in class. His thoughts about the negative effects of technology influenced his technology usage for educational purposes in a bad way. In conclusion, his answers showed that he was very finicky in selecting technology, and this pushed him to use traditional methods rather than integrating technology.

What can it be? Now, to support these kinds of things first there should be variety. In other words, both things that a teacher creates and resources that a teacher provides from the outside. I always was a person who likes diversity. We benefitted from it in various ways in the microteaching that we had done. For example, we had prepared a 3D thing of our topic that we intended to teach. As far as 3D we formed something from cardboards by cutting and pasting. Then we used drawings, computers. It could be this kind of thing. I think that there is no necessity for technology. (C9_TPK) Q147

Actually, PowerPoint presentations that are proper for visual intelligence is used, listening to things is used properly for audio intelligence...of course it can go beyond this... [But] I do not know. I do not think that I can give examples right know. (C9_TPK) Q148

He was quite confident in integrating technology into EFL. He believed that if a teacher could use technological affordances for developing his or her own EFL skills, s/he could use it to promote students' language development by integrating pedagogical knowledge. He discussed how he could use a 3D learning environment to promote students' vocabulary, specifically for names of geometrical shapes. He said he knew how he could use tablet PCs to develop his students' language development. He was sure that he could use Smart Boards efficiently to teach EFL.

Maybe students can participate in the action of the current topic by using technology. For example, I am especially referring to the

beginning phase, students will be full of actions. In primary schools, they want to be active. It can be used accordingly. Currently, 3D technology is reachable everywhere. By using this, I think that we can inspire them. For example, let me give an example from our thing. We were doing microteaching in class. We were going to teach shapes to our friends. If there were primary school students, we may use 3D for students to see themselves as if they were between shapes. (C9_TPACK) Q149

Actually my suspicion about FATIH [Movement of Enhancing Opportunities and Improving Technology] project is originated from this. In previous generations, the generation of our teachers did not grow up with technology. Hence, if we want to integrate technology right now, obviously there will be difficulties; surely, teachers cannot use that. However, us and the next generations, maybe because they were in the situation, I believe that we can use it to a large extent. We know how it can be used. (C9_TPACK) Q150

Overall, he has a high level of technological knowledge and knowledge for technology integration into EFL teaching while his TCK and TPK were not high enough. He trusts his ability to use technology and ability to integrate technology, but his thoughts related to negative effects of technology impact his technology usage to teach EFL negatively. These results show that holistic analysis results did not support his high survey scores.

Case-10

Descriptive survey results indicated that she had a low level of knowledge for all technology-related TPACK domains when her mean scores were compared with her classmates' scores (see Figure 4.13). She perceived her TK as 3.89 which was much lower than the TK mean score of the 88 preservice EFL teachers ($M_{TK}=6.44$). Her TCK mean score was 5.00 while the TCK mean score of the 88 preservice EFL teachers was 6.94. Although her TPK mean score ($M_{TPK}=6.00$) was the closest one to

the mean score of her classmates, it was still below the mean score of the 88 preservice EFL teachers ($M_{TPK}=7.12$). Finally, her TPACK mean score was 5.50 which was lower than the TPACK mean score of the 88 preservice EFL teachers ($M_{TPACK}=7.12$).

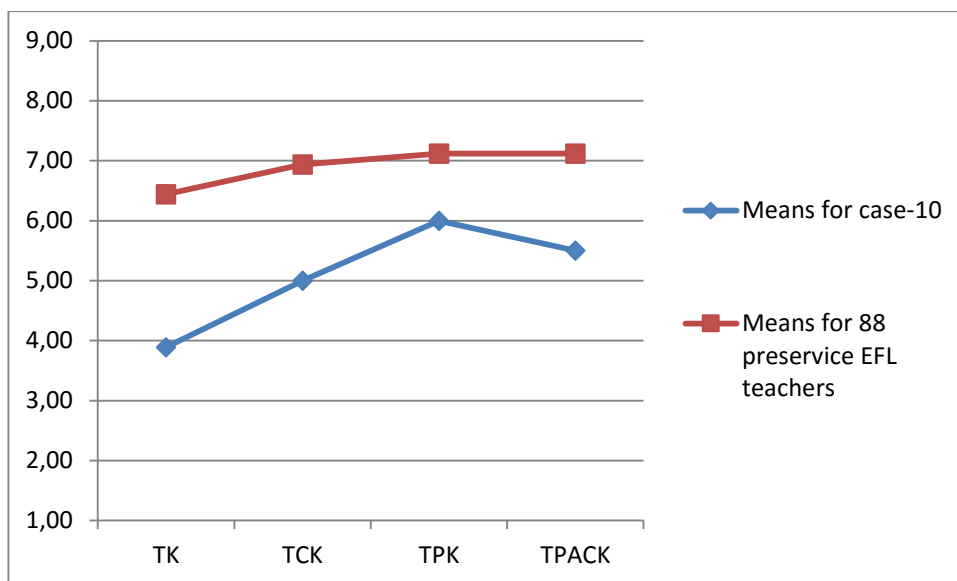


Figure 4.13 Survey scores of case-10 in comparison to scores of the 88 preservice EFL teachers

Holistic-content analysis of the interview conducted with case-10 showed that she was not a confident technology user. She thought that technology simplified our lives; but at the same time, she saw technology as complicated tools. So, she approaches technology and technology integration both in a positive and in a negative manner as can be seen in the following excerpts:

I can say that technology is a system that makes our lives both easy and difficult. (C10_ATTaTI) Q151

Technology might cause difficulties for people who are not very confident in using technology like me. (C10_ATTaTI) Q152

She thought she was not good at using technology in general except for her ability to use Web 2.0 tools. The interviewees who had a high level of TK found it unnecessary to learn each Web 2.0 tool one by one, but she was satisfied with learning each Web 2.0 tool one by one. She also specified her unconfidence for TK by stating that her usage of Office programs was not at an advanced level. She also stated her concerns related to the distinction between students' level of TK and teachers' level of TK. The following excerpts indicated her perceived TK level:

I am not that bad at technology. I, of course, know how to use Word, PowerPoint, etc. in general, but I do not know their advanced features; therefore, I think my knowledge is not enough as I do not perfectly know every feature. (C10_TK) Q153

I have learned many things in the course. We did an activity each week [by using a Web 2.0 tool]. I still use them [Web 2.0 tools]. They were neither too complex nor too easy. They were appropriate in terms of our knowledge level. (C10_TK) Q154

Despite limited usage of technology, she was appreciably confident in using certain technologies to develop her language skills. She could frequently use audio and video tools in an effective way to develop her listening skills. She also described in detail how she benefitted from ESL labs to develop her language skills. These descriptions pointed out that she comfortably used technology to develop her language skills when she needed support in ways other than traditional ways. That is, her level of TCK was fairly well as can be seen as follows:

Before college, I did listening [to develop my language skills]. I also watched movies. I still watch them frequently. I think computers are very effective in terms of listening practice, watching movies, and listening to songs. Their use is widespread in the subject matter of EFL. I developed my language like this. (C10_TCK) Q155

There are many websites like ESL labs which are related to the subject matter of EFL in the World Wide Web. I can benefit from those websites while I am practicing my writing skills. In fact, they are very beneficial in this manner...One day, I wanted to practice [my language skills]. There were pdf documents. I downloaded them. Then, I watched demos from a website, whose name I forgot, related to those documents. I tried to practice my listening. I tried to learn vocabulary. In fact, a computer can be adequate when learning a language.
(C10_TCK) Q156

Mostly, she mentioned scenarios in which she used technology for pedagogical purposes in general such as motivating students, appealing to their multiple senses, assessing their knowledge, and managing their learning. She stated she was able to design technology-integrated lessons. She described how she could use multimedia for certain teaching methods or certain pedagogical purposes. She also identified why and how she uses learning management systems to use time efficiently for pedagogical purposes. Although she had some concerns about how using those systems might lessen students' cognitive engagement as they do not take notes, she thought that she could use learning management systems to use time efficiently. Finally, she noted that she was able to use digital assessment tools. These clues demonstrate her high level of TPK as can be seen in the following excerpts:

While teaching a topic, we can use slide shows or pictures if we want to appeal to students' visual intelligence. In this way, we also save time. We do not have to write everything on a board. We generally use slide shows while teaching English. (C10_TPK) Q157

If we write everything on a board, it might be time-consuming. Or, we have to wait for students to take notes for everything. Rather than doing this, I can share notes with students through learning management systems such as metu.online. I think they will save time.
(C10_TPK) Q158

If we consider measurement... We learned to use [online] quizzes. They might be beneficial. I can use them. (C10_TPK) Q159

Although she was experienced in teaching certain EFL subjects using Web 2.0 tools, she stated that she did not know which tools she could use to teach certain EFL skills. She thought she was able to use Web 2.0 tools for pedagogical purposes but was not sure how to use them for which part of EFL teaching. Therefore, she thought she had not learned how to integrate technology into EFL teaching. She had a tendency to use technology for general pedagogical purposes such as motivating, appealing to multiple senses, and managing learning rather than teaching EFL. The reason for this might be she was not confident in integrating certain technologies for certain EFL skills and this made her uncomfortable to use it in main teaching activities. Furthermore, she did not know a technology that she could use while developing students' speaking skills. She preferred to use technology to motivate students to speak rather than to use it in the main speaking activity. These signs show that her level of TPACK is low even though she has some positive experiences with integrating Web 2.0 tools into EFL teaching. Her low level of TPACK can be seen in her following statements:

If we consider [technology] integration... We did not learn about something like 'we can use this [tool] in this part of topic.' This might be left unsupported. We might not find an answer for it. (C10_TPACK) Q160

I might not know everything, but this does not mean that I cannot learn. I am encouraging myself to learn. I have adequate knowledge for now, but I will need to do somethings by myself when I become a teacher in the future. I am worried about what I am going to do then. I do not consider myself to be confident. I do not know everything in every respect. I cannot setup software on my own. Then, I lose my self-confidence, but this does not mean that I will not be able to do it. Once I learn it, I think I can absolutely do it. (C10_TPACK) Q161

If we have a course which is related to how we can use technology while teaching English in class rather than only technology, it might be more beneficial for us...For example, we will teach tenses. It would be better if we discussed which tools we used while teaching tenses, which methods we used, what we did while teaching, etc.
(C10_TPACK) Q162

Holistic analysis results of C10 indicated that she was competent in using technology to develop her language skills and to support her instructional activities in general. However, she was not confident in using technological tools and in integrating technology into developing students' EFL skills. These results show that holistic analysis of C10's interview did not support her survey scores in which all of her mean scores were low.

CHAPTER 5

DISCUSSION AND CONCLUSION

5.1. Auditing the TPACK Constructs through TPACK-EFL Survey

In this study, the TPACK-EFL survey was developed and evaluated as an assessment tool to provide preservice EFL teachers with the opportunity to self-evaluate their TPACK. Although a five-factor structure was found in the first round of validation, the EFA results in the second round of validation supported a seven-factor-structure of the TPACK framework developed by Mishra and Koehler (2006).

Several researchers (Koh et al., 2010; Lee & Tsai, 2010; Archambault & Barnett, 2010; Lux et al., 2011; Hsu et al., 2013; Liang et al., 2013; Shinas et al., 2013; Jamieson-Proctor et al., 2013) failed to provide empirical evidence for the existence of the seven constructs of the TPACK framework. This study validated the seven constructs by means of the methods it used. First of all, the instrument development model (Creswell & Plano Clark, 2007) was incorporated to explore specific knowledge and skills for the items' generation and to evaluate construct validity of the survey items. This model contributed to the study as it provided a rigorous pathway to develop a substantial survey by applying multiple methods in this tool development research. Especially using in-depth qualitative data in items' generation provided more specific, more tangible, and clearer items for the TPACK-EFL survey. Karaca, Can, and Yildirim (2013), Schmidt et al. (2009), and Bilici-Canbazoglu et al. (2013) also presented structured and validated surveys by using qualitative data to develop survey items.

In addition to the use of multiple methods during the tool development, this study endeavored to specify the items for each construct by adding technological affordances to the items and focusing on a subject matter of EFL. Technological affordances in the context of education makes the items specific as Angeli and Valanides stated (2009). Also the subject-matter of EFL has specific knowledge and

skills, pedagogical strategies, and technological affordances. Therefore, including this level of specificity might lead the preservice teachers perceiving the seven TPACK constructs separately. Furthermore, these specified items also highlight the design of technology-related development programs of preservice foreign language teachers as the items included specific knowledge and skills that preservice teachers should possess for successful technology integration.

Language teaching focuses on using language rather than learning the content of that language (Borg, 2006). This unique nature of the EFL subject matter even affected how the researchers designed the survey items. The researchers specified items based on this specific nature of the subject matter of EFL by applying in-depth qualitative methods. As a result, multiple items for each TPACK construct could be developed rather than generic items or one item for each subject matter area (e.g. Kaya & Dag, 2013; Schmidt et al., 2009). These specific items brought clearer boundaries among TPACK constructs and as a result, a well-structured survey. Others have also suggested that specified items help participants to properly interpret the items (Koh et al., 2010; Angeli & Valanides, 2009).

Although specific items were developed for the TPACK-EFL survey before the first round of validation, the TCK items could not be perceived as a separate construct according to the results of the first round of EFA. Therefore, the researcher rewrote the TCK items from a new perspective that focuses on the use of technologies for preservice EFL teachers' own language development rather than EFL content's representation which was perceived as representation for teaching purposes. This enabled preservice EFL teachers to interpret TCK items distinctly from pedagogical items. This new perspective also supports Lin (2010) as she claims that the way a teacher teaches a language is influenced by the way s/he learned the language. That is, when teachers develop their TCK by using various technologies for their own language development, they use this experience to develop their students' language learning.

The use of specific items in the TPACK-EFL survey and TCK items written by looking at TCK from a different point of view enabled preservice EFL teachers to perceive TCK items independent from pedagogy. However, issues related to TCK still exist, because only two of the TCK items exhibited high factor loadings and the third item had a weaker loading. This result supports other researchers (Koh et al., 2010; Archambault & Barnett, 2010; Zelkowski, Gleason, Cox, & Bismarck, 2013), which shows that TCK items should be further developed.

In addition to the issues related to TCK items, several TPACK items distinctly loaded on the TPK factor. It might be due to the fact that phrases in those items such as “deciding to use technology (Item 33)” and “design learning materials (Item 34)” were interpreted for pedagogical purposes in general rather than teaching EFL. This showed that the current definitions of the TPACK constructs make it challenging to clearly conceive of and assess the constructs in practice. Although each of the survey items in the current study was created based on expert opinions in multiple forms (e.g. national standards, expert interviews, etc.), the difficulties with developing items for TCK, TPK, and TPACK in the current study support scholars who have noted that the boundaries among the TPACK constructs may not be clear enough to use them in practice (Angeli & Valanides, 2009; Brantley-Dias & Ertmer, 2013).

5.2. Evaluating Convergence Emerged within Cases on Each Technology-related TPACK Construct

In this study, TPACK-EFL survey scores were corroborated with holistic-content analysis of interviews to provide an evidence for convergent validity of the TPACK-EFL survey. Convergent validity was maintained by indicating that results of two different instruments for the same constructs were related to each other (Koehler, Mishra, Kereluik, Shin, & Graham, 2014; Kopcha, Ottenbreit-Leftwich, Jung, & Baser, 2014). The instruments were the TPACK-EFL survey and an interview which aimed to get preservice EFL teachers’ experiences related to TK, TCK, TPK, and TPACK. Rather than providing evidence for all of the constructs, the study focused

on checking convergence of technology related TPACK constructs of the TPACK-EFL survey.

The study found similar results for each technology-related TPACK construct according to holistic-content analysis and TPACK-EFL survey scores. That is it provided enough evidence for convergent validity of technology related TPACK constructs which was supported by Sahin (2011) and Burgoyne (2010). On the other hand, Kopcha et al. (2014) reported a low level of convergence for the constructs of TCK, TPK, and TPACK between the TPACK survey developed by Schmidt et al. (2009) and a lesson planning rubric (Harris, Grandgenett, & Hofer, 2010). A high level specificity of TPACK-EFL items and an instrument development model (Creswell & Plano Clark, 2007) that was used for the development of the TPACK-EFL survey might have strengthened convergence of the TPACK-EFL survey as they contributed to construct validity of the survey.

Although holistic-content analysis results for each technology-related TPACK construct were mainly aligned with TPACK-EFL survey scores, there was also a misalignment in three of the 12 cases. Holistic-content analysis results of these three cases were partially misaligned with the descriptive survey results. Two of the three cases perceived their TCK and TPK levels quite high according to holistic-content analysis results while their TPACK-EFL survey scores were below average. On the other hand, holistic-content analysis results indicated the third case had a low level of TCK and TPK in contrast to the survey results. That is, holistic-content analysis results and TPACK-EFL survey results of the three cases were misaligned for the constructs of TCK and TPK which were problematic in the studies of Archambault and Barnett (2010), Chai et al. (2010), and Koh et al. (2010). Alignments and misalignments of the results are discussed separately for each technology-related TPACK construct below.

5.2.1. Technological Knowledge (TK)

Holistic-content analysis results for the 12 preservice EFL teachers' perceived TK levels were aligned with their survey scores of TK. Although there seemed to be a

misalignment of case-2's TK score and qualitative data analysis of her interview, it was not a misalignment. Her TK score was below the total mean score of 88 preservice EFL teachers and holistic-content analysis results of her interview indicated a high level of TK at first. However, she perceived her TK level as not high enough when the researcher and the external audit examined the case carefully. She considered she was not an advanced technology user because she could only use typical technologies such as Office programs, projectors, etc. Therefore, corroboration of survey results with qualitative analysis results showed a total alignment. This result provided evidence for convergent validity of the TK construct.

The result of providing existence of convergent validity of the TK construct supported several studies. Burgoyne (2010) examined convergent validity of the TPACK constructs and found some issues related to convergent validity of the TK construct; however, he concluded that the results provided enough evidence for convergence of TK although some of TK items should be revised. Sahin (2011) also provided an indicator for convergence of TK by looking for a correlation between TK survey score and average grade of computer classes.

5.2.2. Technological Content Knowledge (TCK)

The TPACK-EFL survey scores and interview results were aligned in nine of the 12 cases for TCK construct. As a result, a high level of convergence within the TCK construct was maintained which support the results of Sahin (2011) and Burgoyne (2010). However, it is important to note that three of the cases showed misalignments between quantitative and qualitative results for the TCK construct, and level of convergence within TCK construct was dampened by these misalignments. Possible reasons for the misalignment for each case are discussed below.

The first case whose qualitative results were misaligned with quantitative survey results was case-9. Case-9 was the only case having a high TCK score ($M_{TCK} = 8.00$) from the TPACK-EFL survey while he had a limited TCK according to holistic-content analysis results as in the case of Kopcha et al. (2014). The misalignment might be due to the case's overestimation of his TCK through a self-report measure

of the TPACK-EFL survey as Kopcha et al. (2014) stated, or, he might have had a high TCK but did not reflect it in the interview. Qualitative results showed that he was not an active user in developing his language skills. He was just familiar with a few technological affordances that might be beneficial for language development. His limited experience might be due to his negative attitude towards technology rather than his low level of knowledge. That is, he might have an ability to use technologies to develop his language skills but he had not experienced them due to his low motivation. Therefore, the researcher was not sure about a misalignment for this case.

Case-10 was another case indicating misalignment between TPACK-EFL survey scores and interview results within the TCK construct. Holistic-content analysis results indicated that Case-10 was confident in using technology to develop her language skills despite her low survey score ($M_{TCK} = 5.00$). During the interview, she did not mention wide range of technologies for her EFL development; however, she discussed her experience in detail with great confidence as can be seen in her excerpts presented in the Results section.

Case-3 also had a high level of TCK according to holistic-content analysis results. However, she rated her TCK below average. The common point for case-3 and case-10 was that they thought they were not advanced technology users and technological affordances in TCK items were somehow advanced for these cases. Therefore, misalignment between quantitative and qualitative results of case-10 and case-3 might be due to the number and variety of items under the TCK construct. The three TCK items were not enough to represent technologies that might be beneficial for language development. Golonka et al. (2012) provided empirical support for various technologies (automatic speech recognition, computer-based communication tools, blog, electronic dictionary, intelligent tutor, SMS through a cell phone) that develop language skills. TCK items can be added by using studies indicating beneficial technologies for language development.

As a conclusion, there is still a high level of convergence between the TPACK-EFL survey scores and holistic-content analysis results within the TCK construct. This result strengthened the existence of the TCK construct in practice which supports the claims of the TPACK framework (Mishra & Koehler, 2006).

5.2.3. Technological Pedagogical Knowledge (TPK)

The TPACK-EFL survey has a high level of convergence within the TPK construct, because nine of the cases indicated alignment between the survey scores and holistic-content analysis results within the TPK construct as found in the studies of Sahin (2011) and Burgoyne (2010). Holistic-content analysis results of the rest of the three cases (case-3, case-9, and case-10) did not support TPK survey scores.

Case-9 perceived his TPK as high according to descriptive survey results; on the other hand, holistic content analysis results indicated that he had a low level of TPK. In cases 3 and 10, the reverse was true – they had a low TPK score from the TPACK-EFL survey while they showed a high level of TPK in qualitative results.

Case-9 stated in the interview that he did not know about pedagogical technologies except for using multimedia to support students' learning. Although he had not experienced technological pedagogical skills in the survey items according to holistic-content analysis results, he rated most of the TPK items as 8.00 which is between 'Quite a Bit' (7) and 'A great deal' (9) on the TPACK-EFL survey.

These high ratings might be caused by his considerably high confidence level of TK. That is, he might perceive himself as an advanced user for all technology related TPACK constructs even though this was not the case as he highly trusted his abilities to use technology. On the other hand, he might overestimate his TPK knowledge just because the TPACK-EFL survey is a self-report measure as stated by Kopcha and Sullivan (2007) and Lawless and Pellegrino (2007) rather than the measure itself.

Contrary to case-9, case-3 and case-10 assessed their technology related TPACK knowledge below average on the TPACK-EFL survey while they provided rich TPK examples indicating their high level of TPK as found by holistic-content analysis.

The reason for this misalignment might be their perception of advanced technologies while interpreting the TPK items while they mentioned less advanced TPK examples in the interview. Therefore, TPK items might need re-examination in terms of their diversity for level of advanced technologies (Wax & Hales, 1984).

Although a high level of convergence was found within the TPK construct for most of the cases, the three cases' misalignments showed that TPK items of the TPACK-EFL survey still need to be developed. These misalignments might also be due to the confusion between TPK and TPACK items found while establishing construct validity of the TPACK-EFL survey. A clearer definition for TPK might help researchers to develop more appropriate TPK items (Agyei & Keengwe, 2012; Graham et al., 2009).

5.2.4. Technological Pedagogical Content Knowledge (TPACK)

Results of the study suggested a high level of convergence within the TPACK construct. Holistic-content analysis results for all of the 12 cases aligned with their TPACK-EFL survey scores which supports Sahin (2011) and Burgoyne (2010).

Several studies (Schmidt et al., 2009; Sahin, 2011; Kaya & Dag, 2013) which developed TPACK survey were able to explore the seven constructs of the TPACK framework through factor analysis; however, there are a few researchers (Sahin, 2011; Burgoyne, 2010) providing evidence for convergent validity of technology-related TPACK constructs. This study also provided convergent validity of technology-related TPACK constructs. This result demonstrated that the study provided strong evidence for construct validity of the TPACK-EFL survey, especially for the technology-related TPACK constructs of the TPACK-EFL survey.

5.3. Conclusion

Preparing preservice EFL teachers to integrate technology into EFL teaching is a crucial goal for teacher educators. The TPACK framework is valuable as it provides a theoretical basis to accomplish this goal. Researchers can benefit from the framework by specifying and elaborating it based on needs of a specific subject-

matter. This study offers a content-specific TPACK assessment tool for preservice EFL teachers so that teacher educators can improve the quality of technology-related teacher education programs for FLE departments. The study provides strong evidences for validity and reliability of the TPACK-EFL survey by exploring seven constructs of the TPACK framework through factor analysis and finding convergence between descriptive survey results and qualitative data within technology-related TPACK constructs.

5.4. Implications and Suggestions

The results of this study suggest that using multiple methods including qualitative ones as in the instrument development model (Creswell & Plano Clark, 2007) might benefit TPACK surveys that will be developed for other specific subject-matter areas. Although some issues related to TCK and TPK constructs existed, seven TPACK constructs were validated through two rounds of EFA and a corroboration of survey results with qualitative data. This result indicates that developing a subject specific TPACK survey by using an instrument development model might improve the clarity of the items. As a result, it is a good way to validate a TPACK survey.

The TPACK-EFL survey offered in this study is the first specifically developed and validated TPACK survey for preservice EFL teachers. Therefore, the survey can be translated into other languages of communities in which English is taught as a foreign language so that the TPACK-EFL survey can be used to assess preservice EFL teachers' TPACK in those communities in a valid and reliable manner.

5.5. Suggestions for Future Research

Although seven constructs of the TPACK framework were validated in this study, the number of TCK items is not sufficient. More TCK items of the TPACK-EFL survey should be generated through document analysis of relevant studies that provide empirical support for technologies developing language skills.

In addition to the issues related to TCK, there are minor problems for the TPK constructs during the validation of the TPACK-EFL survey. TPK items should be

revised based on a clearer definition of TPK to make a better distinction between TPK items and TPACK items.

The TPACK-EFL survey should continue to be developed by providing evidence for construct, and convergent validity through confirmatory factor analysis or more sophisticated statistical analysis. Evidence for discriminant validity is also needed especially for TPK and TPACK constructs as some of the TPACK items were perceived as TPK according to EFA results. Burgoyne (2010) found that there was a low level of discrimination between TPK and TPACK constructs. Therefore, discriminant validity for the constructs of the TPACK-EFL survey should be provided through a more sophisticated statistical analysis.

The English version of the TPACK-EFL survey should be validated to enable international use of the survey. The English version of the final TPACK-EFL survey items can be found in Appendix F.

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APPENDIX A

INTERVIEW SCHEDULE FOR INSTRUCTORS

English Version of the Schedule

1. How many times have you given the course IT&MD course before?
 - a. For which departments?
2. What kinds of technologies have been included in the course content?
 - a. What kinds of technologies should be added for a better technology related teacher education course?
3. Were there any content-specific technologies for foreign language students among the technologies in the course content?
 - a. If so, what were they?
 - b. What kinds of content-specific technologies should be added to increase the quality of the course for FL students?
PROMPT: Technologies for writing, reading, listening, and speaking
4. What kinds of specific knowledge should pre-service foreign language teachers have got to relate technology to their specific content area successfully?

PROMPT: Know how to use content-specific technologies (technical skills)

Know how to represent the content through that technology

Know what kinds of content-specific technologies exist to represent that topic (Know existing technologies)

Know whether the technology is appropriate or not for the objectives of the lesson (Ability to select appropriate technology for the objectives of the lesson.)

Know for what objectives/topics they can use that technology

Know how that specific technology can be used for the specific objectives / topics

5. Does the knowledge you mentioned depend on the specific content area?
ALTERNATIVE: Does it change according to the specific content area?
 - a. Can you explain it with examples?
6. How does the content influence the technology?
7. How does technology influence content?
8. Were there any pedagogical technologies among the technologies in the IT&MD course content? If so, what were they?
 - a. What kinds of pedagogical technologies which teachers can use for educational purposes out of content should be added to increase the quality of the course for FL pre-service teachers?
ALTERNATIVE: What kinds of technologies can be given as examples that may help teachers for a pedagogical use for out of content?

PROMPT: for motivational purposes

for communicational purposes

for visualization

for classroom management

for facilitating

9. What kinds of specific knowledge should pre-service teachers have got to relate technology to pedagogy?
ALTERNATIVE: What kinds of specific knowledge should pre-service teachers have got integrate technology in a pedagogical manner?

PROMPT: Know how to use pedagogical technologies (technical skills)

Know existing technologies

Know how to integrate

Know ICT-based learning strategies

10. Can you provide example technologies to match a specific pedagogical strategy?
11. How does technology influence instructional methods and the content?
12. What are the essential knowledge and skills specifically for pre-service foreign language teachers to integrate technology into their future classroom environment successfully?
 - a. How pre-service foreign language teachers can be prepared so that they can apply their knowledge into practice in their future classrooms?
13. What other suggestions do you have for improving the preparation of pre-service foreign language teachers for integrating technology?
 - a. What message did you receive from your IT&MD students about course content, whether explicit or implicit?

Thanks for your valuable explanations. I believe they will be very beneficial for my thesis. If you have anything to add, I will be glad to listen to you.

Turkish Version of the Schedule

Merhaba hocam, Őu an tez d6nemimdeyim ve bu g6rüşme de tezimin veri toplama sürecinin bir parçası olacak. Öğretim sürecine teknoloji entegrasyonu ve öğretmen adaylarının başarılı bir teknoloji entegrasyonu için ihtiyaç duyacağı spesifik bilgi ve beceri türleri ile ilgili görüşlerinizi almak için buradayım. Görüşmeyi “Öğretim Teknolojileri ve Materyal Geliştirme” dersinde edindiğiniz deneyimlerinizden yararlanmak amacıyla sizinle yapmak istedim.

Bu görüşme ile başarılı bir teknoloji entegrasyonu için ne tür bilgi ve becerilerin gerekli olduğunu spesifik olarak keşfetmeyi umut ediyorum. Elde edilen sonuçların teknoloji entegrasyonunu pratikte de geliştirmemize yardımcı olacağına inanıyorum. Dolayısıyla sizin teknoloji entegrasyonu hakkındaki deneyiminiz ve düşünceleriniz bu çalışma için gerçekten çok önemli.

Öncelikle soru sormaktaki amacım tamamen düşünce ve deneyimlerinizden faydalanabilmek... Söylediklerinizin kesinlikle gizli kalacağını belirtmek isterim. Verdiğiniz cevapları sizin isminiz geçmeden yaptığım araştırma için kullanacağım. Cevaplarınızı eksiksiz kayıt altına alabilmek için ses kayıt cihazı ile kaydetmem sizin için bir problem yaratmaz umut ediyorum... Bana sormak istediğiniz herhangi bir şey varsa cevaplayabilirim...

1. IT&MD dersini daha önce kaç kere verdiniz?
 - a. Hangi bölümlere verdiniz?
2. Dersin içeriğinde ne tür teknolojiler mevcuttu?
 - a. Sizce daha iyi bir teknoloji entegrasyonu eğitimi için ne tür teknolojiler içeriğe eklenmeli?
3. Sizce yabancı dil öğretmen adaylarının dijital teknolojileri öğrencilerine İngilizce öğretme hedeflerini gerçekleştirebilmek amacıyla kullanabilmeleri için sahip olmaları gereken teknik bilgi ve beceriler neler? (teknolojik altyapısının yeterli düzeyde olabilmesi için ne gerekli)

PROMPT: Temel donanım-yazılım → Ne gibi temel donanım/yazılım? Hangileri?

Teknik sorunlar → teknik sorun ile neyi kastediyorsunuz?

4. Sizce öğretmen adayları yeni teknolojileri kullanmaya ve derslerine entegre etmeye nasıl adapte olabilirler?
 - a. Yabancı dil öğretmen adaylarının gelişmekte olan teknolojileri takip edebilmeleri için gerekli olan teknolojik ön bilgi nedir sizce?
 - b. İleride yeni teknolojileri araştırmaları ve kullanmaları için öğretmen eğitimi sırasında nasıl yönlendirilebilirler?
5. Yabancı dil aday öğretmenlerinin teknolojiyi başarılı bir şekilde entegre edebilmeleri için sahip olmaları gereken alan bilgisinden bahsedebilir misiniz?
6. IT&MD ders içeriğinde yabancı dil alanına özel teknolojiler var mıydı?
 - a. Dersin kalitesini arttırmak için hangi alana özgü teknolojiler içeriğe eklenmeli?

PROMPT: Speaking, reading, writing, vocabulary, listening

7. Sizce yabancı dil öğretmeni adaylarının teknolojiyi kendi alanları ile başarılı bir şekilde ilişkilendirebilmeleri için ne tür bilgi ve becerilere sahip olmaları gereklidir? (spesifik)

PROMPT: alana özgü konulara hitap eden teknolojilerin varlığından haberdar olmak

Alana özgü teknolojileri (hangi teknolojiler) nasıl kullanacağını bilmek (teknik bilgi ve beceriler)

Dersin spesifik kazanımına uygun olan teknolojileri seçebilmek

Teknoloji kullanımının daha verimli kılacağı kazanım ya da konulara karar verebilmek

Spesifik olarak belirlenen konunun içeriğinin teknoloji ile nasıl sunulabileceğine karar verebilmek

Teknolojinin belirlenen kazanım ya da konuyu sunarken nasıl kullanılacağına karar verebilmek

8. Bahsettiğiniz bilgi ve beceriler yabancı dil alanına mı özgü yoksa tüm öğretmen adayları için geçerli mi?

ALTERNATIVE: Bahsettiğiniz bilgi ve beceriler farklı branşlardaki öğretmen adayları için değişiklik gösteriyor mu?

a. Örneklerle açıklar mısınız?

9. Ne tür teknolojik reprezentasyonlar öğrencilere yabancı dil öğretmede yardımcı olabilir?

PROMPT: simülasyon, multimedya (çoklu ortam), visual demonstrations (görsel uygulamalar), auditory representations (işitsel uygulamalar), interactive representations (etkileşimli uygulamalar)

10. Sizce içerik teknoloji kullanımını nasıl etkiler?
11. Sizce teknoloji, öğretmenlerin sunacağı içeriği nasıl etkiler?
12. Yabancı dil aday öğretmenlerinin teknolojiyi başarılı bir şekilde entegre edebilmeleri için sahip olmaları gereken pedagoji bilgisinden bahsedebilir misiniz?
13. Sizce teknoloji kullanımı, öğretmen adaylarının pedagojik stratejilerini nasıl etkiler?
14. Sizce kullanılan pedagojik strateji teknolojinin kullanımını nasıl etkiler?
15. Belirli bir pedagojik strateji ile eşleştirebileceğimiz teknolojiler sizce mevcut mudur?
- a. Mevcutsa, örnek verebilir misiniz?
- b. Değilse, neden?
16. Alan bilgisi öğretiminden bağımsız olarak öğretmenlerin sadece pedagojik stratejilerine katkı sağlayabilecek teknolojiler mevcut mudur? Mevcutsa, hangileri?

ALTERNATIVE: Ne tür teknolojiler öğretmen adaylarının pedagojik stratejilerini daha verimli kılabilir / destek olacak teknolojilere örnek olarak verilebilir?

- a. Vermiş olduğunuz IT&MD ders içeriklerinden herhangi biri öğretmen adaylarının pedagojik stratejilerine destek olabilecek teknolojiler içeriyor muydu? Hangileri?
- b. Dersin kalitesini arttırmak için başka ne tür pedagojik teknolojiler (öğretmen adaylarının eğitim amaçlı kullanabileceği, onların pedagojik stratejilerini daha verimli kılacak teknolojiler) içeriğe eklenmeli?

PROMPT: öğrencilerin motivasyonunu artırma amaçlı, öğrenciler ile iletişim kurma amaçlı, ortak çalışma yapma amaçlı, görselleştirme amaçlı, sınıf yönetimi amaçlı, kolaylaştırma (facilitating) amaçlı, öğrencilerin öğrenmelerini değerlendirme amaçlı...

17. Sizce öğretmen adaylarının alan öğretimini işin içine katmadan teknolojiyi pedagojik stratejileri ile başarılı bir şekilde ilişkilendirebilmeleri için ne tür bilgi ve becerilere sahip olmaları gereklidir? (spesifik olarak)
Mesela kullanacakları pedagojik stratejiyi teknoloji ile destekleyebilmek için kritik bir şekilde düşünebilmesi lazım değil mi?

PROMPT: Teknolojinin pedagojik stratejileri desteklemek için kullanımı konusunda kritik düşünme becerisi

Farklı pedagojik yaklaşımları destekleyen teknolojilerin varlığından haberdar olmak

O teknolojileri (hangi teknolojiler) nasıl kullanacağını bilmek (teknik bilgi ve beceriler)

Dersin pedagojik yaklaşımına uygun olan teknolojileri seçebilmek

Teknoloji kullanımının daha verimli kılacağı pedagojik stratejilere karar verebilmek-Teknoloji destekli pedagojik stratejileri bilmek

Belirlenen pedagojik stratejinin teknoloji ile nasıl uygulanabileceğine karar verebilmek

Teknolojinin belirlenen pedagojik stratejiyi uygularken nasıl kullanılacağına karar verebilmek

Teknolojiyi uygulanan pedagojik stratejiye, pedagojik stratejiyi kullanılan teknolojinin özelliklerine göre adapte edebilmek

Kullanılan teknolojileri ve stratejileri farklı öğrenme ortamlarına adapte edebilmek (nasıl)

Teknolojiyi entegre ederken sınıfa hâkim olabilmek

18. Sizce bir yabancı dil öğretmeni adayının, yabancı dil alan bilgisi, ilgili pedagojik bilgisini ve teknolojik bilgisini interaktif bir şekilde kullanabilmeleri ve derslerine entegre edebilmeleri için gerekli diğer bilgi ve beceriler neler olabilir?

- Bu üç öğeyi derslerine başarılı bir şekilde entegre edebilmek için *pedagojik anlamda* sahip olması gereken bilgi ve beceriler neler sizce? Örneklerle açıklayınız?

PROMPT: doğru stratejinin belirlenmesi (..... konusunu öğrencilerin keşfedebilmeleri için teknolojinin öğretmen tarafından doğru bir şekilde seçilip kullanılabilmesi, öğrencilerin konusunu problem çözme tekniği ile öğrenebilmeleri için teknolojinin öğretmen tarafından doğru bir şekilde seçilip kullanılabilmesi)

- bu üç öğeyi derslerine başarılı bir şekilde entegre edebilmek için *yabancı dil alanı ile ilgili* sahip olması gereken bilgi ve beceriler neler sizce? Örneklerle açıklayınız?

PROMPT: Dersin kazanımının hangi yöntemle ve teknoloji ile daha iyi öğretilebileceğine karar verebilme

- bu üç ögeyi derslerine başarılı bir şekilde entegre edebilmek için teknolojik açıdan sahip olması gereken bilgi ve beceriler neler sizce? Örneklerle açıklar mısınız?

PROMPT: Dersin kazanımına ve kullanılan pedagojik stratejiye en uygun teknolojileri seçebilme

Uygun teknolojileri matematik konularını öğretmek veya öğrencilerin öğrenmesine destek olmak için kullanabilme

19. Yabancı dil öğretmeni adaylarının teknoloji entegrasyonu konusunda daha başarılı bir şekilde eğitilebilmeleri için ne gibi önerilerde bulunabilirsiniz?

- a. Öğrencilerinizin açıkça ya da dolaylı olarak IT&MD dersinin içeriği ile ilgili ne gibi talepleri oldu?

Verdiğiniz cevaplar için gerçekten çok teşekkür ediyorum. Benim sorularım eksik olabilir, sizin eklemek istediğiniz şeyler varsa dinlemeyi çok isterim...

APPENDIX B

INTERVIEW SCHEDULE FOR PRESERVICE TEACHERS

English Version of the Schedule

Department:

Date:

Time (start-stop):

Place:

Introduction

Hello, my name is Derya Başer, from Computer Education and Instructional Technologies department. I am here to learn more about your ideas about technology integration into instructional process, what type of knowledge you require for successful technology integration, and through which ways you can acquire it. I am interviewing students who take the “Instructional Technologies and Material Development” course. My hope is to understand what kinds of knowledge are needed for successful technology integration and how it can be achieved for preservice teachers. I hope my findings will help to improve technology integration in practice. So, I am really interested in your personal reflections about technology integration.

What you say to me is completely confidential. I don't pass on anything you tell me. And I don't use your name in anything I write. If you have a question, I can answer... I would like to tape our conversation. Is it OK with you? And you are free for the next hour and a half, right?

1. Have you ever taken a course or seminar related to Instructional Technologies except for “Instructional Technologies and Material Development” course?
 - a. What is it?
 - i. Can you explain?
2. What do you think about what is technology?
 - a. What do you think about Instructional Technologies?
3. What do you think about advantages of the use technology for educational purposes?
4. What do you think about disadvantages of the use technology for educational purposes?
 - a. What can it be done to minimize these disadvantages?
5. How should technology be integrated into a classroom environment?

PROMPT: Teacher’s technology usage, and students’ technology usage

 - a. Have you ever had such an experience?
6. What do you think about the basic technological knowledge and skills that should be learned by pre-service teachers from all disciplines?
7. What do you think about sufficiency of the technologies you have learned in this course?

PROMPT: equipment and application
8. What are the technologies which contribute to students’ any kinds of learning according to you?
 - a. How can they be used in instructional process?

- b. What kinds of knowledge and skills do pre-service teachers need to integrate these technologies into instructional process?
 - c. What do you think about how these kinds of knowledge can be gained in preservice teacher education programs?
- 9.** What kinds of technologies do you think are beneficial to transform mathematical terms?
- a. What kinds of knowledge and skills do pre-service teachers need to transform mathematical terms using these technologies?
 - b. What do you think about how these kinds of knowledge can be gained in preservice teacher education programs?
- 10.** What are your major concerns about integrating technology into Mathematics lessons?
- a. How can you handle with these concerns?
- 11.** If you summarize, what kinds of knowledge and skills do you need to contribute students' learning by integrating technology?
- PROMPT: technological, pedagogical, content, technological content, technological pedagogical, technological pedagogical content knowledge
- a. What are the contributions of this course into above mentioned knowledge?
 - b. What do you think about how these kinds of knowledge can be gained in preservice teacher education programs?
- 12.** What do you think about whether you can use knowledge you have learned in this course in future practice of your professional life or not?
- a. What kinds of strategies can be applied to enable pre-service teachers apply these knowledge and skills in their real life?

- 13.** Please, tell me about any experiences you think that the course was successful in integrating technology into instructional process.
- 14.** Please, tell me about any experiences you think that the course was unsuccessful in integrating technology into instructional process.
- 15.** What can you suggest for developing the IT&MD course so that pre-service Mathematics teachers can be more successful in technology integration?
- 16.** Do you have anything more to say to develop technology integration of preservice teachers?

Turkish Version of the Schedule

Bölüm:

Tarih:

Saat:

Yer:

Merhaba, ben Derya Başer. Bilgisayar ve Öğretim Teknolojileri Eğitimi Bölümünde araştırma görevlisiyim. Teknoloji entegrasyonu, başarılı bir teknoloji entegrasyonu için gerekli bilgi ve bu bilginin hangi yollarla edinebileceği konusunda senin görüş ve düşüncelerini almak için buradayım. Görüşmeyi “Öğretim Teknolojileri ve Materyal Geliştirme” dersini alan öğrencilerden mümkün olduğunca teknolojiye farklı açılardan bakan kişilerle yapmayı amaçlıyorum.

Bu görüşme ile başarılı bir teknoloji entegrasyonu için gerekli bilgi ve bu bilginin nasıl kazanılabileceğini konusunda düşüncelerini almak istiyorum. Elde edilen sonuçların teknoloji entegrasyonunu pratikte de geliştirmemize yardımcı olacağına inanıyorum. Dolayısıyla senin teknoloji entegrasyonu hakkındaki deneyimin ve düşüncelerin bu çalışma için gerçekten çok önemli.

Öncelikle yönelteceğim sorular senin bilgini ölçmek için değil, tamamen düşünce ve deneyimlerinden faydalanabilmek için hazırlanan sorular... Sorulara verdiğin cevaplar bu dersin notlandırılmasına kesinlikle etki etmeyecek. Söylediklerinin kesinlikle gizli kalacağını belirtmek isterim. Verdiğin cevaplar sadece ikimiz arasında kalacak ve senin ismin geçmeden yaptığım araştırma için kullanacağım. Cevaplarını eksiksiz kayıt altına alabilmek için ses kayıt cihazı ile kaydetmek istiyorum. Senin için bir problem yaratmayacağımı umut ediyorum... Bana sormak istediğin herhangi bir şey varsa cevaplayabilirim...

1. Teknoloji sence nedir?
 - a. Öğretim Teknolojileri hakkında ne düşünüyorsun?
2. Öğretim Teknolojileri ile ilgili ders ya da herhangi bir eğitim aldın mı?
 - a. Ne tür bir eğitim aldın?
 - i. Açıklar mısın?
 - b. Aldığın derslerin içinde İngilizce öğretimine teknoloji entegrasyonu eğitimi var mıydı?
3. Teknolojinin eğitim-öğretim amaçlı kullanılmasının avantajları konusunda ne düşünüyorsun?
4. Teknolojinin eğitim-öğretim amaçlı kullanılmasının dezavantajları konusunda ne düşünüyorsun?
 - a. Bu dezavantajları minimum düzeye indirmek için neler yapabiliriz?
5. Teknoloji sınıf ortamına nasıl entegre edilebilir sence?

PROMPT: Öğretmenlerin teknoloji kullanımı

Öğrencilerin teknoloji kullanımı

 - a. Bu tarz bir deneyim yaşadın mı, anlatabilir misin?
6. Tüm branşlardaki aday öğretmenlerin öğrenmeleri gerektiğini düşündüğün temel teknoloji bilgi ve becerileri neler?
7. Aldığın dersler kapsamında öğrendiğin teknolojilerin yeterliliği konusunda ne düşünüyorsun?

PROMPT: Teknolojik araç-gereç ve programlar
8. Herhangi bir konudan ya da dersten bağımsız olarak öğretim ortamına katkıda bulunacağını düşündüğün teknolojiler neler?
 - a. Herhangi bir pedagojik yöneme ya da stratejiye katkı sağlayacağını düşündüğün teknolojiler var mı? Neler?
 - b. Bu teknolojiler öğrenme ve öğretme sürecinde nasıl kullanılabilir?
 - c. Bu teknolojileri sürece entegre edebilmek için ne tür bilgi ve becerilere ihtiyacın var?

PROMPT: Öğrenme stratejileri

- d. Sence aday öğretmenler bu bilgi ve becerileri nasıl daha iyi kazanabilirler?
9. Daha önce İngilizceyi geliştirmek için herhangi bir teknolojiden yararlandın mı?
- a. Ne tür bir teknoloji?
10. Başka hangi teknolojik araçların ya da programların yabancı dil gelişiminde faydalı olacağını düşünüyorsun?
- a. Sence öğretmenlerin bu teknolojileri öğrencilerin İngilizce öğrenmelerine katkıda bulunmak amacıyla kullanabilmeleri için ne tür bilgi ve becerilere ihtiyaçları var?
- b. İngilizce öğretmenliğinde okuyan bir aday öğretmene bu bilgiler nasıl kazandırılabilir?
11. Bir İngilizce öğretmenin alan öğretimine teknoloji entegre edebilmesi için başka ne tür bilgi ve becerilere ihtiyaç var?
- a. Şimdiye kadar aldığınız derslerin, bahsettiğimiz bilgi ve becerilerin (üstte bahsedilenleri tekrarla) hangisine ya da hangilerine ne gibi katkıları oldu?
- b. Sence bu bilgi ve beceriler öğretmen eğitiminde daha iyi nasıl kazandırılabilir?
- i. İngilizce derslerine teknoloji entegre edebilmek için gerekli bilgi ve becerileri kazanma yönünde lisans eğitiminden beklentilerin neler?
12. Teknolojinin İngilizce derslerine entegrasyonu ile ilgili var olan kaygılarından bahseder misin?
- a. Bu kaygıların üstesinden nasıl gelinebilir?
- b. Teknolojiyi İngilizce öğretimine entegre etme konusunda başarılı olduğunu düşündüğün deneyimlerden bahseder misin?
- c. 319 dersinin teknolojiyi ders ortamına entegre etme konusunda başarısız ya da eksik olduğunu düşündüğün deneyimlerinden bahseder misin?
13. Şimdiye kadar öğrendiklerinizin gelecekte sınıf ortamında uygulanabilirliği konusundaki düşüncelerin neler?

- a. Öğretmen adaylarının öğrendiklerini gerçek sınıf ortamında uygulayabilmeleri için eğitim fakülteleri nasıl bir uygulama yapmalı sence?
- 14.** Aday İngilizce öğretmenlerinin teknoloji entegrasyonu konusunda daha başarılı olabilmeleri adına verilmesi gereken eğitim için önerilerin neler?
- 15.** Verdiğin cevaplar için gerçekten çok teşekkürler. Cevaplarının bu çalışma için gerçekten çok faydalı olacağına inanıyorum. Son olarak öğretmen adaylarının İngilizce derslerine teknoloji entegrasyonunu geliştirebilmeleri için eklemek istediğin bir şey varsa zevkle dinlerim.

APPENDIX C

FIRST DRAFT OF THE TPACK-EFL SURVEY

Değerli Öğretmen Adayı,

Bu anketteki maddeler, İngilizce öğretimine başarılı bir teknoloji entegrasyonu için gerekli olan yeterlilik algılarını içermektedir. Lütfen maddelere cevap verirken 1 (*Hiç uygun değil*) ile 9 (*Çok uygun*) arasındaki derecelendirmede sizi yansıtan rakamı yuvarlak içine alınız. Görüşlerinizi içtenlikle yansıtmanız araştırma açısından çok önemlidir. Ayrıca ölçme aracına yönelik değerlendirme yapabilmemiz için kişisel bilgiler kısmını eksiksiz doldurmanız gereklidir. Verdiğiniz bilgi sadece araştırma için kullanılacaktır. Katkılarınız için şimdiden çok teşekkür ederiz.

	Hiç uygun değil	Çok az uygun	Biraz uygun	Oldukça uygun	Çok uygun				
1. Temel Bilişim Teknolojileri terimlerini (işletim sistemi, hard disk, dizin, vb.) doğru bir şekilde kullanabilirim.	1	2	3	4	5	6	7	8	9
2. Program kurmak ve internet bağlantısı kurmak gibi ayarları yapabilirim.	1	2	3	4	5	6	7	8	9
3. Bilgisayar çevre birimlerini (yazıcı, mikrofon, projeksiyon, vb.) kullanabilirim.	1	2	3	4	5	6	7	8	9
4. Olağan teknolojik sorunları (yazıcıdan çıktı alamama, internet bağlantısının kesilmesi, vb.) kendim çözebilirim.	1	2	3	4	5	6	7	8	9
5. Yasal, etik, telif hakkına saygılı ve güvenli bir şekilde Bilişim Teknolojilerini kullanabilirim.	1	2	3	4	5	6	7	8	9

	Hiç uygun değil	Çok az uygun	Biraz uygun	Oldukça uygun	Çok uygun				
6. Projektör, tepegöz ve akıllı tahta gibi dijital sınıf ekipmanlarını kullanabilirim.	1	2	3	4	5	6	7	8	9
7. Ofis uygulamalarını (Word, PowerPoint, vb.) ileri düzeyde kullanabilirim.	1	2	3	4	5	6	7	8	9
8. Teknolojik araç-gereçlerin sundukları olanakları (görsel zenginlik, kapsamlı ve hızlı veri erişimi, vb.) verimli bir şekilde kullanabilirim.	1	2	3	4	5	6	7	8	9
9. Metin, resim, ses, video ve animasyon gibi bilgi kaynaklarını kullanarak çoklu ortam (slayt gösterisi, video, web sitesi, vb.) tasarlayabilirim.	1	2	3	4	5	6	7	8	9
10. Arama motorlarını metin, resim, ses, video ve animasyon gibi çeşitli bilgi kaynaklarına ulaşmak amacıyla kullanabilirim.	1	2	3	4	5	6	7	8	9
11. Sosyal paylaşım siteleri, wiki ve forum gibi sosyal yazılımları verimli bir şekilde kullanabilirim.	1	2	3	4	5	6	7	8	9
12. Amacıma uygun bir şekilde kullanabileceğim dijital araç ve programları İnternet aracılığıyla bulabilirim.	1	2	3	4	5	6	7	8	9
13. Amacıma uygun olabilecek dijital araç ve programları kullanmayı öğrenebilirim.	1	2	3	4	5	6	7	8	9
14. İngilizce konuşarak karşılıklı iletişim kurabilirim.	1	2	3	4	5	6	7	8	9
15. İngilizce yazarak karşılıklı iletişim kurabilirim.	1	2	3	4	5	6	7	8	9
16. Farklı konularla ilgili bilgi ve düşüncelerimi İngilizce sunabilirim.	1	2	3	4	5	6	7	8	9

	Hiç uygun değil	Çok az uygun	Biraz uygun	Oldukça uygun	Çok uygun				
17. İngilizce yazılmış kaynakları kullanarak çeşitli alanlarda farklı görüş açılarını değerlendirebilirim.	1	2	3	4	5	6	7	8	9
18. İngilizce dilini kullanarak çok dilli toplulukların yer aldığı ortamlara başarılı bir şekilde katkıda bulunabilirim.	1	2	3	4	5	6	7	8	9
19. İngilizcenin konuşulduğu ülkeye ait kültürel değer ve farklılıkları (gelenekler, deyimler, vb.) İngilizce dili ile bütünleştirebilirim.	1	2	3	4	5	6	7	8	9
20. İngilizce dil yapısının gerektirdiği becerileri (kelime, dilbilgisi, yazma, okuma, konuşma, vb.) sorgulayabilirim.	1	2	3	4	5	6	7	8	9
21. Öğrencilere ve öğrenme ortamına uygun öğretim yöntem ve teknikleri kullanabilirim.	1	2	3	4	5	6	7	8	9
22. Belirlenen hedefler doğrultusunda etkinlikler içeren öğrenme ortamları tasarlayabilirim.	1	2	3	4	5	6	7	8	9
23. Mesleki gelişimime yönelik uygulamalara (seminer, çalıştay, vb.) aktif katılım sağlayabilirim.	1	2	3	4	5	6	7	8	9
24. Öğrencilerin öğrenmelerini desteklemek amacıyla okul paydaşları (öğrenci, veli, öğretmenler, vb.) ile işbirliği yapabilirim.	1	2	3	4	5	6	7	8	9
25. Öğrencilerin kendi öğrenimlerini takip edip düzenleyebilmeleri amacıyla ders dışında da öğrenmeye güdüleyebilirim.	1	2	3	4	5	6	7	8	9
26. Öğrencilerin öğrenme süreçlerini takip ederek kazanımlarını değerlendirebilirim.	1	2	3	4	5	6	7	8	9
27. Öğrencilerin İngilizce dil becerilerini geliştirmelerini, uygun pedagojik yöntem ve teknikler kullanarak destekleyebilirim.	1	2	3	4	5	6	7	8	9

	Hiç uygun değil	Çok az uygun	Biraz uygun	Oldukça uygun	Çok uygun				
28. İngilizce dil öğretimi müfredatına uygun dil becerilerini geliştirecek nitelikte öğrenme ortamları tasarlayabilirim.	1	2	3	4	5	6	7	8	9
29. Katıldığım mesleki gelişim programlarından edindiğim deneyimi İngilizce öğretim sürecine yansıtabilirim.	1	2	3	4	5	6	7	8	9
30. Okul paydaşları (öğrenci, veli, öğretmenler, vb.) ile işbirliği yaparak öğrencilerin İngilizce dil becerilerini geliştirmelerine destek olabilirim.	1	2	3	4	5	6	7	8	9
31. Öğrencilerin İngilizce öğrenimlerini düzenleyebilmelerini, İngilizce dil yapısına uygun pedagojik stratejilerle destekleyebilirim.	1	2	3	4	5	6	7	8	9
32. Öğrencilerin İngilizce dersine yönelik kazanımlarını ölçebilirim.	1	2	3	4	5	6	7	8	9
33. İngilizce alanında faydalı olabilecek teknolojik ekipmanı (mp3 çalar, video kamera, ses kayıt cihazı, vb.) kullanabilirim.	1	2	3	4	5	6	7	8	9
34. İngilizce konularını sunan çoklu ortamlar (slayt gösterisi, video, web sitesi, vb.) tasarlayabilirim.	1	2	3	4	5	6	7	8	9
35. Arama motorlarını kullanarak İngiliz dili ile ilgili ihtiyaç duyduğum kaynaklara ulaşabilirim.	1	2	3	4	5	6	7	8	9
36. İngilizce alanı ile ilgili işbirliği yapılabilecek sanal ortamlarda (Facebook, wiki, vb.) gerekli düzenlemeleri (grup oluşturma, dosya yükleme, vb.) yapabilirim.	1	2	3	4	5	6	7	8	9
37. İngilizce alanındaki belirli hedeflere yönelik hazırlanmış programları kullanmayı öğrenebilirim.	1	2	3	4	5	6	7	8	9
38. İngilizce alanına uygun dijital değerlendirme araçlarını kullanabilirim.	1	2	3	4	5	6	7	8	9

	Hiç uygun değil	Çok az uygun	Biraz uygun	Oldukça uygun	Çok uygun				
39. Öğretim yöntem ve tekniklerini etkili bir şekilde kullanabilmek için teknolojik araçların sundukları olanaklardan faydalanabilirim.	1	2	3	4	5	6	7	8	9
40. Çoklu öğrenme ortamlarını (slayt gösterisi, video, web sitesi, vb.) öğrencilerin öğrenmelerini desteklemek için kullanabilirim.	1	2	3	4	5	6	7	8	9
41. Mesleki gelişimime sürekli katkıda bulunmak için dijital araç ve kaynaklardan yararlanabilirim.	1	2	3	4	5	6	7	8	9
42. Öğrencilerin sosyal yazılımlar (Facebook, wiki, vb.) yardımıyla kendi aralarında işbirliği yaparak üst düzey düşünme becerilerini geliştirmelerini destekleyebilirim.	1	2	3	4	5	6	7	8	9
43. Öğrencilerin eğitim yazılımlarını kullanarak kendi öğrenimlerini takip edip düzenleyebilmelerini destekleyebilirim.	1	2	3	4	5	6	7	8	9
44. Öğrencilerin öğrenme düzeylerini ölçmek için dijital değerlendirme araçlarını kullanabilirim.	1	2	3	4	5	6	7	8	9
45. İngilizce konularına ve kullanacağım öğretim tekniklerine uygun teknolojik araçları öğrencilerin dil becerilerini geliştirmek için kullanabilirim.	1	2	3	4	5	6	7	8	9
46. Öğrencilerin dil becerilerinin gelişimini desteklemek amacıyla bilgisayar tabanlı çoklu öğrenme ortamlarını (slayt gösterisi, video, web sitesi, vb.) kullanabilirim.	1	2	3	4	5	6	7	8	9
47. İngilizce öğretim sürecini sürekli iyileştirmek için dijital araç ve kaynaklardan yararlanarak mesleki gelişimimi destekleyebilirim.	1	2	3	4	5	6	7	8	9
48. Öğrencilerin İngilizce öğrenmelerini desteklemek için sanal işbirliği ortamlarından (Facebook, wiki, vb.) yararlanabilirim.	1	2	3	4	5	6	7	8	9

	Hiç uygun değil	Çok az uygun	Biraz uygun	Oldukça uygun	Çok uygun				
49. Öğrencileri, ders dışında da öğrenerek İngilizce öğrenimlerini kendilerinin düzenleyebilmeleri için eğitim yazılımları kullanmaya güdüleyebilirim.	1	2	3	4	5	6	7	8	9
50. İngilizce dersine yönelik kazanımları ölçmek için dijital değerlendirme araçlarından yararlanabilirim.	1	2	3	4	5	6	7	8	9

Kişisel Bilgiler

1. Cinsiyet:

- Kadın
- Erkek

2. Sınıf:

- 2. Sınıf
- 3. Sınıf
- 4. Sınıf

3. Mezun olduğunuzda çalışmayı planladığınız kurum:

- Devlet Okulu
- Özel Okul
- Diğer.....

4. Almış olduğunuz zorunlu veya seçmeli teknoloji dersleri:

- CEIT 100 Computer Applications in Education
- IS 100 Introduction to Information Technologies and Applications
- Diğer Ders(ler).....

5. İngilizce öğretimine teknoloji entegrasyonu ile ilgili almış olduğunuz dersler:

- CEIT 319 Instructional Technology and Material Development
- FLE 361 Introduction to Computer Assisted Language Learning Tools
- Diğer Ders(ler).....

Anketimiz bitmiştir, teşekkür ederiz 😊

APPENDIX D

SECOND DRAFT OF THE TPACK-EFL SURVEY

Değerli Öğretmen Adayı,

Bu anketteki maddeler, İngilizce öğretimine başarılı bir teknoloji entegrasyonu için gerekli olan yeterlilik algılarını içermektedir. Lütfen maddelere cevap verirken 1 (*Hiç uygun değil*) ile 9 (*Çok uygun*) arasındaki derecelendirmede sizi yansıtan rakamı yuvarlak içine alınız. Görüşlerinizi içtenlikle yansıtmanız araştırma açısından çok önemlidir. Ayrıca ölçme aracına yönelik değerlendirme yapabilmemiz için kişisel bilgiler kısmını eksiksiz doldurmanız gereklidir. Verdiğiniz bilgi sadece araştırma için kullanılacaktır. Katkılarınız için şimdiden çok teşekkür ederiz.

	Hiç uygun değil	Çok az uygun	Biraz uygun	Oldukça uygun	Çok uygun				
1. Temel teknoloji terimlerini (işletim sistemi, hard disk, kablosuz ağ, sanal bellek, vb.) doğru bir şekilde kullanabilirim.	1	2	3	4	5	6	7	8	9
2. Program kurmak ve internet bağlantısı kurmak gibi ayarları yapabilirim.	1	2	3	4	5	6	7	8	9
3. Bilgisayar çevre birimlerini (yazıcı, mikrofon, projeksiyon, vb.) kullanabilirim.	1	2	3	4	5	6	7	8	9
4. Olağan teknolojik sorunları (yazıcıdan çıktı alamama, internet bağlantısının kesilmesi, vb.) kendim çözebilirim.	1	2	3	4	5	6	7	8	9
5. Projektör, tepegöz ve akıllı tahta gibi dijital sınıf ekipmanlarını kullanabilirim.	1	2	3	4	5	6	7	8	9

	Hiç uygun değil	Çok az uygun	Biraz uygun	Oldukça uygun	Çok uygun				
6. Ofis uygulamalarını (Word, PowerPoint, vb.) ileri düzeyde kullanabilirim.	1	2	3	4	5	6	7	8	9
7. Metin, resim, ses, video ve animasyon gibi kaynaklara İnternet aracılığıyla ulaşabilirim.	1	2	3	4	5	6	7	8	9
8. Metin, resim, ses, video ve animasyon gibi bilgi kaynaklarını kullanarak çoklu ortam (video, web sitesi, vb.) oluşturabilirim.	1	2	3	4	5	6	7	8	9
9. İşbirliği yapılabilecek sanal ortamları (wiki, edmodo, 3B sanal ortamlar, vb.) amaçlarım doğrultusunda kullanabilirim.	1	2	3	4	5	6	7	8	9
10. Amacıma uygun olabilecek programları ve dijital araçları kullanmayı öğrenebilirim.	1	2	3	4	5	6	7	8	9
11. Duygu ve düşüncelerimi İngilizce konuşarak ifade edebilirim.	1	2	3	4	5	6	7	8	9
12. Duygu ve düşüncelerimi İngilizce yazarak ifade edebilirim.	1	2	3	4	5	6	7	8	9
13. İngilizce yazılmış bir metni telaffuz kurallarına uyarak okuyabilirim.	1	2	3	4	5	6	7	8	9
14. İngilizce yazılmış bir metinde ifade edileni anlayabilirim.	1	2	3	4	5	6	7	8	9
15. Ana dili İngilizce olan birini rahatlıkla anlayabilirim.	1	2	3	4	5	6	7	8	9
16. İngilizce dilini kullanarak çok dilli toplulukların yer aldığı ortamlara başarılı bir şekilde katkıda bulunabilirim.	1	2	3	4	5	6	7	8	9

	Hiç uygun değil		Çok az uygun		Biraz uygun		Oldukça uygun		Çok uygun
17. İngilizcenin konuşulduğu ülkeye ait kültürel değer ve farklılıkları (gelenekler, deyimler, vb.) İngilizce dili ile bütünleştirebilirim.	1	2	3	4	5	6	7	8	9
18. Öğrenme ortamına uygun öğretim yöntem ve teknikleri kullanabilirim.	1	2	3	4	5	6	7	8	9
19. Öğrencilerin gelişim düzeylerine uygun öğrenme ortamları tasarlayabilirim.	1	2	3	4	5	6	7	8	9
20. Öğrencilerin öğrenmelerini bedensel, zihinsel, duygusal, sosyal ve kültürel farklılıklarına uygun bir şekilde destekleyebilirim.	1	2	3	4	5	6	7	8	9
21. Öğrencilerin öğrenmelerini desteklemek amacıyla okul paydaşları (öğrenci, veli, öğretmenler, vb.) ile işbirliği yapabilirim.	1	2	3	4	5	6	7	8	9
22. Ders esnasında sınıf yönetimine hâkim olabilirim.	1	2	3	4	5	6	7	8	9
23. Öğrencilerin öğrenme süreçlerini biçime dönük (formative) değerlendirebilirim.	1	2	3	4	5	6	7	8	9
24. Öğrencilerin öğrenme süreçlerini bütüne dönük (summative) değerlendirebilirim.	1	2	3	4	5	6	7	8	9
25. Öğrencilerin İngilizce dil becerilerini geliştirmelerini, uygun pedagojik yöntem ve teknikler kullanarak destekleyebilirim.	1	2	3	4	5	6	7	8	9
26. Öğrencilerin dil becerilerini geliştirecek nitelikte müfredata uygun etkinlikler hazırlayabilirim.	1	2	3	4	5	6	7	8	9
27. Öğrencilerin İngilizce dil seviyelerine göre var olan ders planını uyarlayabilirim.	1	2	3	4	5	6	7	8	9

	Hiç uygun değil	Çok az uygun	Biraz uygun	Oldukça uygun	Çok uygun				
28. Mesleki gelişimim ile ilgili çalışmalarımın edindiğim deneyimi İngilizce öğretim sürecine yansıtabilirim.	1	2	3	4	5	6	7	8	9
29. Öğrencilerin kendi başlarına İngilizce becerilerini geliştirebilmelerini desteklemek amacıyla ders dışında da öğrenmeye güdüleyebilirim.	1	2	3	4	5	6	7	8	9
30. Öğrencilerin edindiği dil becerilerini gerçek hayatta kullanmalarını destekleyebilirim.	1	2	3	4	5	6	7	8	9
31. İngilizce becerilerimi geliştirmek için ihtiyaç duyduğum kaynaklara (İngilizce eğitim yazılımları, kelime alıştırmaları, vb.) İnternet aracılığıyla ulaşabilirim.	1	2	3	4	5	6	7	8	9
32. Bilişim teknolojilerinden yararlanarak (ana dili İngilizce olan biri ile iletişim kurma, İngilizce oyunları oynama, vb.) dil becerilerimi geliştirebilirim.	1	2	3	4	5	6	7	8	9
33. Video, web sitesi, slayt gösterisi gibi çoklu ortamlardan yararlanarak farklı konularla ilgili bilgi ve düşüncelerimi İngilizce sunabilirim.	1	2	3	4	5	6	7	8	9
34. Çok uluslu toplulukların yer aldığı ortamlara uzaktan katkıda bulunabilmek için bilişim teknolojilerinden (Web konferans yazılımı, vb.) yararlanabilirim.	1	2	3	4	5	6	7	8	9
35. Yabancı uyruklu kişilerle sanal ortamlar (second life, wiki, vb.) aracılığı ile ortak çalışma yürütebilirim.	1	2	3	4	5	6	7	8	9
36. Kullanacağım pedagojik yöntem ve stratejileri daha etkili kılacak teknolojik araçlara (sanal işbirliği ortamları gibi) başvurabilirim.	1	2	3	4	5	6	7	8	9
37. Öğrencilerin bireysel öğrenme ihtiyaçlarına öğretim teknolojilerini kullanarak yanıt verebilirim.	1	2	3	4	5	6	7	8	9
38. Öğrencilerin yasal, etik, telif hakkına saygılı ve güvenli bir şekilde bilişim teknolojilerini kullanabilmeleri için onlara rehberlik edebilirim.	1	2	3	4	5	6	7	8	9

	Hiç uygun değil	Çok az uygun	Biraz uygun	Oldukça uygun	Çok uygun				
39. Öğretim teknolojilerini (sanal tartışma ortamları gibi) kullanarak öğrencilerin üst düzey düşünme becerilerini geliştirmelerini destekleyebilirim.	1	2	3	4	5	6	7	8	9
40. Derslerimde öğretim teknolojilerini kullanırken sınıf yönetimine hâkim olabilirim.	1	2	3	4	5	6	7	8	9
41. Öğrencilerin İngilizce müfredatında belirtilen kazanımları verimli bir şekilde edinebilmeleri için bilişim teknolojilerinin olanaklarından (uzak mesafeden iletişim, vb.) yararlanabilirim.	1	2	3	4	5	6	7	8	9
42. Teknolojik araçların İngilizce konularına ve kullanacağım öğretim yöntem ve tekniklerine uygunluğuna karar verebilirim.	1	2	3	4	5	6	7	8	9
43. Hangi İngilizce kazanımlarını bilişim teknolojilerinden yararlanarak vereceğime karar verebilirim.	1	2	3	4	5	6	7	8	9
44. Bilişim teknolojilerini kullanarak öğrencilerin İngilizce öğrenimlerini destekleyecek materyal geliştirebilirim.	1	2	3	4	5	6	7	8	9
45. Öğrencilerin dil becerilerinin gelişimini desteklemek amacıyla video, web sitesi gibi çoklu ortamlardan yararlanabilirim.	1	2	3	4	5	6	7	8	9
46. Öğrencilerin İngilizce öğrenmelerini desteklemek için sanal işbirliği ortamlarından (wiki, 3B sanal ortamlar, vb.) yararlanabilirim.	1	2	3	4	5	6	7	8	9
47. Öğrencilerin Bilişim teknolojilerini kullanarak (eğitim yazılımları vb.) kendi başlarına dil becerilerini geliştirmelerini destekleyebilirim.	1	2	3	4	5	6	7	8	9
48. Web 2.0 araçlarını (animasyon, dijital hikâye araçları, vb.) öğrencilerin dil becerilerini geliştirmek için kullanabilirim.	1	2	3	4	5	6	7	8	9

	Hiç uygun değil	Çok az uygun	Biraz uygun	Oldukça uygun	Çok uygun				
49. İngilizce öğretim sürecini sürekli iyileştirmek için dijital araç ve kaynaklardan yararlanarak mesleki gelişimimi destekleyebilirim.	1	2	3	4	5	6	7	8	9
50. Öğrencilerin İngilizce becerilerini ölçmek için dijital değerlendirme araçlarını (quiz, puzzle, vb.) kullanabilirim.	1	2	3	4	5	6	7	8	9

Kişisel Bilgiler

1. Cinsiyet:

Kadın

Erkek

2. Sınıf:

2. Sınıf

3. Sınıf

4. Sınıf

3. Mezun olduğunuzda çalışmayı planladığınız kurum:

K12 / Lise

Üniversite

Eğitim sektörü dışında bir kurum (Lütfen aşağıdaki boşluğa kurumla ilgili bilgi giriniz)

.....

4. Almış olduğunuz zorunlu veya seçmeli temel teknoloji dersleri:

Temel Bilgi Teknolojileri Kullanımı

Temel Bilgisayar Bilimleri

Diğer Ders(ler).....

(Lütfen hatırlayabildiğiniz kadarıyla aldığınız ders(ler)in kodunu ya da ismini

yazmaya çalışınız)

5. İngilizce öğretimine teknoloji entegrasyonu ile ilgili almış olduğunuz dersler:

Öğretim Teknolojileri ve Materyal Tasarımı

Diğer Ders(ler).....

(Lütfen hatırlayabildiğiniz kadarıyla aldığınız ders(ler)in kodunu ya da ismini yazmaya çalışınız)

Anketimiz bitmiştir, teşekkür ederiz 😊

APPENDIX E

FINAL TPACK-EFL SURVEY

Değerli Öğretmen Adayı,

Bu anketteki maddeler, İngilizce öğretimine başarılı bir teknoloji entegrasyonu için gerekli olan yeterlilik algılarını içermektedir. Lütfen maddelere cevap verirken 1 (*Hiç uygun değil*) ile 9 (*Çok uygun*) arasındaki derecelendirmede sizi yansıtan rakamı yuvarlak içine alınız. Görüşlerinizi içtenlikle yansıtmanız araştırma açısından çok önemlidir. Ayrıca ölçme aracına yönelik değerlendirme yapabilmemiz için kişisel bilgiler kısmını eksiksiz doldurmanız gereklidir. Verdiğiniz bilgi sadece araştırma için kullanılacaktır. Katkılarınız için şimdiden çok teşekkür ederiz.

Arş. Gör. Derya Başer
ODTÜ-BÖTE

	Hiç uygun değil	Çok az uygun	Biraz uygun	Oldukça uygun	Çok uygun				
1. Temel teknoloji terimlerini (işletim sistemi, hard disk, kablosuz ağ, sanal bellek, vb.) doğru bir şekilde kullanabilirim.	1	2	3	4	5	6	7	8	9
2. Program kurmak ve internet bağlantısı kurmak gibi ayarları yapabilirim.	1	2	3	4	5	6	7	8	9
3. Bilgisayar çevre birimlerini (yazıcı, mikrofon, projeksiyon, vb.) kullanabilirim.	1	2	3	4	5	6	7	8	9
4. Olağan teknolojik sorunları (yazıcıdan çıktı alamama, internet bağlantısının kesilmesi, vb.) kendim çözebilirim.	1	2	3	4	5	6	7	8	9

	Hiç uygun değil	Çok az uygun	Biraz uygun	Oldukça uygun	Çok uygun				
5. Projektör, tepegöz ve akıllı tahta gibi dijital sınıf ekipmanlarını kullanabilirim.	1	2	3	4	5	6	7	8	9
6. Ofis uygulamalarını (Word, PowerPoint, vb.) ileri düzeyde kullanabilirim.	1	2	3	4	5	6	7	8	9
7. Metin, resim, ses, video ve animasyon gibi bilgi kaynaklarını kullanarak çoklu ortam (video, web sitesi, vb.) oluşturabilirim.	1	2	3	4	5	6	7	8	9
8. İşbirliği yapılabilecek sanal ortamları (wiki, edmodo, 3B sanal ortamlar, vb.) amaçlarım doğrultusunda kullanabilirim.	1	2	3	4	5	6	7	8	9
9. Amacıma uygun olabilecek programları ve dijital araçları kullanmayı öğrenebilirim.	1	2	3	4	5	6	7	8	9
10. Duygu ve düşüncelerimi İngilizce konuşarak ifade edebilirim.	1	2	3	4	5	6	7	8	9
11. Duygu ve düşüncelerimi İngilizce yazarak ifade edebilirim.	1	2	3	4	5	6	7	8	9
12. İngilizce yazılmış bir metni telaffuz kurallarına uyarak okuyabilirim.	1	2	3	4	5	6	7	8	9
13. İngilizce yazılmış bir metinde ifade edileni anlayabilirim.	1	2	3	4	5	6	7	8	9
14. Ana dili İngilizce olan birini rahatlıkla anlayabilirim.	1	2	3	4	5	6	7	8	9

	Hiç uygun değil	Çok az uygun	Biraz uygun	Oldukça uygun	Çok uygun				
15. Öğrenme ortamına uygun öğretim yöntem ve teknikleri kullanabilirim.	1	2	3	4	5	6	7	8	9
16. Öğrencilerin gelişim düzeylerine uygun öğrenme ortamları hazırlayabilirim.	1	2	3	4	5	6	7	8	9
17. Öğrencilerin öğrenmelerini bedensel, zihinsel, duygusal, sosyal ve kültürel farklılıklarına uygun bir şekilde destekleyebilirim.	1	2	3	4	5	6	7	8	9
18. Öğrencilerin öğrenmelerini desteklemek amacıyla okul paydaşları (öğrenci, veli, öğretmenler, vb.) ile işbirliği yapabilirim.	1	2	3	4	5	6	7	8	9
19. Mesleki gelişimim ile ilgili çalışmalarımın edindiğim deneyimi öğretim sürecine yansıtabilirim.	1	2	3	4	5	6	7	8	9
20. Öğrencilerin kendi başlarına öğrenmelerini desteklemek amacıyla ders dışında da öğrenmeye güdüleyebilirim.	1	2	3	4	5	6	7	8	9
21. Ders esnasında sınıf yönetimine hâkim olabilirim.	1	2	3	4	5	6	7	8	9
22. Öğrencilerin öğrenme süreçlerini değerlendirebilirim.	1	2	3	4	5	6	7	8	9
23. Öğrencilerin İngilizce dil becerilerini geliştirmelerini, uygun pedagojik yöntem ve teknikler kullanarak destekleyebilirim.	1	2	3	4	5	6	7	8	9
24. Öğrencilerin dil becerilerini geliştirecek nitelikte müfredata uygun etkinlikler hazırlayabilirim.	1	2	3	4	5	6	7	8	9

	HİÇ uygun değil	Çok az uygun	Biraz uygun	Oldukça uygun	Çok uygun				
25. Öğrencilerin İngilizce dil seviyelerine göre var olan ders planını uyarlayabilirim.	1	2	3	4	5	6	7	8	9
26. Farklı konularla ilgili bilgi ve düşüncelerimi çoklu ortamlardan (video, slayt gösterisi, vb.) yararlanarak İngilizce ifade edebilirim.	1	2	3	4	5	6	7	8	9
27. Çok uluslu toplulukların yer aldığı ortamlara uzaktan katkıda bulunabilmek için bilişim teknolojilerinden (Web konferans yazılımı, vb.) yararlanabilirim.	1	2	3	4	5	6	7	8	9
28. Yabancı uyruklu kişilerle sanal ortamlar (second life, wiki, vb.) aracılığı ile ortak çalışma yürütebilirim.	1	2	3	4	5	6	7	8	9
29. Öğrencilerin bireysel öğrenme ihtiyaçlarına öğretim teknolojilerini kullanarak yanıt verebilirim.	1	2	3	4	5	6	7	8	9
30. Öğrencilerin yasal, etik, telif hakkına saygılı ve güvenli bir şekilde bilişim teknolojilerini kullanabilmeleri için onlara rehberlik edebilirim.	1	2	3	4	5	6	7	8	9
31. Öğretim teknolojilerini (sanal tartışma ortamları gibi) kullanarak öğrencilerin üst düzey düşünme becerilerini geliştirmelerini destekleyebilirim.	1	2	3	4	5	6	7	8	9
32. Derslerimde öğretim teknolojilerini kullanırken sınıf yönetimine hâkim olabilirim.	1	2	3	4	5	6	7	8	9
33. Hangi kazanımları bilişim teknolojilerinden yararlanarak vereceğime karar verebilirim.	1	2	3	4	5	6	7	8	9
34. Bilişim teknolojilerini kullanarak öğrencilerin öğrenimlerini destekleyecek materyal geliştirebilirim.	1	2	3	4	5	6	7	8	9

	Hiç uygun değil	Çok az uygun	Biraz uygun	Oldukça uygun	Çok uygun				
35. Öğrencilerin öğrenimlerini desteklemek amacıyla video, web sitesi gibi çoklu ortamlardan yararlanabilirim.	1	2	3	4	5	6	7	8	9
36. Öğrencilerin İngilizce öğrenmelerini desteklemek için sanal işbirliği ortamlarından (wiki, 3B sanal ortamlar, vb.) yararlanabilirim.	1	2	3	4	5	6	7	8	9
37. Öğrencilerin Bilişim teknolojilerini kullanarak (eğitim yazılımları vb.) kendi başlarına dil becerilerini geliştirmelerini destekleyebilirim.	1	2	3	4	5	6	7	8	9
38. Web 2.0 araçlarını (animasyon, dijital hikâye araçları, vb.) öğrencilerin dil becerilerini geliştirmek için kullanabilirim.	1	2	3	4	5	6	7	8	9
39. İngilizce öğretim sürecini sürekli iyileştirmek için dijital araç ve kaynaklardan yararlanarak mesleki gelişimimi destekleyebilirim.	1	2	3	4	5	6	7	8	9

Kişisel Bilgiler

1. Cinsiyet:

Kadın

Erkek

2. Sınıf:

2. Sınıf

3. Sınıf

4. Sınıf

3. Mezun olduğunuzda çalışmayı planladığınız kurum:

K12 / Lise

Üniversite

Eğitim sektörü dışında bir kurum (Lütfen aşağıdaki boşluğa kurumla ilgili bilgi giriniz)

.....

4. Almış olduğunuz zorunlu veya seçmeli temel teknoloji dersleri:

Daha önce temel teknolojik bilgi içeren bir ders **almadım**.

CEIT 100 Computer Applications in Education

IS 100 Introduction to Information Technologies and Applications

Diğer Ders(ler).....

(Lütfen hatırlayabildiğiniz kadarıyla aldığınız ders(ler)in kodunu ya da ismini yazmaya çalışınız)

5. İngilizce öğretimine teknoloji entegrasyonu ile ilgili almış olduğunuz dersler:

Daha önce İngilizce öğretimine teknoloji entegrasyonu ile ilgili bir ders **almadım**.

CEIT 319 Instructional Technology and Material Development

FLE 361 Introduction to Computer Assisted Language Learning Tools

Diğer Ders(ler).....

(Lütfen hatırlayabildiğiniz kadarıyla aldığınız ders(ler)in kodunu ya da ismini yazmaya çalışınız)

Anketimiz bitmiştir, teşekkür ederiz ☺

APPENDIX F

FINAL TPACK-EFL SURVEY ITEMS IN ENGLISH (BASER ET AL., 2015)

Constructs	Items
Technological Knowledge (TK)	<ol style="list-style-type: none">1. I can use basic technological terms (e.g., operating system, wireless connection, virtual memory, etc.) appropriately.2. I can adjust computer settings such as installing software and establishing an Internet connection.3. I can use computer peripherals such as a printer, a headphone, and a scanner.4. I can troubleshoot common computer problems (e.g., printer problems, Internet connection problems, etc.) independently.5. I can use digital classroom equipment such as projectors and smart boards.6. I can use Office programs (i.e. Word, PowerPoint, etc.) with a high level of proficiency.7. I can create multimedia (e.g. video, Web pages, etc.) using text, pictures, sound, video, and animation.8. I can use collaboration tools (wiki, edmodo, 3D virtual environments, etc.) in accordance with my objectives.9. I can learn software that helps me complete a variety of tasks more efficiently.

Constructs	Items
Content Knowledge (CK)	10. I can express my ideas and feelings by speaking in English.
	11. I can express my ideas and feelings by writing in English.
	12. I can read texts written in English with the correct pronunciation.
	13. I can understand texts written in English.
Pedagogical Knowledge (PK)	14. I can understand the speech of a native English speaker easily.
	15. I can use teaching methods and techniques that are appropriate for a learning environment.
	16. I can design a learning experience that is appropriate for the level of students.
	17. I can support students' learning in accordance with their physical, mental, emotional, social, and cultural differences.
	18. I can collaborate with school stakeholders (students, parents, teachers, etc.) to support students' learning.
	19. I can reflect the experiences that I gain from professional development programs to my teaching process.
	20. I can support students' out-of-class work to facilitate their self-regulated learning.
Pedagogical Content Knowledge (PCK)	21. I can manage a classroom learning environment.
	22. I can evaluate students' learning processes.
	23. I can use appropriate teaching methods and techniques to support students in developing their language skills.
	24. I can prepare curricular activities that develop students' language skills.
	25. I can adapt a lesson plan in accordance with students' language skill levels.

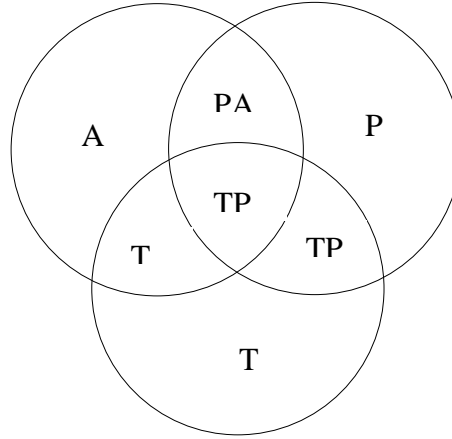
Constructs	Items
Technological Content Knowledge (TCK)	<p>26. I can take advantage of multimedia (e.g. video, slideshow, etc.) to express my ideas about various topics in English.</p> <p>27. I can benefit from using technology (e.g. web conferencing, discussion forums) to contribute at a distance to multilingual communities.</p> <p>28. I can use collaboration tools to work collaboratively with foreign persons (e.g. Second Life, wiki, etc.).</p>
Technological Pedagogical Knowledge (TPK)	<p>29. I can meet students' individualized needs by using information technologies.</p> <p>30. I can lead students to use information technologies legally, ethically, safely, and with respect to copyrights.</p> <p>31. I can support students as they use technology such as virtual discussion platforms to develop their higher order thinking abilities.</p> <p>32. I can manage the classroom learning environment while using technology in the class.</p> <p>33. I can decide when technology would benefit my teaching of specific curricular standards.</p> <p>34. I can design learning materials by using technology that supports students' learning.</p> <p>35. I can use multimedia such as videos and Web sites to support students' learning.</p>
Technological Pedagogical Content Knowledge (TPACK)	<p>36. I can use collaboration tools (e.g. wiki, 3D virtual environments, etc.) to support students' language learning.</p> <p>37. I can support students as they use technology to support their development of language skills in an independent manner.</p> <p>38. I can use Web 2.0 tools (animation tools, digital story tools, etc.) to develop students' language skills.</p> <p>39. I can support my professional development by using technological tools and resources to continuously improve the language teaching process.</p>

APPENDIX G

CONTENT VALIDITY TESTING SHEET

Sayın Hocam,

Bu çalışmanın amacı yabancı dil öğretmen adaylarının başarılı bir teknoloji entegrasyonu için gerekli olan becerilerine yönelik öz-yeterlilik algılarının ölçülmesidir. Anket, Teknolojik Pedagojik Alan Bilgisi (TPAB) çerçevesinde oluşturulmuştur. TPAB yedi bileşene sahiptir: Teknolojik Bilgi (TB), Pedagojik Bilgi, Alan Bilgisi, Pedagojik Alan Bilgisi, Teknolojik Alan Bilgisi, Teknolojik Pedagojik Bilgi ve Teknolojik Pedagojik Alan Bilgisi. Çerçeveyi özetleyen şema şekil 1’de gösterilmektedir.



Şekil 1 TPAB bileşenleri (Mishra & Koehler, 2006)

Anketin daha önce TPAB çerçevesini baz alarak geliştirilmiş anketlerden farkı maddelerin daha açık, spesifik becerilerin hedeflenmesi ve ilk kez yabancı dil alanı dikkate alınarak hazırlanmış olmasıdır. Maddeler teknoloji ve yabancı dil alan uzmanları ile yapılan görüşmelere ve standartlara dayanarak hazırlanmıştır. Kullanılan ulusal ve uluslararası standartlar Tablo 1’de gösterilmiştir.

Tablo 1 Baz alınan ulusal ve uluslararası standartlar

TK	PK	CK
NETS for Teachers 2008	MEB İngilizce Öğretmeni (K12) Özel Alan Yeterlilikleri	FLE Standards Preparing for the 21st Century
NETS for Teachers 2000	Professional Standards for Teachers in England from September 2007	MEB İngilizce Öğretmeni (K12) Özel Alan Yeterlilikleri
InTime Competencies		

Yabancı dil öğretmen adaylarının başarılı bir teknoloji entegrasyonu için gerekli olan becerilerine yönelik öz-yeterlilik algıları 6'lı Likert tipinde “kesinlikle katılıyorum”dan “kesinlikle katılmıyorum”a kadar sorulacaktır.

Bu enstrümanın geçerlik çalışması kapsamında alan uzmanı olarak, ankete ait maddeler sizin değerli görüşlerinize sunulacaktır. Bu süreçte özellikle aşağıda belirtilen hususlarda görüşlerinizin alınması amaçlanmaktadır:

1. Maddelerin hedef kitle için anlaşılabilirliği ve içeriğe uygunluğu (EK 1)
2. Maddelerin muhtemel boyut yapısı (EK 2)
3. Diğer değişkenlerle ilişki (EK 3)

Katkılarınız için şimdiden çok teşekkür ederim.

Derya Başer

EK 1: Maddelerin hedef kitle için anlaşılabilirliği ve içerik uygunluğu

Lütfen, aşağıdaki maddeleri bu çalışma için hedef kitle olarak belirlenmiş olan yabancı dil öğretmen adaylarının genel özelliklerini düşünerek kullanılan dil bakımından “anlaşılabilirlik” düzeyinde ve başarılı bir teknoloji entegrasyonu için gerekli olan becerilere yönelik yeterlilik bakımından “ölçülmeye çalışılan yapıya uygunluğu” açısından değerlendiriniz.

Teknolojik Bilgi (TB) Öz-Yeterlilik Algısı Maddeleri	Anlaşılabilirlik		İçerik Uygunluğu		Anlaşılır olmayan ve/veya içeriği uygun olmayan maddeler için yorumlarınız (öneri ve düzeltmeleriniz)
	Anlaşılır	Anlaşılır Değil	İçerik uygun	İçerik uygun değil	
1. Temel Bilişim Teknolojileri terimlerini doğru bir şekilde kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Bilgisayar sistem denetimlerini (yazılım kurmak, internet bağlantı ayarlarını yapmak, vb.) etkili bir şekilde kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Bilgisayar çevre birimlerini (yazıcı, mikrofon, projeksiyon, vb.) sorunsuz bir şekilde kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Olağan teknolojik sorunları (yazıcıdan çıktı alamama, internet bağlantısının kesilmesi, vb.) öncelikle kendim çözmeye çalışırım.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Yasal, etik, telif hakkına saygılı, güvenli teknoloji kullanımını kapsayan dijital kültüre sahibim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Teknolojik Bilgi (TB) Öz-Yeterlilik Algısı Maddeleri	Anlaşılır		İçerik uygun		Anlaşılır olmayan ve/veya içeriği uygun olmayan maddeler için yorumlarınız (öneri ve düzeltmeleriniz)
	Anlaşılır	Anlaşılır Değil	İçerik uygun	İçerik uygun değil	
6. Akıllı tahta, projektör, tepegöz gibi dijital sınıf ekipmanlarını etkili bir şekilde kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7. Ofis uygulamalarını gelişmiş düzeyde kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. Teknolojik ekipmanların ve araçların sundukları ayrıcalıkları verimli bir şekilde kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9. Text, resim, ses, video ve animasyon gibi bilgi kaynaklarını kullanarak çoklu ortam (slayt gösterisi, web sitesi, dijital hikâye vb.) tasarlayabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10. Arama motorlarını text, resim, ses, video ve animasyon gibi çeşitli bilgi kaynaklarına ulaşmak amacıyla etkili bir şekilde kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11. Sosyal paylaşım siteleri, wiki, forum ve üç boyutlu sanal ortamlar gibi sosyal yazılımları verimli bir şekilde kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Teknolojik Bilgi (TB) Öz-Yeterlilik Algısı Maddeleri	Anlaşılır	Anlaşılır Değil	İçerik uygun	İçerik uygun değil	Anlaşılır olmayan ve/veya içeriği uygun olmayan maddeler için yorumlarınız (öneri ve düzeltmeleriniz)
12. Belirli bir amaca yönelik dijital araç ve yazılımlara ulaşabilir ve onları kullanmayı öğrenebilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13. Elektronik sınav hazırlama programlarını etkili bir şekilde kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Alan Bilgisi (AB) Öz-Yeterlilik Algısı Maddeleri	Anlaşılır	Anlaşılır Değil	İçerik uygun	İçerik uygun değil	Anlaşılır olmayan ve/veya içeriği uygun olmayan maddeler için yorumlarınız (öneri ve düzeltilmeleriniz)
14. Yabancı dilde sözlü ve yazılı iletişim kurabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15. Çeşitli konular hakkındaki bilgi ve düşüncelerimi İngilizce sunabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16. İngilizce kaynakları kullanarak çeşitli alanlarda farklı görüş açılarını değerlendirebilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
17. İngilizce dilini kullanarak çok dilli toplulukların yer aldığı ortamlara başarılı bir şekilde katkıda bulunabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
18. İngilizce konuşulan ülkelere ait kültürel değer ve farklılıkları İngilizce diline yansıtabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Pedagoji Bilgisi (PB) Öz-Yeterlilik Algısı Maddeleri	Anlaşılır	Anlaşılır Değil	İçerik uygun	İçerik uygun değil	Anlaşılır olmayan ve/veya içeriği uygun olmayan maddeler için yorumlarınız (öneri ve düzeltmeleriniz)
19. Öğrencilere ve öğrenme ortamına uygun öğretim yöntem ve tekniklerini kullanarak etkinlikler düzenleyebilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
20. Belirlenen hedefler doğrultusunda etkinlikler içeren güvenli öğrenme ortamları tasarlayabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
21. Mesleki gelişimime yönelik uygulamalara aktif katılım sağlayabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
22. Öğrencilerin öğrenmelerini desteklemek amacıyla okul paydaşları (öğrenci, veli, öğretmenler, vb.) ile işbirliği yapabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
23. Öğrencilerin kendi öğrenimlerini takip etmeleri ve düzenleyebilmeleri amacıyla ders dışında da öğrenmeye sevk edebilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
24. Öğrencilerin öğrenme süreçlerini takip ederek değerlendirebilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Pedagojik Alan Bilgisi (PAB) Öz-Yeterlilik Algısı Maddeleri	Anlaşılır	Anlaşılır Değil	İçerik uygun	İçerik uygun değil	Anlaşılır olmayan ve/veya içeriği uygun olmayan maddeler için yorumlarınız (öneri ve düzeltilmeleriniz)
25. Öğrencilerin İngilizce dil becerilerini geliştirmelerini uygun yöntem ve teknikler kullanarak destekleyebilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
26. Yabancı dil müfredatına uygun dil becerilerini destekleyecek nitelikte öğrenme ortamları tasarlayabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
27. Katıldığım mesleki gelişim programlarından edindiğim deneyimi İngilizce öğretim sürecine yansıtabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
28. Okul paydaşları (öğrenci, veli, öğretmenler, vb.) ile işbirliği yaparak öğrencilerin dil becerilerini geliştirmelerine destek olabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
29. Öğrencilerin İngilizce öğrenimlerini düzenleyebilmeleri için dil kültür ve yapısına uygun stratejiler sunabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
30. İngilizce dersine yönelik kazanımları etkili bir şekilde ölçebilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Teknolojik Alan Bilgisi (TAB) Öz-Yeterlilik Algısı Maddeleri	Anlaşılır	Anlaşılır Değil	İçerik uygun	İçerik uygun değil	Anlaşılır olmayan ve/veya içeriği uygun olmayan maddeler için yorumlarınız (öneri ve düzeltmeleriniz)
31. İngilizce alanında faydalı olabilecek teknolojik ekipmanları (mp3 çalar, video kamera, ses kayıt cihazı, vb.) ve araçları (İnternet araçları, flaş kartlar, vb.) etkili bir şekilde kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
32. Yabancı dil konularını sunan çoklu (işitsel ve görsel) ortamlar tasarlayabilir ya da uygun olan hazır ortamlara ulaşabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
33. Arama motorlarını kullanarak İngilizce alanı ili ilgili kaynaklara ulaşabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
34. İngilizce ile ilgili işbirliği yapılabilecek sanal ortamlarda ilgili gerekli düzenlemeleri (grup oluşturma, sanal sınıf kurma, vb.) yapabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Teknolojik Alan Bilgisi (TAB) Öz-Yeterlilik Algısı Maddeleri	Anlaşılır		Anlaşılır Değil		Anlaşılır olmayan ve/veya içeriği uygun olmayan maddeler için yorumlarınız (öneri ve düzeltmeleriniz)
	Anlaşılır	Anlaşılır Değil	İçerik uygun	İçerik uygun değil	
35. İngilizce alanındaki belirli hedeflere yönelik hazırlanmış yazılımlara ulaşabilir ve onları kullanmayı öğrenebilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
36. Dijital araçları kullanarak İngilizce alanına uygun test hazırlayabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Teknolojik Pedagoji Bilgisi (TPB) Öz-Yeterlilik Algısı Maddeleri	Anlaşılır	Anlaşılır Değil	İçerik uygun	İçerik uygun değil	Anlaşılır olmayan ve/veya içeriği uygun olmayan maddeler için yorumlarınız (öneri ve düzeltmeleriniz)
37. Öğretim yöntem ve tekniklerini etkili bir şekilde kullanabilmek için teknolojik ekipmanların ve araçların sundukları ayrıcalıklardan faydalanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
38. Çoklu (işitsel ve görsel) öğrenme ortamlarını öğrencilerin öğrenmelerini desteklemek için kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
39. Profesyonel gelişimime sürekli katkıda bulunmak için dijital araç ve kaynakları kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
40. Öğrencilerin sosyal yazılımlar (sosyal paylaşım siteleri, wiki, forum, vb.) yardımıyla kendi aralarında işbirliği yaparak yüksek düzey düşünme becerilerini kazanmalarını destekleyebilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Teknolojik Pedagoji Bilgisi (TPB) Öz-Yeterlilik Algısı Maddeleri	Anlaşılır		İçerik uygun		Anlaşılır olmayan ve/veya içeriği uygun olmayan maddeler için yorumlarınız (öneri ve düzeltmeleriniz)
	Anlaşılır	Anlaşılır Değil	İçerik uygun	İçerik uygun değil	
41. Öğrencilerin eğitim yazılımlarını kullanarak kendi öğrenimlerini takip etmelerini ve düzenleyebilmelerini destekleyebilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
42. Öğrencileri değerlendirmek için kullanabileceğim elektronik sınav hazırlama programlarını etkili bir şekilde kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Teknolojik Pedagojik Alan Bilgisi (TPAB) Öz-Yeterlilik Algısı Maddeleri	Anlaşılır		İçerik uygun		Anlaşılır olmayan ve/veya içeriği uygun olmayan maddeler için yorumlarınız (öneri ve düzeltmeleriniz)
	Anlaşılır	Anlaşılır Değil	İçerik uygun	İçerik uygun değil	
43. İngilizce konularına ve kullanacağım öğretim tekniklerine uygun teknolojik araçları öğrencilerin dil becerilerini geliştirmek için kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
44. Öğrencilerin dil becerilerinin gelişmesini desteklemek amacıyla bilgisayar tabanlı çoklu öğrenme ortamlarını kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
45. İngilizce öğretim sürecini sürekli iyileştirmek için dijital araç ve kaynaklar yardımıyla kendimi profesyonel anlamda geliştirebilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
46. Öğrencilerin İngilizce öğrenmelerini desteklemek için sanal işbirliği ortamlarından yararlanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
47. Öğrencileri İngilizce öğrenimlerini kendilerinin düzenleyebilmeleri ve ders dışında da öğrenebilmeleri amacıyla eğitim yazılımları kullanmaya sevk edebilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
48. İngilizce dersine yönelik kazanımları ölçmek için elektronik sınav hazırlama programlarından yararlanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

EK 2: Maddelerin muhtemel boyut yapısı

Lütfen aşağıda TPAB bileşenleri altında listelenmiş maddeleri verilen tanımların ışığında o bileşene uygunluğu açısından değerlendiriniz.

Teknolojik Bilgi - knowledge and **skills** required for how to use digital technologies “as the tools created by human knowledge of how to combine resources to produce desired products, to solve problems, fulfill needs, or satisfy wants” (Koehler & Mishra, 2008, p. 5).

Alan Bilgisi - “the knowledge about the subject matter that is to be learned or taught” (Shin et al., 2009).

Pedagojik Bilgi - “the knowledge about the processes and practices or methods of teaching” (Shin et al., 2009).

Pedagojik Alan Bilgisi – an understanding of what makes the learning of specific topics of a given discipline more comprehensible in a certain context and for a certain grade level of students.

Teknolojik Alan Bilgisi - “an understanding of the technologies that may be utilized in a given discipline and how the use of those technologies transforms the content of that discipline through representation or the generation of new content” (Cox, 2008, p.148).

Teknolojik Pedagojik Bilgi – “an understanding of the technologies that may be used in a given pedagogical context, including the affordances and constraints of those technologies, and how those technologies influence or are influenced by the teacher’s pedagogical strategies” (Cox, 2008, p.148).

Teknolojik Pedagojik Alan Bilgisi – “a way of thinking about the complex relationships between technology, pedagogy, and content in a specific context which is represented through the carefully considered implementation of technology in a classroom setting in order to help students better understand a particular topic” (Cox, 2008, p.148).

TB (Teknolojik Bilgi)			
	TB Bileşenine uygun	TB Bileşenine uygun değil	Bu bileşene uygun olmadığını düşündüğünüz maddeler için yorumlarınız
1. Temel Bilişim Teknolojileri terimlerini doğru bir şekilde kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
2. Bilgisayar sistem denetimlerini (yazılım kurmak, internet bağlantı ayarlarını yapmak, vb.) etkili bir şekilde kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
3. Bilgisayar çevre birimlerini (yazıcı, mikrofon, projeksiyon, vb.) sorunsuz bir şekilde kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
4. Olağan teknolojik sorunları (yazıcıdan çıktı alamama, internet bağlantısının kesilmesi, vb.) öncelikle kendim çözmeye çalışırım.	<input type="checkbox"/>	<input type="checkbox"/>	
5. Yasal, etik, telif hakkına saygılı, güvenli teknoloji kullanımını kapsayan dijital kültüre sahibim.	<input type="checkbox"/>	<input type="checkbox"/>	
6. Akıllı tahta, projektör, tepegöz gibi dijital sınıf ekipmanlarını etkili bir şekilde kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
7. Ofis uygulamalarını gelişmiş düzeyde kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
8. Teknolojik ekipmanların ve araçların sundukları ayrıcalıkları verimli bir şekilde kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	

TB (Teknolojik Bilgi)			
	TB Bileşenine uygun	TB Bileşenine uygun değil	Bu bileşene uygun olmadığını düşündüğünüz maddeler için yorumlarınız
9. Text, resim, ses, video ve animasyon gibi bilgi kaynaklarını kullanarak çoklu ortam (slayt gösterisi, web sitesi, dijital hikâye vb.) tasarlayabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
10. Arama motorlarını text, resim, ses, video ve animasyon gibi çeşitli bilgi kaynaklarına ulaşmak amacıyla etkili bir şekilde kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
11. Sosyal paylaşım siteleri, wiki, forum ve üç boyutlu sanal ortamlar gibi sosyal yazılımları verimli bir şekilde kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
12. Belirli bir amaca yönelik dijital araç ve yazılımlara ulaşabilir ve onları kullanmayı öğrenebilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
13. Elektronik sınav hazırlama programlarını etkili bir şekilde kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	

AB (Alan Bilgisi)			
	AB Bileşenine uygun	AB Bileşenine uygun değil	Bu bileşene uygun olmadığını düşündüğünüz maddeler için yorumlarınız
14. Yabancı dilde sözlü ve yazılı iletişim kurabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
15. Çeşitli konular hakkındaki bilgi ve düşüncelerimi İngilizce sunabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
16. İngilizce kaynakları kullanarak çeşitli alanlarda farklı görüş açılarını değerlendirebilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
17. İngilizce dilini kullanarak çok dilli toplulukların yer aldığı ortamlara başarılı bir şekilde katkıda bulunabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
18. İngilizce konuşulan ülkelere ait kültürel değer ve farklılıkları İngilizce diline yansıtabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
19. İngilizce dil yapısının gerektirdiği becerileri sorgulayabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	

PB (Pedagojik Bilgi)			
	PB Bileşenine uygun	PB Bileşenine uygun değil	Bu bileşene uygun olmadığını düşündüğünüz maddeler için yorumlarınız
20. Öğrencilere ve öğrenme ortamına uygun öğretim yöntem ve tekniklerini kullanarak etkinlikler düzenleyebilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
21. Belirlenen hedefler doğrultusunda etkinlikler içeren güvenli öğrenme ortamları tasarlayabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
22. Mesleki gelişimime yönelik uygulamalara aktif katılım sağlayabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
23. Öğrencilerin öğrenmelerini desteklemek amacıyla okul paydaşları (öğrenci, veli, öğretmenler, vb.) ile işbirliği yapabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
24. Öğrencilerin kendi öğrenimlerini takip etmeleri ve düzenleyebilmeleri amacıyla ders dışında da öğrenmeye sevk edebilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
25. Öğrencilerin öğrenme süreçlerini takip ederek değerlendirebilirim.	<input type="checkbox"/>	<input type="checkbox"/>	

PAB (Pedagojik Alan Bilgisi)			
	PAB Bileşenine uygun	PAB Bileşenine uygun değil	Bu bileşene uygun olmadığını düşündüğünüz maddeler için yorumlarınız
26. Öğrencilerin İngilizce dil becerilerini geliştirmelerini uygun yöntem ve teknikler kullanarak destekleyebilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
27. Yabancı dil müfredatına uygun dil becerilerini destekleyecek nitelikte öğrenme ortamları tasarlayabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
28. Katıldığım mesleki gelişim programlarından edindiğim deneyimi İngilizce öğretim sürecine yansıtabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
29. Okul paydaşları (öğrenci, veli, öğretmenler, vb.) ile işbirliği yaparak öğrencilerin dil becerilerini geliştirmelerine destek olabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
30. Öğrencilerin İngilizce öğrenimlerini düzenleyebilmeleri için dil kültür ve yapısına uygun stratejiler sunabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
31. İngilizce dersine yönelik kazanımları etkili bir şekilde ölçebilirim.	<input type="checkbox"/>	<input type="checkbox"/>	

TAB (Teknolojik Alan Bilgisi)			
	TAB Bileşenine uygun	TAB Bileşenine uygun değil	Bu bileşene uygun olmadığını düşündüğünüz maddeler için yorumlarınız
32. İngilizce alanında faydalı olabilecek teknolojik ekipmanları (mp3 çalar, video kamera, ses kayıt cihazı, vb.) ve araçları (İnternet araçları, flaş kartlar, vb.) etkili bir şekilde kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
33. Yabancı dil konularını sunan çoklu (işitsel ve görsel) ortamlar tasarlayabilir ya da uygun olan hazır ortamlara ulaşabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
34. Arama motorlarını kullanarak İngilizce alanı ili ilgili kaynaklara ulaşabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
35. İngilizce ile ilgili işbirliği yapılabilecek sanal ortamlarda ilgili gerekli düzenlemeleri (grup oluşturma, sanal sınıf kurma, vb.) yapabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
36. İngilizce alanındaki belirli hedeflere yönelik hazırlanmış yazılımlara ulaşabilir ve onları kullanmayı öğrenebilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
37. Dijital araçları kullanarak İngilizce alanına uygun test hazırlayabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	

TPB (Teknolojik Pedagojik Bilgi)			
	TPB Bileşenine uygun	TPB Bileşenine uygun değil	Bu bileşene uygun olmadığını düşündüğünüz maddeler için yorumlarınız
38. Öğretim yöntem ve tekniklerini etkili bir şekilde kullanabilmek için teknolojik ekipmanların ve araçların sundukları ayrıcalıklardan faydalanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
39. Çoklu (işitsel ve görsel) öğrenme ortamlarını öğrencilerin öğrenmelerini desteklemek için kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
40. Profesyonel gelişimime sürekli katkıda bulunmak için dijital araç ve kaynakları kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
41. Öğrencilerin sosyal yazılımlar (sosyal paylaşım siteleri, wiki, forum, vb.) yardımıyla kendi aralarında işbirliği yaparak yüksek düzey düşünme becerilerini kazanmalarını destekleyebilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
42. Öğrencilerin eğitim yazılımlarını kullanarak kendi öğrenimlerini takip etmelerini ve düzenleyebilmelerini destekleyebilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
43. Öğrencileri değerlendirmek için kullanabileceğim elektronik sınav hazırlama programlarını etkili bir şekilde kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	

TPAB (Teknolojik Pedagojik Alan Bilgisi)			
	TPAB Bileşenine uygun	TPAB Bileşenine uygun değil	Bu bileşene uygun olmadığını düşündüğünüz maddeler için yorumlarınız
44. İngilizce konularına ve kullanacağım öğretim tekniklerine uygun teknolojik araçları öğrencilerin dil becerilerini geliştirmek için kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
45. Öğrencilerin dil becerilerinin gelişmesini desteklemek amacıyla bilgisayar tabanlı çoklu öğrenme ortamlarını kullanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
46. İngilizce öğretim sürecini sürekli iyileştirmek için dijital araç ve kaynaklar yardımıyla kendimi profesyonel anlamda geliştirebilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
47. Öğrencilerin İngilizce öğrenmelerini desteklemek için sanal işbirliği ortamlarından yararlanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
48. Öğrencileri İngilizce öğrenimlerini kendilerinin düzenleyebilmeleri ve ders dışında da öğrenebilmeleri amacıyla eğitim yazılımları kullanmaya sevk edebilirim.	<input type="checkbox"/>	<input type="checkbox"/>	
49. İngilizce dersine yönelik kazanımları ölçmek için elektronik sınav hazırlama programlarından yararlanabilirim.	<input type="checkbox"/>	<input type="checkbox"/>	

EK 3: Diğer değişkenlerle ilişki

Bu anketin yapısal geçerliğine kanıt sunmak amacıyla aşağıda belirtilen değişkenlerle TPAB öz-yeterlik algısı arasındaki ilişkiye bakılması hedeflenmektedir. Lütfen, aşağıda belirtilen değişken seçimlerinin bu yapı (TPAB öz-yeterlik algısı) için uygunluğunu değerlendiriniz.

Değişkenler	Uygun	Uygun değil
Cinsiyet (Kadın-Erkek)	<input type="checkbox"/>	<input type="checkbox"/>
Sınıf (2. Sınıf-3. Sınıf -4. Sınıf)	<input type="checkbox"/>	<input type="checkbox"/>
Mezun olduğunuzda çalışmayı planladığınız kurum (Devlet Okulu-Özel Okul-Diğer.....)	<input type="checkbox"/>	<input type="checkbox"/>
Self-Efficacy Beliefs about Technology Integration (Teknoloji entegrasyonuna yönelik öz-yeterlik inançları)	<input type="checkbox"/>	<input type="checkbox"/>
Sizin önerebileceğiniz ilgili diğer değişkenler:		
Bu enstrüman hakkında (içerik, bileşen, dil, format gibi) iletmek istediğiniz diğer önerileriniz:		

APPENDIX H

COGNITIVE INTERVIEW

1. Probes:

1.1. What, to you, is "technology integration"?

(To test comprehension of a particular term.)

1.2. Can you repeat the question in your own words?

(To test how well the subject comprehends the question.)

1.3. Can you give an example for "those kinds of programs"?

(To test how well the subject comprehends the question.)

2. Results:

2.1. The subject seemed cognitively load while reading the following introduction of the instrument:

Değerli Öğretmen Adayı,

Bu anketteki maddeler farklı boyutlardaki Teknolojik Pedagojik Alan Bilgisi (TPAB) algısını ifade etmektedir. Her madde için, "Hiç uygun değil (1)"'den "Çok uygun (9)" seçeneğine kadar toplam dokuz seçenek oluşturulmuştur. Size uygun olan seçeneği yuvarlak içine alarak işaretleyin. Görüşlerinizi içtenlikle yansıtmanız araştırma açısından çok önemlidir. Ayrıca ölçme aracına yönelik değerlendirme yapabilmemiz için kişisel bilgiler kısmını eksiksiz doldurmanız gereklidir. Verdiğiniz bilgi sadece araştırma için kullanılacaktır. Katkılarınız için şimdiden teşekkür ederiz.

2.2. Comprehension problems: Subjects found it difficult to understand some of the questions such as:

- İngilizce konuşulan ülkelere ait kültürel değer ve farklılıkları (gelenekler, deyimler, vb.) İngilizce dili ile bütünleştirebilirim.
- Öğrencilerin İngilizce dil becerilerini geliştirmelerine uygun yöntem ve teknikler kullanarak destekleyebilirim.
- Öğrencilerin İngilizce öğrenimlerini düzenleyebilmeleri için dil yapısına uygun stratejiler sunabilirim.

3. Revision:

3.1. The subject seemed cognitively load while reading the following introduction of the instrument:

Değerli Öğretmen Adayı,

Bu anketteki maddeler, İngilizce öğretimine başarılı bir teknoloji entegrasyonu için gerekli olan yeterlilik algılarını içermektedir. Lütfen maddelere cevap verirken 1 (*Hiç uygun değil*) ile 9 (*Çok uygun*) arasındaki derecelendirmede sizi yansıtan rakamı yuvarlak içine alınız. Görüşlerinizi içtenlikle yansıtmanız araştırma açısından çok önemlidir. Ayrıca ölçme aracına yönelik değerlendirme yapabilmemiz için kişisel bilgiler kısmını eksiksiz doldurmanız gereklidir. Verdiğiniz bilgi sadece araştırma için kullanılacaktır. Katkılarınız için şimdiden çok teşekkür ederiz.

3.2. Comprehension problems: Subjects found it difficult to understand some of the questions such as:

- İngilizcenin konuşulduğu ülkeye ait kültürel değer ve farklılıkları (gelenekler, deyimler, vb.) İngilizce dili ile bütünleştirebilirim.
- Öğrencilerin İngilizce dil becerilerini geliştirmelerini, uygun pedagojik yöntem ve teknikler kullanarak destekleyebilirim.
- Öğrencilerin İngilizce öğrenimlerini düzenleyebilmelerini, İngilizce dil yapısına uygun pedagojik stratejilerle destekleyebilirim.

APPENDIX I

TURKISH VERSIONS OF QUOTATIONS USED IN THE STUDY

Q1. Teknoloji çağa ayak uydurmadır. Yani tarih öncesinde teknoloji tekeri kullanmak bugün iPad'i kullanmaktır. Yani çağ ile aynı doğrultuda gitmektir diyebilirim. (C1_ATTaTI)

Q2. Dezavantaj getirdiğini sanmıyorum. Yani şey açısından sosyalleşme ya da insanı robotlaştırma açısından olabilir ama o kadar önemli bi dezavantaj olduğunu sanmıyorum. (C1_ATTaTI)

Q3. Yani çağdan geri kalmış bi eğitim düşünemeyeceğimize göre eğitimin daha önde olması için teknolojinin de daha önde olması gerektiğini düşünüyorum. (C1_ATTaTI)

Q4. Zaten aktif bilgisayar kullanıcısıyım ama [benim için olmasa da] Web 2.0 araçlarının sınıfta hiç PowerPoint açmayan kişiler için çok çok çok faydalı olduğunu düşünüyorum. (C1_TK)

Q5. Beş dakika bir hikâyeyi izlettim onlara [(öğrencilere)]. Sadece dinletebilirdim ama projeksiyon sayesinde ekrana yansıtıp hem izlettim hem de dinlettim. (C1_TK)

Q6. PowerPoint bilen bir öğretmen tamam bi yerden sonra... Ben mesela bu yıla kadar prezi hakkında hiçbir fikrim yoktu. Sunum için de belki yüzlerce sunum yaptım lise hayatım boyunca [ama] hiç PowerPoint'ten başka bir şey kullanmadım. Prezi'yi biliyor olsaydım çok daha verimli sunumlar yapabilirdim. (C1_TK)

Q7. [Mesela], derste projektör söndüğünde eli ayağına dolaşmaması gerekiyor bir öğretmenin. Bir projektör kablosunu tekrar kontrol edebilecek kadar fiziki bilgiye (donanım bilgisine) [sahip olmalı bir öğretmen]. Çok zor bişey değil. (C1_TK)

Q8. O söylediğim ESL lab var. Normal hayattan mesela havaalanı duyurusu var [ESL lab da ve] havaalanı duyurusunun altında da 3 tane çoktan seçmeli soru var. Üç

dakika boş vaktim varsa bunu yapıyorum. ... Bu sitenin varlığından haberdar öğretmen her seviyede ve her konuda materyal bulabiliyor ama bunun farkında olmayan öğretmen hala kitapların kasetlerini dinlemeye çalışıyor. (C1_TCK)

Q9. Şu an hala kullanıyorum bir siteyi. Tam sitenin adı da aklıma gelmedi. Bildiğimiz dilleri, öğrenmek istediklerimizi yazıyoruz siteye. Fotoğrafını koyuyorsun, profil bilgilerini giriyorsun: hangi ülkeden, yaşı ne, ne biliyorsun, ne konuşmak istiyorsun gibi. O seni bir gruba alıyor. Mesela ben Yunanca öğrenmek istiyorum, İngilizce ve Türkçe biliyorum. Yunanca öğretmek isteyen İngilizce bilen kişileri bir araya getirip orada konuşturabiliyor bizi. (C1_TCK)

Q10. Daha küçük yaşlarda öğrencilere [yeni] kelime öğretirken iki kelimeyi tahtaya yazmanın hiç bir anlamı yok. Ama onlara projektörle resmini gösterebilir [öğretmen]. Hayvanları öğretiyor atıyorum. Ama bunu mesela üniversitede hazırlık seviyesinde öğrencilere uygularsa sıkıcı oluyor. (C1_TPK)

Q11. Mesela, biz ilköğretim seviyesinde öğrencilere vocabulary öğretmek için bir ders planı hazırladık. Bunun için görselleştirme şarttı. Bu kâğıttaki görselleri tahtaya asmak da olabilirdi ama hem öğrencilerin dikkatini çekecek bir şey o ekrana yansımaları hem de daha çok öğrenciye ulaşacak. Hem fiyat-performans açısından... Yani hem daha verimli daha çok kişiye ulaştığı için ve daha ucuz. Bunun için tahtaya mesela aslan resmini gösterip ardından kelimesini yazıyoruz. Bunu kullandık. (C1_TPK)

Q12. Öğretmen derste motive ediyor ama çok da kalıcı bir şey değil. Ama atıyorum Facebook gibi herkesin görebildiği ki öğrenciler birbirinden de etkilensin, bi sitede like yapıyor. Yani öğretmen akşam gittiğinde bazı öğrencilere like yaparsa motivasyon açısından kullanılabilir. Sınıfta defteri önüne alıp sana artı verdim demesinden çok daha faydalı bence. (C1_TPK)

Q13. Aslında yaptığımız şeyler (Web 2.0 araçları) İngilizce dili öğretimi açısından güzel şeylerdi. Kerpoof falan vardı yani sınıfta ileride kullanacağım şeyler. Öğretmen olduğumda ilk derslerimde vocabulary sınıfına girsem kullanabilirim

mesela Kerpoof u. Şu an ben ders planı yapıyorum ve Kerpoof u kullanıyorum ben ders planı yaparken. Daha hazırlamadık bu hafta hazırlayacağız speaking lesson planı'nı ama. (C1_TPACK)

Q14. Mesela, sadece İngilizce konuştukları sınıf içi forum yaratabilirim. Türkçe kullanmak yok ve kayıt altında her şey görünüyor. Sınıfta çünkü İngilizce konuşurmak mümkün olmuyor. İlla ki Türkçe konuşuyorlar ama orada Türkçe yazamaz. Orada yazdıkları spelling için de çok faydalı olur. (C1_TPACK)

Q15. Teknoloji bence güzel bir şeydir. ...Ya teknoloji ben açıkçası üniversitede daha çok ilgilendim ben lisedeyken bizim evde internet yoktu. ODTÜ'ye gelince böyle olanaklar daha güzel oldu. Bilgisayarlara erişim burada daha kolay oldu ama genelde elektronik cihazlarla alakam çoktur. (C2_ATTaTI)

Q16. Bir öğrenciye devamlı konuşmaktan ziyade araya böyle görsel işitsel materyaller eklemek daha çok ilgi topluyor. Bunu da teknoloji sayesinde daha kolay yapıyoruz. (C2_ATTaTI)

Q17. Teknolojinin eğitime dezavantajı olabilir. Hazırlarken çok araştırmak lazım çünkü internet bir derya... Onun içinden seçmek lazım güzelleri çok gereksiz şeyler de var. Bir de çok iyi bir kullanıcı olmak lazım. Nerede ne olduğunu bilmek lazım... (C2_ATTaTI)

Q18. Yani çok basit şeyleri bilmek gibi... Mesela nasıl araştırma yapılacağını bilmek lazım öncelikle. Çok akademik bir şey arıyorsa bunu google da aratmak yerine daha bir akademik arama yapılabilir. İnce çok ince aslında ama bu ayrıntıları bilmemiz lazım. (C2_TK)

Q19. Ne bilim en basitinden sunum yapmayı PowerPoint'i, [diğer] ofis [programlarını] kullanması ya da hand out hazırlaması için Word'ü kullanması şart [aday öğretmenlerin] çünkü artık kimse elde bişey yazmıyor hem bunlar basit şeyler. Çok gelişmiş özelliklerini bilmiyorum ama kullanabilirim yani. (C2_TK)

Q20. Akıllı tahtada hoş yani... Gerçekten güzel gelsin keşke gelsin bütün okullara ama yani bizim küçük çocukların çok fazla ilgisini çekecek bir şeyler bulmamız lazım. Ama geldiğinde eğitim almamız şart... Kullanmayı bilmiyoruz. (C2_ TK)

Q21. Mesela, hep şarkılarla öğrendik [İngilizce'yi]. Öğrendiği şarkıyı dinletip daha sonra şarkı sözlerini gösterip onun üzerinden incelemeler yapılabilir İnternet üzerinden bilgisayar kullanarak. ... Yaşları küçükse çizgi film izleyebilirler. Onlar faydalı olabilir. Film izleyebilirler. (C2_TCK)

Q22. Gramer çalışırken mesela elektronik kitaplar indirdim. Onları kendim kullandım. (C2_TCK)

Q23. Biz küçükken kuzenlerim dil öğrenmek için [dil] kasetler[i] dinlerlerdi evde. Şimdi onun yerine dinleme konuları kullanıyoruz; mesela BBC news web sayfasından. Biz hep oradan dinlemeler yapıp rapor yazıyoruz. Çok faydalı oluyor. (C2_TCK)

Q24. Mesela, çocukların ne tip şarkıları sevdiğini öğrenirim. Gelecek hafta, belirlediğim temadan bir konu açmadan önce sevdikleri bir şarkı varsa birinin videosunu ya da animasyonu izletirim. Hem böylece sevdirmiş olurum hem de öğrencilerin kendi katılımlarını da sağlamış olurum. (C2_TPK)

Q25. Öğrencilerin seviyesi de önemli. Anasınıfı öğrencisi ile sekizinci sınıf öğrencisine aynı teknolojiyi kullanmak mantıklı gelmiyor bana. Lisedeki öğrenciler için, biraz daha böyle anlatmaya yönelik şeyler kullanırım görselden işitselden [bileşenden] ziyade; ama ana sınıfı öğrencileri için karton falan hazırlanabilir ya da [yazıdan daha] somut şeyler... Soyut şeyler bilgisayarla daha somut bir şekilde anlatılabilir.

Q26. Teknolojiyi güzel bir şekilde dersle kombine etmesi lazım... Mesela sekiz kelime öğreteceğim bugün. Anlattığım kelimelerle hazırladığım sunumlardaki ve izlettiğim videolardaki kelimeler farklıysa çok fazla gereksiz bilgi vermiş olurum. Teknoloji yanlış kullanılmış olur. Seçici olmamız ve iyi adapte etmemiz lazım derse teknolojiyi. (C2_TPK)

Q27. Story hazırladık (using Web 2.0 tools). Konuyu biz seçtik. Benim konum 'if condition'dı. Onu Prezi'de hazırladım. Bir tane de böyle içinde if condition geçen animasyon hazırladım. Story yazdım bir tane. Onlar çok zor oldu çünkü benim yaratıcılığım yoktur. (C2_TPACK)

Q28. Task-based [öğrenme]de çok fazla teknoloji kullanmam çünkü öğretmenden ziyade öğrencinin yapması gerekenler var [o metotta]. Ama mesela bir oyun oynatacaksam, bu genelde gurup çalışması ile oluyor, oyunu internet teknolojisiyle hazırlayabilirim ya da oradan gösterebilirim. Communicative yaklaşımda da çok fazla teknoloji kullanmam çünkü o da genelde interaction ile alakalı öğretmen öğrenci arasında. (C2_TPACK)

Q29. Ders planı yazdık proje olarak, şey görebilirdik. Teknolojiyi şu kısımlarında ders anlatırken, dersin başında, ortasında, sonunda şöyle kullanırsanız daha etkili olur; [teknolojiyi]o şekilde kullanın; teknolojiyle anlatmak istediğinizi şuradan bulabilirsiniz, araştırmayı şöyle yapabilirsiniz. Bunları bilseydik biraz daha faydalı olabilirdi bizim için. Daha donanımlı hissederdik kendimizi [teknolojiyi entegre edebilmek için]. (C2_TPACK)

Q30. Ben teknolojiyi genelde öğrencilerin çok sıkıldığını hissedersem eğlendirmek için kullanırım. İlla şu derse teknoloji entegre edeyim diye açıkçası düşünmem. Belki öğretmenliğimin ilk yıllarında bir hevesle kullanırım da fakat sonradan hazırlaması, uygulaması çok zor olur diye düşünüyorum. (C2_TPACK)

Q31. Çağa ayak uydurmak zorundayız. [Teknoloji] kullanmak zorunda olduğumuz bir şey kesinlikle şu dönemde. ... Mecburiyet bence çünkü çağa baktığımızda şu an elinizde bir bilgi olmadan her şey bizim için çok büyük bir problem olurdu. En basitinden, şu görüşmeyi ayarlamamız bile teknoloji sayesinde gerçekleşiyor. Teknolojisiz hayatımızın tıkanacağını düşünüyorum. (C4_ATTaTI)

Q32. Eğitim açısından bakarsak kesinlikle bir zorunluluk olarak görüyorum. Tamamen bir bilgisayar olmayan bir okul da gelebilir şansınıza... Ama kendi

kaynağımızla da olsa kullanmak durumunda kalacağız diye düşünüyorum.
(C4_ATTaTI)

Q33. Mesela bir eser teslim edeceğiz. Arkadaş sayfanın üzerine oturtamıyor. Sayfayı iki sütuna ayırması gerekiyor. Bir tarafına İngilizce bir tarafına Türkçe gelecek. Word üzerinde bunu nasıl yapacağım soruları var. Bunları önceden bilmesi lazım... İki sütuna ayırmak bir sayfayı ya da sayfayı yatay ya da dikey olarak kullanabilmek... Bunlar çok temel şeyler aslında. Benim gözümde öyle. (C4_TK)

Q34. Uygun bir şekilde kullanabildiğin sürece İnternet gerekli... Araştırma yaparken en azından... Nasıl yapacağını bildikten sonra ulaşamayacak şey yok diye düşünüyorum. En azından ofis programlarını hiç bir şekilde bilmeseyse bile güzel bir İnternet sörfü yapabildiğin sürece kendin öğrenebilirsin... Yani ona da ulaşması çok zor bir şey değil... Yani onları kendi kendine öğrenebileceğine inanıyorum yedi yaşından beri kendi kendime öğrenmiş bir insan olarak. Bir öğretmen öğrencileri için teknoloji kullanma gibi bir hevesi varsa günlerini haftalarını alacağını bilse yine öğrenebilir. (C4_TK)

Q35. Bir öğretmen bilgisayar üzerinde ne nedir bilmesi lazım kesinlikle: gerek donanım olsun gerek programlara baktığında şu, şu işe yarar demesi lazım bunlar artık temel bilgi. (C4_TK)

Q36. Hazırlıkta buraya geldiğimde alt yazısız bir şey izlemem imkânsızdı; alt yazıyı kapatarak ya da ing alt yazı kullanarak daha çok filmlerle geliştirdim [dinleme becerimi] kendimce. Şimdi artık alt yazıya ihtiyacım kalmıyor ya da daha çok dinliyorum çok hızlı geçiyor kelime o zaman alt yazıya bakıyorum. (C4_TCK)

Q37. Belli bir context üzerine oturtulmuş resim içeren siteler var. Mesela altında quizleri de dâhil oluyor. Aynı anda dinlerken quizlerini çözüp kendi skorlarımızı sonunda görebiliyoruz. (C4_TCK)

Q38. Ders planı hazırlıyorum... Bu dönem epey bir hazırladık. Onlarda kullandığım bilgilere bakarsam şöyle bir şimdi aslında çok aşırı teknik bilgiler falan gerekmiyor. bir ofisi kullanabildiğiniz sürece birçok materyali hazırlayabilirsiniz dersleriniz için.

İnternet üzerinden video oluşturmak ya da basit bir resim bile oluşturmak için kolay araçlar da var. bir dersimde öğrencilerin resimlerin isimlerini yazarak resimlerin kendisini bulduğu online bir oyun kullandım. (C4_TPK)

Q39. Yaş grubunun çok önemi var. Bizim sınıfımızda, size animasyon hazırladım, bakın şunu öğreneceksin falan deseler mesela biz şu an gülüp geçebiliriz; ama yani ilkokul öğrencisine bunu verdiğinizde çok ilgilerini çeker. On kere aynı şeyi tekrar tekrar göstersen büyük bir zevkle tekrar tekrar izleyeceklerine inanıyorum ben. Yaş grubunun ilgilerini bilmek de önemli. (C4_TPK)

Q40. Mesela sınıfta yaptığım bir speaking dersini düşünüyorum. Peer olarak üç kişinin konuşmasını isterim. Grupların hepsini aynı anda dinleme şansım yok. Onlardan ertesi gün için mail olarak kişisel olarak ne konuştular özetlemesini isteyebilirim. Hem yazma becerilerini geliştirmeleri için teşvik etmiş olurum hem konuştuklarından ne kadar ne anlayabilmiş, ne aktarabiliyor bana bunu görmüş olurum. Aynı anda birçok şeyi geliştirmiş olurum. Mail de kullandığım için teknoloji ile birlikte ilerlemiş olabilirim diye düşünüyorum. (C4_TPK)

Q41. Sanırım teknoloji ile birlikte kullanması en kolay olan metot "total physically response" olurdu. Imperative'leri öğretmek için kullanılan bir metot. Sınıf içinde tamamen İngilizce konuşarak ve küçük yaşta ki öğrencileri hareket ettirilerek imperative'leri öğretebiliyoruz. Bunu teknoloji ile verebilmek bence çok mümkün. Teknoloji kullanırsak çok daha öğrenci için faydalı olacağına inanıyorum; çünkü İngilizce öğretmenlerim o şekilde telaffuz etmeselerdi ben şu anda bu şekilde telaffuz etmezdim. Çok kelimeyi yanlış telaffuz ediyorum. En azından bunları İnternet üzerinden bir şekilde bulup bilgisayar yardımıyla kullanırsam sesleri bir şekilde daha doğrusunu öğrenirler en baştan diye düşünüyorum. Aslında birçok yaklaşımda aynı şekilde teknoloji kullanabiliriz. (C4_TPACK)

Q42. Bu ülkede konuşma ve dinleme üzerinde çok durmadığımız için bu becerilere çok yönelmeliyiz diye düşünüyorum. Daha çok onları geliştirmeye çalışacağım. Öğrencilere bu tarz şeyleri verip bu becerileri geliştirmesini isteyebilirim. Gramer üzerine yapacaksam da herhâlde kendi hazırladığım tool'lar sayesinde evde rahatlıkla

yapacağım bulmaca tarzı işte zorunlu ödev tarzında yaklaşmayacakları, eğlenecekleri ya da birlikte yapacakları şeyler vermeyi düşünüyorum. (C4_TPACK)

Q43. Sınıf içerisindeki öğrencilere değil belki ama en azından öğrencilerin spelling ya da kendilerini [İngilizce] anlatma becerilerini geliştirebilmeleri için belli sohbet ortamları yaratabilirim. (C4_TPACK)

Q44. Genelde bilgisayarla alakalı teknolojik şeyler hayatımızı kolaylaştıran şeyler. ... Eğer çok fazla bilgisayarla haşır neşir olurlarsa tamamen sanal ortamda olurlar. o zaman kötü sonuçlar olabilir. (C5_ATTaTI)

Q45. Ya kullanılmalı mutlaka [eğitimde]. Mesela akıllı tahta çok büyük bir kolaylık öğretmen için de öğrenci için de. Hem daha ilgi çekici olabilir. Oyunlar olabilir belki küçük çocuklar için daha derslerin eğlenceli olması açısından. (C5_ATTaTI)

Q46. Her şeyin avantajı dezavantajı vardır. Teknolojinin öğretmen açısından bence dezavantajı olur. Bir sorun oluştuğunda onu çözmek zorunda. [Çözmek için] yeterli bilgiye sahip olmak zorunda. Mesela bilgisayar bozuldu onu hani tamir edebilecek durumda olmalı. (C5_ATTaTI)

Q47. Mesela geçen sene ilk kayda geldiğimizde nasıl internetten kayıt yapabileceğimizi bilememiştik. Çok fazla bilmiyorum yani yetersiz hissediyorum kendimi [teknoloji kullanımı konusunda]. (C5_TK)

Q48. Mesela tabletleri öğretebilirler. Daha öğretmenler bilmiyor ama öğrencilere dağıtmışlar. Bence önce öğretmenlere öğretilmeli yani çünkü sonuçta biz bilmeden onları kullanamayız. ...Şu an en güncel şey tabletler. Onları öğretmeliler bir an önce çünkü elimize tutuştururlarsa neparız bilmiyorum. ...Hiç bir şey yapmadık tabletlerle, bir kere dağıttı geçen hafta karıştırın diye ama hiç yani çok anlamadım ben onu ya. (C5_TK)

Q49. Word, Excel mesela. Exceli şu an hiç bilmiyorum. Exceli öğretebilirler. Çünkü Excel'de çok fazla yapılabilecek şeyler, formüller filan var, onları hiç bilmiyorum. Öğretmenin işini kolaylaştırır. Mesela, bir öğretmen yazılı sınavları okudu. Öğrenci

ilk sınavdan şunu almış, ikinci sınavdan şunu almış, ortalamasını hesaplayacak mesela. Excel'de böyle bir şey var sanırım. Onları filan gösterebilirler yani. En ince ayrıntısına kadar öğretebilirler.

Q50. Biraz öğrendik ama. Onlar da çok fazla etkili olmadı bence. Prezi falan öğrendik hadi tamam da çok hani ilerde kullanabileceğimiz şeyler olmadı. Mesela GoAnimate vardı, hani çok basit kalmış. Sınıfta kullanılacak daha uygun programlar olabilirdi yani, GoAnimate' ten filandansa. (C5_TCK)

Q51. CD'ler oluyor... Mesela, Rozette CD varmış çok iyiymiş, ben görmedim de. Bir arkadaşım ondan çalışıyor. O çok iyi diyordu. Sanırım communication ile alakalı. Ağırlıklı olarak gramer yok yani içinde. (C5_TCK)

Q52. Speaking de çok teknoloji yok herhâlde. ...Vocabulary de olabilir belki... Mesela BBC de bir tane böyle çocuklar için bir şeyler vardı, önce böyle işte listening gösteriliyor, sonra mesela orada kelimeleri öğretirsin. Hem [kelimeleri] görsel olarak görmüş olurlar. Bir arkadaşımız Christmas ile ilgili bir video izlettirmişti sonra oradan mesela kar nedir gibi yeni kelimeleri öğretmişti. Güzeldi... (C5_TCK)

Q53. Mesela, dersin girişinde bir video falan gösterilebilir bilgisayardan sınıftaki öğrencilerin ilgisini çekmek için. ...Biz demolarda kullanıyoruz teknolojiyi. Genelde presentation şeklinde oluyor. Başka kullanmıyorum yani. (C5_TPK)

Q54. Öğretmen bir sorun oluştuğunda onu çözmek zorunda. Dolayısıyla öğretmen açısından dezavantajı olur dediğim gibi. Öğrenciler açısından da... Mesela uzaktan eğitimler var. Onlar da öğrenciler açısından dezavantajlı olur. Öğretmeni [yüz yüze] görmüyorlar mesela, kafasına bir soru takılsa soramıyor filan. ...Ben kendim biraz kaygılı olduğum için [teknoloji yüzünden çıkabilecek problemler] konu[sun]da. ...Mesela Ceit dersinde hiç o tarz bir şeyler öğrenmedik biz. Bir lab dersimiz vardı ama onda da sadece goanimate gibi araçları hoca anlatıyordu biz de yapıyorduk [ilgili etkinlikleri]. Sınıfta bir sorun olursa onu nasıl halledebiliriz gibi bir şey yoktu.

Q55. Valla Őu an ok biŐey ğrenmedik ki. Yani bir tek bildiđim prezi var Őu anda. Ya da GoAnimate gsterildi ama teknolojiyi entegre edebilmemiz iin yeterli deđiller. (C5_TPACK)

Q56. Derste tabletlerle neler yapilabileceđi belki gsterebilirdi, hangi programları kullanırsak daha etkili olur gibi... Őu an tablete ne programı ykleyeceđimi bile bilemem ben. ...Nasıl kullanılacağı verilmeli mesela biz İngilizce olarak dŐunrssek. Speaking'de mi daha etkili olur bu tabletler, listening'de mi yoksa reading dersinde mi daha etkili olur hangisinde kullanılmalı. Byle Őeyler olabilir. Mesela hangisi olduđunu bence pratik yaparak ğrenebiliriz. Bir gn listening de kullanırsın bakarsın etkili mi deđil mi. Etkili olmadıysa bir daha diđer beceriler iin kullanırsın. (C5_TPACK)

Q57. Technology hayatı kolaylaŐtıran icatlar btn. (C6_ATTaTI)

Q58. Teknolojinin olumlu olabileceđini dŐunyorum; nk zaten hayatımız teknoloji ile paralel olarak geliŐtiđi iin eđitimde haliyle teknoloji ile geliŐmesi gerekiyor. Teknoloji hayatı kolaylaŐtırıyor niye eđitimi kolaylaŐtırmasın? Dođru bir Őekilde uygulayabilirsek teknolojiyi ok da robot tarzında deđil de sadece yardımcı bir ara, amatan ziyade kullanırsak teknolojinin eđitime yararlı olacađını dŐunyorum. (C6_ATTaTI)

Q59. Word' bir kere bilmesi gerekiyor đretmenin. Mesela ben đrencilerime "Gidin bana Őyle bir Őey yazın 5 sayfa 6 sayfa, gelin, bilgisayar ıktısı olsun" dediđim zaman onlar bana yazının tipi ne olsun, boyutu ne olsun, aradaki boŐluklar ne olsun diye sormalarını bekliyor olmam lazım. Onlara cevap vermem iin benim Word u bilmem, daha nce yle Őeyler yapmıŐ olmam, aŐına olmam gerekiyor. Daha sonra đrencilerime bir PowerPoint sunumu hazırlayın deyip de PowerPoint kullanmayı bilmiyorsa, benim bilmediđim bir Őeyi onlardan nasıl beklerim. (C6_TK)

Q60. Akıllı tahta kullanmayı hoca gsterdi. Ben de gnll olarak bir Őeyler denemiŐtim, yazı yazıp, bir Őeyler izdim; ama ok da hani bir bilgisayar kadar

accessible bir şey değil sonuçta. Yine de eğer benim çalışma alanımda olursa sonuna kadar kullanmayı düşünüyorum. (C6_TK)

Q61. Projeksiyon çalışmıyorsa, projeksiyonu çözmeye çalışırım. Çözemezsem laptopu çeviririm sınıfa. Teknik bilgimizin olması gerekiyor galiba bir noktaya kadar: kabloyu takıp çıkarabilmek filan ya da basic sorunları çözebilmek için gerekli bilgi. Nasıl kullanılacağını biliyor olamam lazım sınıftaki bir aletin instruction olarak, nasıl eve gelen bir elektrik süpürgesinin instruction'ını okuyorsam, onun da instruction'ını ve beklenmedik durumlarını filan biliyor olmam lazım. Çünkü bu benim, evdeki elektronik aletleri nasıl kullanıyorsam, bu da sınıfta kullandığım bir aletim ve benim ona hâkim olmam gerekiyor. (C6_TK)

Q62. Benim İngilizce öğrenme yönetimim şarkılardı. Çok klasik bir şey ama gerçekten ben şarkılardan ve dizilerden öğrendim İngilizceyi. ...Yani benim asıl yöneldiğim, okulda basic grameri öğrendikten, sonra dışarda gerçekten extensive listening yaptım. On-on iki senedir sürekli şarkılar dinliyorum, diziler izliyorum bilgisayardan, mp3 player'dan, CD'lerden... (C6_TCK)

Q63. O çok bana yüzeysel geliyor mesela insanlarla İngilizce konuşun. E ben türküm sende türksün. İkimiz de Türk isek niye İngilizce konuşuyoruz diye çocuklarda bir mental bir sınıra neden olabilir bu durum. Mesela Omegle diye bir site var yabancılarla konuşuyorsun, İngilizce konuşuyorsun. Orada kendimi orda anlatmam gerekiyor ki bir sonuca varalım ya da orada rahatım, otantik bir ortam, gerçeğe yakın. (C6_TCK)

Q64. Writing'imi şöyle geliştirdim ben: Chat siteleri aracılığı ile ya da zaten tanıyor olduğum yabancı arkadaşlara ben çok sık yazdım. Onlarla çok fazla konuştum. Bir yerden sonra ben İngilizce yazıyordum çok hızlı; ama yazdığım hızda İngilizce konuşamıyordum. Writing'im çok gelişmişti; ama speaking im kalmıştı. Sonra başka şeylere döndüm speaking için. Bu yüzden, hangisi beceri için nasıl bir çalışma yaptığımı önemli. (C6_TCK)

Q65. İnternet dediğimiz derya deniz ve her şeye kolayca ulaşabiliyoruz İnternet aracılığıyla. Mesela, benim o an anlatmak istediğim şeyi sadece bir aracım olmadığı için, o da teknoloji, öğrencilere aktaramayabilirim; ama İnternet e kolaylıkla erişim varken, benim kalite olarak nitelendirmem gerekir dersimi. Bir bilgiye ya da görsele ulaşabildiğim an dersin değeri ya da aktardığı şeyler de fazlalaştığı için kalitesi de artar diye düşünüyorum ben. Daha zengin bir ders olur; çünkü internetten çok çabuk her şeye ulaşabiliriz. Sınıfta İnternet'e erişimimiz olmazsa, kısır bir ders olur. İnternet zenginleştiriyor yani. (C6_TPK)

Q66. Bir kere o da hedef kitleye bağlı bir şey. Çocuklar için renkli ders planları hazırlamaya çalışıyoruz; ama çok da akıllarını kaybedecekleri kadar renkler, oyunlar olmaması gerekiyor. Ne yapmıştım? Bir şarkı var vücudun bölümlerini anlatıyor. Şarkının iki versiyonunu buldum. Bir tanesi o kadar renkliydi ki ben izlerken bile ben ne yapıyordum diye hatırlamam gerekti. Onu öğrencilere gösterdiğimde onların ne tepki vereceklerini de düşünmem gerekiyor; o yüzden aynı şarkının iki versiyonundan daha az ilgi çekici olanını seçtim mesela. ...Teknolojiyi seçerken, benim teknolojim var hadi kullanayım değil de hedef kitlenize uygun şeyler bulmak gerekiyor. (C6_TPK)

Q67. Backup plan düzenli olmayı gerektiriyor. Her şeyin bir b planı olmalı. Mesela ben görsel güzel bir aktivite buldum bilgisayarda ve ders planına döktüm. onu bir aktivite olarak kâğıda tek kopya alabilirim. Eğer öyle bir sıkıntı çıkarsa onu fotokopi çektirebilirim hemen. Benim asıl etkinliğim derste PowerPoint'te mesela. Elektrik gittiği an bittim yani ya da PowerPoint'e tıklıyorum açılmıyor... Benim kendi dosyamsa, zaten ben onu 35 tane e-mail adresime göndermiş olurum; dolayısıyla herhangi birinden açabilirim. (C6_TPK)

Q68. Ne yapıyorum? Kendim tasarlayabiliyorum diyebilirim. Fikirlerim var ve diğer arkadaşlarımda fikirleri var. Grup olarak geliyoruz yan yana, herkes bir şeyler ekliyor ve materyal hazırlıyoruz. Mesela bunları yaptık (elindeki suçlu ve polis plakalarını gösterdi) ve insanların ilgisini çekti. Metin etkinliği var; true-false var; boşluk doldurma var. Bunları herkes yapabilir ama ben kendimi geliştirmeye

çalışıyorum ve teknoloji kullanarak daha iyi bir şekilde EFL teach etmeye çalışıyorum. ...Mesela yaratıcılık açısından daha önce bir demo yapmıştık çok güzel olmuştu. İkinci kez yaparken ben şarkı yazdım öğreteceğim kelimelerle. Beste yaptım Mission impossible in teması ile. Polisiye bir temada kullanılacak kelimeleri öğrettik. ...PowerPoint sunumum da vardı vocabulary için. repetition vardı, make a sentence vardı, stage'leri. Bunları yeni kelime öğretmek için kullandım dersin asıl kısmında, convey meaning kısmında. Onun dışında dersin başında clue'lar verip ne işliyor olabiliriz biliyor musunuz diye leading kısmı var. O kısım için teknoloji kullandım, fotoğraflar gösterdim, iki fotoğraf arasındaki ortak noktaları sordum. (C6_TPACK)

Q69. Benim teknoloji üzerine kurduğum bir ders planım var ve onu uyguluyorum. Yani teknolojiyi seçtim ama anlatmam gereken belli bir içerik de var. Teknolojiyi bu içeriğe entegre etmem gerekiyor. Bunu da yani management yeteneklerimle çözebilirim. (C6_TPACK)

Q70. Ben teknolojiyi entegre etmek istiyorum derslerime. Öğrencilerden de hep bir adım önde olmam gerekiyor. Benim bu yüzden sürekli araştırma yapmam gerekiyor. Diyelim ki İnternet'te kullanabileceğim Kerpoof gibi goanimate gibi sitelere ilgilim var. Onlar ne sitesi araştırırım. Web 2.0 tools. Öyle bir araştırırım bakarım başka ne varmış diye. Sürekli kendimi geliştirebilirim bu şekilde. (C6_TPACK)

Q71. Bence artık kesinlikle çok yaygın bir şekilde kullanılmaya başlanmalı eğitim öğretim sürecinde; çünkü teknoloji günlük hayatın her alanındaysa bu eğitimde de olmalı. Mesela, okullara tablet PC dağıtılması çok iyi... (C7_ATTaTI)

Q72 Dediğim gibi benim teknolojik bilgim sınırlı... Bu kadarını [ders gereğini öğrendiği] biliyorum, bu kadarını gördüm bilmediğim daha çok şey var. ...Hiç kendim araştırmadım ya da hiç kendim öğrenmeye çalışmadım. (C7_TK)

Q73. Bizim bölümde akıllı sınıf gördüm ben var ve birkaç tane ders de alıyorum bu sınıfta; ama sınıflarda hiçbir hoca kullanmıyor onları. Ben daha bir kere bile akıllı tahtanın nasıl kullanıldığını görmedim. Yanından bile geçemem o teknolojinin ben.

... Labdaki gibi pratik yapılarak akıllı sınıfın her şeyini öğrenebiliriz. Bir sömestr sürmesi çok saçma olur ama 6 – 7 saatlik bir dersle belki bir yeterlilik kazanabiliriz en azından. (C7_TK)

Q74. Mesela tablet daha önce kullandım ama tablet elime geldiğinde hoca şunu bulun bunu bulun falan dediğinde beni zorladı, daha önce kullanmış olmama ve genç nesil olarak daha yatkın olmamıza rağmen. (C7_TK)

Q75. Mesela tabletler bireysel amaçlarla kullanıldığı için, özellikle e-book, çok avantajlı oluyor bizim alanımızda. Listening de bir hoparlörden ses çıkmasındansa, mesela, iPad den kulaklıkla herkes daha iyi konsantre olabilir dinlediği şeye bireysel olarak. en çok bu açıdan baya bir işe yararlar. ... Ben zaten sürekli zaten org e-book dinliyorum pronunciation'ımı geliştirmek için. (C7_TCK)

Q76. Online sözlükleri çok kullanıyorum mesela Oxford falan; CD si de oluyor Oxford'un. Sonra müzik CD'lerini kullanıyorum listening imi geliştirmek için. (C7_TCK)

Q77. Çok zor aslında... Öğretmen herkesi sınıfta teker teker kontrol edemez. Bu ancak teknoloji ile başarılabilir. Mesela tabletlerde bir program ayarlanabilir bilmiyorum nasıl olur da siz daha iyi bilirsiniz bunları. Benim o kadar bilgim yok. ... Öğrencinin teknolojiyi suiistimal etmesinin önüne öğretmen geçemez; ancak bu teknoloji ile olur. Öyle bir program yüklersin ki senin istemediğin hiçbir siteye, programa giremez o çocuk. Bu şekilde ben sanmıyorum ki bana verilen classroom management dersi ile ben o çocukların suistimal etmesinin önüne geçebileyim. (C7_TPK)

Q78. Teknolojiyi kullanabiliyor olmamızın yanı sıra, bunu aynı zamanda derste ders planına çok uygun bir şekilde yansıtabilmemiz ve nerde nasıl kullanacağımızı da bilmemiz gerekiyor. Sadece programı açıp öğrencilere göstermek değil. Yani (yeterli) olabilirim belki; ama bunlar öğretilmeli o lecture kısmında yeterli olabilmemiz için. (C7_TPK)

Q79. Dediğim gibi benim teknolojik bilğim sınırlı olduđu için řu an hangi teknolojiler kullanılacak bilmiyorum [in EFL teaching]. (C7_TPACK)

Q80. Bunlar (Web 2.0 tools) çok ilgimi çekmemiřti açıkçası öğretmen olmayı pek düşünmediğim için. (C7_TPACK)

Q81. Native birisiyle konuşulabilir; hiç sanmıyorum öyle bir şey olacağını ama. Kimse hiçbir öğretmen onunla uğraşmaz bence. Türkiye ‘de çok zor bir iş değil mi iletişim kurmak? Ayarlamak lazım her şeyi saat farkıydı bilmem neydi. Hiç kimse bunla uğraşmaz. Ben uğraşır mıyım? Belki üniversite seviyesinde ama ilkokulda kesinlikle değil. (C7_TPACK)

Q82. Aslında birkaç saatte anlatabileceğimiz konuları bir görsel sağlayarak öğrettiğinizde çok daha kısa süreye indirgeyebilirsiniz. Aynı zamanda sesleri de kullanırsanız bu süre çok daha kısalabilir. Bu açıdan yardımı dokunur diye düşünüyorum. (C8_ATTaTI)

Q83. Materyali kullanmamız gerektiği gibi kullanamayınca öğrencilerde kafa karışıklığına neden olmamız söz konusu olabilir. Ee nasıl kullanabiliriz? Aslında bu alacağımız teknoloji eğitime bağlı biraz da, benim açıkçası teknoloji ile ilgili yaşadığım en büyük sorunlardan birisi bu. Yani çocukluğumdan beri çok fazla teknolojik bir ortamda büyümediğim için ya da hani okulum beni bu şekilde yetiştirmediği için ben řu anda eğitim fakültesi öğrencisi olarak bile hani nasıl kullanabileceğimi bilmiyorum açıkçası. (C8_ATTaTI)

Q84. Özellikle öğretmen açısından... Nasıl kullanacağını bilmiyorsa eğer, çok büyük dezavantajı var. Nasıl kullanacağını bilmiyorsa eğer, bu sefer konuyu anlatacağı süre artabilir tam tersine. (C8_ATTaTI)

Q85. Aslında çok fazla bi bilğim yok. Bu benim teknolojiyle çok fazla içli dışlı olmamamdan kaynaklanıyor olabilir. (C8_TK)

Q86. En başta ofis programları... Çok büyük bi kabiliyet beklemeyebiliriz bir öğretmen için bir mimar ya da mühendisten beklediğimiz gibi. Ama bir şeyleri daha

hızlı ve pratik yapmak için, bence temel programların, özellikle ofis programlarının, kullanımını vermek gerekiyor. Benim şu an eksik olduğum bilgi bu. (C8_TK)

Q87. Hocamız tablet PC'nin kullanımı konusunda introduction gibi bir şey yaptı; ama sadece bir ders olduğu için fazla bilgi edinemedim. Aslında yetersiz. Tablet PC'yi nasıl kullanabileceğimi ben hiç bilmiyorum; tablet PC edinmediğim için belki. (C8_TK)

Q88. Diyelim ki İngilizce öğretmeniyim ve listening çalışması yaptırmak istiyorum çocuklara. Ama bir videoyu hangi programla açarsam nasıl bi ses kalitesi ya da görüntü kalitesi elde edeceğimi bilmiyorum. Bana ona göre bir eğitim verilseydi eğer, ben bunları derste daha rahat kullanırdım. (C8_TK)

Q89. Yeterli midir? Bence değildi; çünkü kullandığımız şeyler daha çok sunum yapmak için ya da küçük yaştaki çocuklara yönelikti. Daha farklı neler olabilirdi bilmiyorum; ama sanırım bu bölümlere göre farklı farklı olabilir. Matematik bölümündeki öğrenciye farklı bir teknoloji imkânı sunmalısınız, İngilizciye farklı gibi geliyor bana bilmiyorum. (C8_TCK)

Q90. Aslında sadece teknoloji ile ilgili bilgi sahibi olmak yetmez; aynı şekilde sadece kendi alanımızla ilgili bilgi sahibi olmak da yetmez; tam bu ikisinin birleşme noktasıyla ilgili bilgi sahibi olmamız gerekir. Ama bu konuda çok fazla örnek verebilir miyim onu çok fazla bilmiyorum; çünkü şu ana kadar edindiğim bilgiler ikisinin bi arada kullanımı ile ilgili değildi. O yüzden çok fazla örnek veremeyebilirim. (C8_TCK)

Q91. Teknolojiden öncelikle çok basit şekillerde yararlandım. Sürekli klişe olarak belirtilen film izleyin müzik dinleyin tarzı şeylerde yararlandım. (C8_TCK)

Q92. Aslında biz çok basit şeyler kullanıyoruz şimdi fark ediyorum ki. Özellikle kelime öğretimi kısmına gelince en fazla kullanabileceğimiz teknoloji YouTube'dan bir şarkı açmaktır ya da bir sunumla [yeni] kelimeleri vermektir. Yeterli değil... (C8_TPK)

Q93. Eđer etkileşim önemliyse eđer öğrenci öğretmen ya da online herhangi bir araç arasında ona yönelik programlar geliştirilebilir. Laboratuvar ortamında geliştirilebilir birkaç farklı teknolojinin aynı ortama konulmasıyla. O konuda çok yeterli olduğunu sanmıyorum. (C8_TPK)

Q94. Online iletişim araçlarının kullanımı, yine google groups konusuna geri dönebilirim. Şu an çok popüler olduğu için tekrarlıyorum belki. Çok basit noktalar aslında, sadece bir maille bile birkaç farklı öğrenciye ya da birkaç farklı öğretmene ulaşabilirsiniz. Daha gelişmiş iletişim teknolojilerinin kullanımı derste verilmeli bence. (C8_TPK)

Q95. Teknolojiyi bir konuda nasıl teknoloji entegre edeceğimizi öğrenirsek eđer, diyelim ki ders işlerken ben şu etkinliği şu şekilde yapabilirim diye ben bi temel edinirsem, hani her şey daha çok kolaylaşacaktır. Şu an çok zor doğru bir şekilde entegre etmemiz. (C8_TPACK)

Q96. Hocamız eđer tablet PC kullanımında daha derin bilgiler verirse onu da nasıl entegre edebileceğimi öğrenirim. Şu an çok yüzeysel gördük ve birçoğumuz tablet PC'ye daha önce dokunmamış durumdayız. (C8_TPACK)

Q97. Hayatımızı kolaylaştıran araçlar bütünü. ...Zorlaştırdığı değil de önceden tahmin edemiyoruz çıkabilecek problemleri. O problemlere karşı önlem alsak aslında zorlaştırmıyor. O da yine bize kalmış bir şey. (C11_ATTaTI)

Q98. Teknoloji eğitimde de lazım çünkü teknolojinin eğitimde sağladığı şey de çok önemli; örneğin görsel olarak ya da audial olarak yani sessel olarak pek çok şey sağlıyor. (C11_ATTaTI)

Q99. Konular bize daha eğlenceli hale getirilmiş şekilde verilseydi teknoloji kullanılarak belki daha çabuk öğrenebilirdim. (C11_ATTaTI)

Q100. Ya ben bilgisayara teknolojiye baya ilgiliyim babamdan geliyor biraz da. 3. Sınıftan beri bilgisayarım var. İçli dışlıyım devamlı. Bu gereksizdir deyip Windows dosyalarını sildiğim de oldu. Ama bi şekilde öğrendim yani. (C11_TK)

Q101. En azından bilgisayarda olabilecek küçük problemleri çözebiliyor olması gerekiyor; çünkü ders esnasında herhangi bi problem çıktığı zaman o bilgisayarlardan sorumlu görevliyi çağırıp onun gelip tamir etmesini beklemek yerine, bu 15 dakikalık bi kayıp zaman olur. Ya da bi internet kesiliyor mesela. Bu sene gerçekten çok karşılaştım. İnternet kesiliyor, işte görevliyi çağırıp geliyorlar, adam internetin fişini takıp gidiyor mesela. En azından bunun bilincinde olması gerekiyor öğretmenin. O kadar da zor değil yani bunlar. (C11_TK)

Q102. Word'de yazı yazma, onu kalın yapma italik yapma, yazı boyutunu büyütme, bununla ilgiliydi. Lisede bilgisayar eğitimi yoktu mesela hiç. Ondan sonra üniversiteye geldik. IS100 dersi vardı, onu atladım mesela. Zaten bildiğim şeyler. (C11_TK)

Q103. Ben ne kadar teknolojiye yatkın olsam da ben o akıllı tahtanın ya da uzaktan eğitimin nasıl yapıldığı konusunda çok fazla bilgili değilim. Hani önüme verseler bu akıllı tahta bu da bilgisayar hadi kur bakalım iletişim deseler zorlanırım. Hani belki çözmem 10 dakikamı alır ama o 10 dakikada da benim ders zamanım gider. Onun için benim istediğim uygulamaydı biraz daha.

Q104. Sonuçta bize verilen programların hiçbiri İngilizce öğretmek amaçlı yapılan bi programdır ya da İngilizce aktiviteleri yapmak amaçlı programdır denmedi ki zaten öyle bişey olamaz; çünkü ben o programları İngilizce öğretmekte de matematik öğretmekte de Türkçe öğretmekte de kullanabilirim. (C11_TCK)

Q105. Bir kitabımız vardı. Kitabın yanında cd veriyorlardı. Listening aktiviteleri vardı orada dinliyorduk. Note taking vardı, fill in the blanks bölümü vardı, onları yaptık. (C11_TCK)

Q106. Mesela sesli sözlük kullanabilirler, elektronik sözlük anlamında. Mesela o da bi teknoloji. Bilgisayar dışında bi örnek vereyim dedim. Benim de vardı mesela. Telaffuz açısından çok yararı oldu. İstedğim kelimeyi yazıyordum hem anlamını öğreniyordum işte düğmenin birine basıyordum dinliyordum da. İşte British English'de nasıl telaffuz ediliyor, Amerikan English'de nasıl telaffuz ediliyor,

bunları öğreniyorsun. Bu vocabulary öğrenmek için, telaffuz geliştirmek için yararlı bişey. (C11_TCK)

Q107. Speaking için çeşitli communication programlarını kullanarak bu konuda hani native speaker'larla mesela görüşme imkânı yakalayabiliyoruz. Speaking ve listening imi bu yolla geliştirebilirim. (C11_TCK)

Q108. Biz burada örneğin boşluk doldurma yapmak istiyoruz. o boşluk doldurmaya bilgisayar üzerinden yapacağız. Onun için mesela bi program daha önce öğrendiğimiz programlarla herhangi bi aktivite yazıyoruz. Mesela bizden mesela hocamızın istediği de bu. Çünkü diyor ki, işte siz visual bir şeyler kullanacaksınız, işte audio şeyler kullanacaksınız. Hoca bize bunları veriyor, biz de bunları İnternet üzerinden araştırıp ya da önceden öğrendiğimiz programlarla aktiviteler oluşturup bunu ders planına yazıyoruz. (C11_TPK)

Q109. Örneğin bi ilkokul çocuklarını ele alalım, soyut şeylere uzaklar. Ben soyut bi kelimeyi öğrencilere öğretebilmem için ona dokunabilmeli, görebilmeli ya da koklayabilmeli böyle şeyler gerekir. Hem ben bunu soyut kelimeler için sağlayamam ama en azından anlatabilecek görsel şeyleri bulabilirim bilgisayar üzerinden. Bu şekilde anlatabilirim ya da yine ilkokul çocuklarını ele aldığımızda çocukların dikkat süresi en fazla iki dakika üç dakika. Ben onu onlara bi çizgi film gösterebilmem lazım ya da ilgilerini çekecek bi karikatür bi resim göstermem lazım ama o karikatürün içine de hani bu çocuklar eğlensin mantığında değil de o karikatürün içinde bi simple past tense i verebilmem gerekiyor. Bunun içinde yine kendim hazırlamam gerekiyor mesela. bi baloncuk açar mesela "what did you do" der mesela. Hani orada simple past tense i ben çocuklara aşlamış olurum. Şöyle de bişey var, Past tense'in grammar'ini veririm öğrenciler defterine yazar bu beş dakika sürer. Ben işte karikatür üzerinden resim üzerinden veririm bu on dakika sürer ama öğrencilerin aklına daha çabuk kazınır. (C11_TPK)

Q110. Teknoloji bu konuda faydası derken şöyle yapabiliriz mesela uzaktan eğitim var. Bu uzaktan eğitimi sağlayabilmemiz için eskiden olsaydı o öğretmen ya da öğrencilerin belli bi yerde toplanmaları, burada işte gerekli materyalleri alıp tekrar

evlerine dönmeleri gerekiyordu. Ama şimdi dünyanın herhangi bi yerindeki bi öğrenci ile Türkiye'deki bi öğrenci istediği zaman görüşebiliyor. Bu açıdan mesela grup çalışmasıyla mesela İngilizce bi proje ödevi yapılacağı zaman yararlanabilirim Internet ya da teknolojiden. (C11_TPK)

Q111. Mesela şey kullanılıyor, hava alanında mesela bilet alacaksın bu kullanılıyor. Hani bunu nasıl yapabiliriz... Gişedeki kadın mesela yazar ki "hoş geldiniz" der mesela, oradaki adamın söylemesi gereken şey "hoş bulduk" olsun, işte orası boş olur, öğrenciden oraya hoş bulduk yazması istenir mesela. Öğrenciden güle güle yazdığında yanlıış cevap gibi bişey çıkar. İşte hoş bulduk yazdığında doğru cevap çıkar. Hani bu şekilde bişey yapabiliriz. Task-based dediğimizde, günlük yaşam içinde belli olaylar var. İşte dediğim gibi havaalanından bilet almak, ya da işte bilet değiştirmek olsun mesela bunlar farklı şeylerdir. Burada kullanılacak chunk'ları ya da grammar i öğretmektir mesela amaç. Hani bu şekilde program yazabilirim örneğin. (C11_TPACK)

Q112. Başka derslerde şöyle bişey oldu, Stephan Kress'le görüştük mesela. Onla sanal bi görüşme yapmıştık, seminer tarzı bişey vermişti mesela hani bu bi ders açısından değil de ders dışı aktivite yaptık bunu. Bunu ileride kullanabileceğimi gösterdi bana çünkü dediğim gibi Stephan Kress Amerika'da buraya çağırma imkânımız yok. Kendim açısından öğrencilerimi rahatlıkla görüştürebilirim yani. (C11_TPACK)

Q113. Mesela slayt kullanımı da teacher-based oluyor öğrencilerin hiç bir aktif bir şeyi olmuyor. Öğrenciyi aktif kılacak şeyler kullanılabilir. Mesela öğrencilerden ev ödevlendirme tarzında bir şeyler yapılabilir en azından öğrenci bilgisayar üzerinden. Bilgisayar üzerinden kendisi ödev falan yapabilir, bu zaten learner-based oluyor. Çünkü öğretmen değil birebir öğrencinin kendisinin teknoloji kullanarak dilini geliştirmesini sağlayabilmiş oluyorum. (C11_TPACK)

Q114. Teknoloji şu anda gördüğümüz her şeydir. Bu odadaki bilgisayarlar veya şu masa, her şey yani... İnsanların herhangi bir işi yapmasını daha kolaylaştırıcı etmenler olarak görülebilecek her şeydir. (C12_ATTaTI)

Q115. Teknoloji daha doğrusu materyaller iyi bir şekilde kullanıldığı zaman eski metotlara oranlara çok daha fazla bilgi aktarımı olur; öğrencilerin anlama kapasitesi artar. Destekliyorum kesinlikle. ...Ben çoğunlukla teknolojinin faydalı olacağına inanıyorum; entegre edildiği vakit çoğu öğrenciye faydası olacağına. (C12_ATTaTI)

Q116. Çoğumuz bilgisayar kullanmayı biliyoruz. 319 dersi de zaten bildiğimiz şeylerden de bahsediyordu bazen. Bilgisayarda nasıl sunum hazırlanacağı ya da Word, Excel programlarının nasıl kullanılacağı bildiğimiz şeyler zaten. (C12_TK)

Q117. Biz o derste ne yaptık... Storybook yaptık, aynı şekilde post kart hazırladık. Bazıları fazlaydı gereksizdi, kendimiz de öğrenebilirdik. (C12_TK)

Q118. Örneğin; burada biz ders alıyoruz. Her sınıfta bir PC var. Bugün bir sıkıntı oldu. Neden olduğunu biz çözemedik ve birisi çağırıldı. Birkaç dakika uğraştı halletti. Oysaki nasıl çözüleceğinin bilinmesi bir öğretmen tarafından vakit kaybını engellerdi orada. (C12_TK)

Q119. Bazı online resimli sözlükler falan var. Örneğin; ben bir tanesini kullanıyordum. Kelimeyi girince direkt resmi de çıkıyordu. Cambridge de vardı. Bir de collins vardı. Normalde bir sözlüğü açıp baktığımız zaman, aynı etki olmuyor. En azından görüyorsunuz kelimeyi resimli olarak. Bir sözlüğü satın almak şu anda hem maddi açıdan hem de kelimeyi bulmak için harcadığımız emek açısından gereksiz. Bilgisayarda kelimeyi yazmanız yetiyor. (C12_TCK)

Q120. Tam yeterli değildi öğretilen teknolojiler diyebilirim. Seviyeden bahsettim ya biraz önce. (Intermediate seviyesinde İngilizce bilen biri için) verebildiğim tek örnek concept map'lerdi mesela. Biz onda ödevleri yaparken, çocuk çocuk işlerle uğraşyoruz diye düşündük; çünkü öğrendiğimiz en fazla intermediate seviyesine kadardı bu etkinliklerin. Belki farklı seviyeler için kullanabileceğimiz bazı programlar [Web 2.0 araçlarından başka] olabilir. Onları derste alabilseydik. (C12_TCK)

Q121. Grammar için ben herhangi bir şey [teknoloji] bulamadım. Benim gözümde sadece ezberlenecek bir şey. Çok fazla kullanarak anlaşılması gereken bir şey... Bu

aslında yine listening testi yaparak, kalıpları duyarak, kullanarak, kitap okuyarak halledilebilecek bir şey. Başka kullanabileceğim teknoloji var mı bilmiyorum. (C12_TCK)

Q122. Contingency plan diye öğretiler bize bir B planınız olsun ne olur ne olmaz diye. ...Ama teknolojik aletlerde oluşan sıkıntı teknoloji kullanmamaya itiyor öğretmenleri. Her şey bir bilgisayara bağlıysa ya da teknolojik bir alete bağlıysa, o alet çalışmadığı durumda o ders gitmiş demektir. Bir öğretmenin en büyük dertlerinden bir tanesi konuları yetiştirebilmek zamanında... Bir aletin yapacağı bir hata bütün planları alt üst edebiliyor. (C12_TPK)

Q123. Herkesin bilmediği bir akıllı tahta var örneğin. Nasıl kullanılacağı bildirecek bir kitap olsa ciddi bir şekilde okurduk biz o kitabı. Çünkü hakkında bir bilgimiz yok bizim ve nasıl kullanılacağını bilmemiz gerekiyor. O yönden bakınca da instruction kısmında nasıl, hangi alanlarda, hangi şekilde kullanılabilceği bilgisi verilirse ve lab kısmında da örnek olarak bunları hazırlayabilsek, bazı proje ödevleriyle yapılırsa oldukça faydalı olur. (C12_TPK)

Q124. Mesela, biz sunumla veya herhangi bir şeyle görsellik katabiliyoruz. Tahtaya birşeyler çizilerek ne kadar görsellik olabilir ki? Teknoloji yardımı ile video kullanabiliriz veya materyaller geliştirebiliriz. Bu yolla, birden fazla zekâ türüne hitap ederek öğrencilerin anlama oranını arttırabiliyoruz. (C12_TPK)

Q125. [Teknoloji entegre] edebileceğime inanıyorum. Çünkü eğer ben konuya hâkimsem ve hangi seviyeye uygun hazırlayacağımı biliyorsa ben nasıl hazırlayacağımı biliyorsa, ben teknolojiyi derse katabilirim. (C12_TPACK)

Q126. Örneğin bi speaking dersiyse writing dersini kıyaslayalım. Speaking dersinde öğrencilerin konuşması için karşılarında bir native speaker olması gerekiyor. [İngilizce'yi] adamakıllı anlayabilmek için ve [İngiliz] aksan[ın]a aşına olmak için. Türkiye'deki öğretmenlerin çoğu native speaker değil. Bu açığı kapattırabilirim, bir speaking dersinde bir native speaker 'ın bir örneğinin dinleterek. (C12_TPACK)

Q127. Teknoloji yararlı mı zararlı mı karar veremediğim sistemler bütünü. Çünkü yani çok yararı var iyi bir amaçla ortaya çıktı ama zararı da çok oldu. Getirisi olduğu kadar götürüsü de var. (C3_ATTaTI)

Q128. Tamamen yani globalleşen, yani burada, yani kilometrelerce ötede olan şeyi anında hemen biz de öğrenebiliyoruz. İnsanlarla görüşebiliyoruz. Yani iletişim açısından çok önemli yararı oldu. Âmâ insanlar bunu kötüye de kullandılar. Yani bu açıdan da çok bilinçli kullanmak lazım... Önemli olan bilinç... (C3_ATTaTI)

Q129. Ama eğitimde iyi amaçlarla çok iyi kullanılabilir bir sistem. Ben o konuda teknolojiye yanayım. Teknolojiyi iyi kullanırsak bizim çok lehimize. gerçekten iyi amaçla ortaya çıktığı için teknoloji bütün insanları bağlıyor ve her global bir eğitim oluşturabiliriz. Yani sadece Türk eğitim sistemi olmaktan çıkar bu. Ben bu konuda çok hani iyi şeyler olacağını düşünüyorum teknoloji anlamında. Her işimiz kolaylaşıyor ve görsellik anlamında olsun her anlamda teknoloji var yani eğitimde. (C3_ATTaTI)

Q130. Lab kısmı çok iyiydi (learning Web 2.0 tools). Yani bize çok fayda sağladı ve biz özellikle prezi kullanıyoruz artık. PowerPoint yok yani. Prezi ile yapıyoruz onu seviyoruz falan. Alıştık bayağı. Ders olarak kalmaması çok iyi oldu. (C3_TK)

Q131. Mesela biz 90lar kuşağıyız. Tam olarak teknolojinin içine doğmadık. Ama yeni nesil tamamen, doğduğu ilk andan itibaren teknolojinin içine doğuyor ve eğitim artık teknolojisiz düşünülemez bence onlar öyle doğduğu için. Biz tam olarak doğmadığımız için geri kalıyoruz gibi oluyor. Ama onlar artık [teknolojisiz] olmaz. (C3_TK)

Q132. Excel, Word bunlar temel programlar. Yani bunları hepimiz açıp bi parça da olsa kullanabiliyoruz ama gelişmiş özelliklerini çoğumuz bilmiyoruz. Özellikle Excel i çok fazla bilmiyorum ben mesela. (C3_TK)

Q133. Podcast'ler güzel, bol bol dinlemelerini tavsiye ediyorum Online quiz'ler falan yani, öyle şeyleri. Yani hani hem sınav döneminde olsun, hem öğrenme açısından

olsun, onlar eğlenceli de oluyor. Yaşına uygun olarak (seçip), boş zamanında bile onları oturup yapabilir insanlar, sadece dersin dışında. (C3_TCK)

Q134. Mesela İtalyanca öğrenmeye başlamıştım, hemen hani İtalyanca konuşan birini bulmam lazımdı, hani onlarda yararlı olabilir bence. Bir şey yazıyoruz, mesela şey yazıyoruz: “Hafta sonu ne yaptın?” O Türkçesini geliştirmek istiyor, ben İtalyancamı geliştirmek istiyorum. Ben İtalyanca yazıyorum, o Türkçe yazıyor. Sonra birbirimizin yazdığını düzeltiyoruz. Yani o sitelerde çok güzel... Orada isim ve yaşları var. Hangi dilleri geliştirmek istediği var. Üye oluyorsun. Ama hani konuşmak isteyen konuşabiliyor ama ben sadece yazıyorum. (C3_TCK)

Q135. Onların dikkatini çekecek şeyler kullanmalı. Mesela küçük çocuklarsa biz hikâye kitabı yapmıştık, animasyon yapmıştık. Bunları çok rahat kullanabilir. Hem eğlendirirken hem öğretebilir de böylece teknolojiyi de sevdirebilir hem de dersini de sevdirebilir. Ayrıca online olarak öğrenciye ulaşabilmesi lazım... Mesela sınıfta değilim eksik bir şey kaldı hani onu sonrada online bir sınıf oluşturulabilir. Orda tartışmalar yapılabilir. Öğrencilerin aklında sorular kalabilir, sınıfta yetmiyorsa bu tartışmalar orda online olarak ta yürütülebilir. İnsanlar Facebook da iken yan tarafta bir tartışmada yapabilmeli. Online sınıf bence çok mantıklı... (C3_TPK)

Q136. Ders planı hazırlıyoruz. Giriş de, ilk aşama da öğrenciye konuyu tanıtmak için, mesela önce bir hikâye anlatabiliriz yâda onunla ilgili bir video gösterebiliriz. Sonra dersi anlatırken, bir sunum yâda bir PowerPoint hazırlıyoruz, hani o kolay aşaması oluyor. Bitirdikten sonrada, yine o konu ile ilgili bir video izleyebiliriz, bir şarkı dinletebiliriz. Hani ders bitmiş daha eğlenceli olsun diye şarkı dinletebiliriz. Dinlerken hani boşluk bırakabiliriz liriklerde, onlar doldurabilir. Yani mesela şarkı olunca, biz söyleyemeyeceğimize göre bir şey dinletiyoruz. Hani mutlaka bir şey oluyor artık hani tahtaya yazma ve öğrencinin oradan geçirme devri çoktan geçti. Orada yazılmış bir şey gösteriyoruz ki, hani onlar orda not alsın. yâda metu online var yâda metu netten oradan yâda yükleyebiliyoruz. Yani böyle şemada kullanıyorsun, daha tahtaya yazdıysan sonradan metu online dan yüklüyoruz, illa bir teknoloji oluyor. (C3_TPK)

Q137. Öğrenci kontrol etmek zor olabilir sınıfta. Çünkü öğrenci öğretmen ilişkisi arasına birde bilgisayar giriyor. Yani kontrol aşamasında zorluk olabilir. (C3_TPK)

Q138. [Task-based öğrenmede] amaç hani, bir şey gözlemlemek, hani bir şey öğretmek. Ben sunumu daha çok bir şey öğretmek için kullanırım. Ama task-based'de, amaç yapılan şeyi gözlemlemek. O yüzden benim onlara sunacağım bir şey yok, o yüzden sunum kullanmazdım... [Teknoloji] nasıl kullanılır bilmiyorum. (C3_TPACK)

Q139. [Task-based öğrenmede mesela] Başka birisine onların video çekmesini önerebilirdim yâda ses kaydetmesini, yani bunları kullanırdım. Yani kişiler gerçek insanlar ve hani iletişimde başka bir şey kullanılamaz, sadece onların yaptıklarını gözlemlemek anlamında kullanılabilir. (C3_TPACK)

Q140. Geleneksel anlamda bakarsak, yani araya bir şey girmemesi gerekiyor. Hani bu iletişim olduğu için iki kişinin karşılıklı olması gerekiyor. Tabi artık teknoloji var, online da olabilir ama bu negatif etkileyebilir. (C3_TPACK)

Q141. Teknolojinin gelişimine baktığımızda her zaman aslında insanların yararına yapılan buluşlar olduğunu görüyoruz ama bunların kullanılma amacı her zaman kötüye gitmiştir. Eğitim içinde düşünecek olursak bence belki şuan için ön tasarımlarla insanların yararına, insanların yardımcısı olarak görülüyor ama ileride bence eğitim için de kötü olarak kullanılabilir. Neden bu şekilde düşünüyorum şimdi baktığımızda tablet projeleri çıkarılıyor. Başka şeyler de muhtemelen girecektir eğitim hayatımıza ama bunlar daha çok öğretmenleri sınıftan uzaklaştırmaya yönelik şeyler olarak hayatımıza giriyor gibi görünüyor bana. (C9_ATTaTI)

Q142. Bizim zaten pek büyük imkânlı bir okulumuz yoktu projeksiyon bilgisayar bu kadardı başka bir şey kullanmadık. Bunları zaten bizim sınıf az kişili sınıflar her zaman az kişi olur zaten 5 kız bir erkekti. O erkek ben olduğum için hocam her şeye beni koşturuyordu bu sayede her şeyi öğrendim. (C9_TK)

Q143. Lablarda daha çok şeyi öğrendik zaten belli sitelerden ne şekilde yararlanabiliriz onlar yani bence insan kendisi de o siteleri bilsin sadece gelip

çözülebilir gayet kolay şekilde. Bu önemli elbette birinin göstermesi gerekir ama o kadar ayrıntılı şekilde işlenmesine gerek yoktu. (C9_TK)

Q144. Bize daha çok söylenen yabancı dil geliştirmek için okuyun, dinleyin ve konuşun. Müzikler dinledim, filmler izledim. (C9_TCK)

Q145. Konuşma fırsatı pek bulamadım ama bize önerilen birkaç tane chat sitesi vardı oraya girip işte hiç tanımadığım insanlarla yazışmaya çalıştım. Konuşma imkânı yoktu çünkü. Ben [o tür bir teknoloji] bulamadım. (C9_TCK)

Q146. Mesela bizim 319 dersinde öğrendiğimiz prezi sunum sitesi farklı bir şey, hoş bir şey öğrencilerin ilgisini çekebilir. Onun dışında biz kendimiz animasyon yapıyorduk mesela. Görsel sunumlar açısından kullanabilirim. (C9_TCK) Q145

Q147. Ne olabilir şimdi bu tarz şeyleri desteklemek için öncelikle çeşitlilik gerekir yani hem öğretmenin kendi yarattığı şeyler hem de dışarıdan sağladığı imkânlar. Ben de zaten hep çeşitliliği seven biri olmuşumdur. Yaptığımız microteaching'te de bunlardan çeşitli şekillerde yararlandık. Örneğin işte öğreteceğimiz konunun kendimiz bir 3 boyutlu şeyini hazırladık 3 boyutlu derken kartonlardan şunlardan bunlardan kesip yapıştırarak birleştirerek bir şeyleri oluşturduk. Ondan sonra çizimlerden yararlandık, bilgisayarlardan yararlandık. Bu tarz şeyler olabilir. İlla ki teknolojik olmasına gerek yok diye düşünüyorum. (C9_TPK)

Q148. Zaten günümüzde görsel zekâyâ uygun olarak PowerPoint sunumları kullanılıyor işitsel zekâyâ uygun da listening şeyleri... Bundan ötesi elbette ki olabilir... [But] bilmiyorum şuan örnek verebileceğimi düşünmüyorum. (C9_TPK)

Q149. Belki de öğrencilere işlenen konunun hareketi içine sokulabilir teknoloji kullanılarak. Mesela işte daha çok başlangıç seviyesi için söylüyorum bunu öğrenciler daha hareketli olacaktır ilköğretim okullarında daha çok bir aksiyon içinde bulunmak isteyeceklerdir buna uygun kullanılabilir artık günümüzde 3d teknolojisi her yerde ulaşılabilir durumda. Bu kullanılarak öğrencileri o şeyin içine çekebiliriz diye düşünüyorum. Mesela kendi şeyimizden örnek vereyim biz microteaching yapıyorduk sınıfta şekilleri öğretecektik arkadaşlarımıza ilköğretim

öğrencisi varsa eğer burada öğrencilerin kendilerini şekillerin arasında görebilmeleri açısından 3d kullanabiliriz. (C9_TPACK)

Q150. Zaten benim de fatih projesiyle ilgili şüphelerim buradan doğuyor. Bizden önceki nesiller bizim öğretmenlerimiz olan nesil teknolojiyle büyümedi. bu yüzden şuanda bir teknolojiyi entegre etmek istesek mutlaka zorluklar çıkacaktır, mutlaka öğretmen de onu kullanamayacaktır. Ama işte biz ve bizden sonrakiler belki daha öncesinden bu işin içinde olacağı için. Büyük ölçüde kullanabileceğimize inanıyorum. Nasıl kullanılabileceğini biliyoruz. (C9_TPACK)

Q151. Yani şu anda hayatımızı hem kolaylaştıran hem de kimi zaman zorlaştıran sistem diyebilirim teknoloji için. (C10_ATTaTI)

Q152. Zorlaştırdığı çok fazla anlamayan insanlar benim gibi her şeyi birebir tamamıyla bilmeyenler açısından biraz zorluk çıkarabilir. (C10_ATTaTI)

Q153. Teknolojiden hiç anlamıyor değilim tabii ki Word'ü, PowerPoint'i, onları biliyorum ama her şeyiyle bilmiyorum; o yüzden mükemmel olmadığım için anlamadığımı düşünüyorum. (C10_TK)

Q154. Ben derste çok şey öğrendim. [Web 2.0 araçlarını kullanarak] her hafta aktivite öğrendik. Yani movie yaptık işte hikâyeler yaptık şimdi aklıma gelmiyor bir sürü şey yaptık. Ben onları hala kullanıyorum. [Web 2.0 araçları] ne çok ağırlardı ne çok basitlerdi. Bence onların düzeyi iyiydi bize göre. (C10_TK)

Q155. Listening yapmıştım üniversiteye gelmeden önce. Yani evet filmde izledim hala da izliyorum film çok izlerim hatta. Yani ben bilgisayarın çok etkili olduğunu düşünüyorum; çünkü listening açısından, film izleme açısından, bir şarkı dinlerken... Hem de çok yaygın olduğu için bence çok faydalı İngilizce alanında. Ben de bu şekilde geliştirdim. (C10_TCK)

Q156. İnternette bir sürü ESL lab olsun bizim alanla ilgili bir sürü site var. Kendim writing yaparken bile oradan yararlanabiliyorum. Bu açıdan baya bir faydalı aslında. ...Bir gün demiştim biraz pratik yapayım. Orada pdf'ler vardı onları indirdim. Ondan

sonra onunla ilgili bir site vardı şunda unuttum adını oradan demolar vardı onları izledim. Listening yapmaya çalıştım. Kelime öğrenmeye çalıştım. Aslında bir dili öğrenmek için bir bilgisayar yetebiliyor insana. (C10_TCK)

Q157. Konuyu anlatırken öğrencinin visual intelligence'ına hitap etmek istiyorsak eğer orada slaytlar kullanabiliriz ya da resimler kullanabiliriz. Böylelikle zaman da kazanabiliriz. Her şeyi tahtaya yazmak zorunda kalmayız. Biz İngilizce öğretiminde konu anlatırken genelde slaytlardan gidiyoruz. (C10_TPK)

Q158. Her şeyi tahtaya yazarsak tahtayı kullanmak bazen zaman öldürebiliyor; ya da öğrencinin her şeyi not almasını beklemek zorunda kalıyoruz. Bu şekilde yapmak yerine, notları öğrenciyle metu online gibi şeylerden (öğrenme yönetim sistemleri) paylaşabilirim. Bu zaman kazandırabilir bence. (C10_TPK)

Q159. Ölçme kısmına mesela gelirsek... [online] quiz yapmayı öğrenmiştik 319 dersinde. Quiz'ler faydalı olabilir. Onları kullanabilirim. (C10_TPK)

Q160. [Teknoloji] entegrasyon[u] konusuna gelirsek... Şu kısmı öğrenmedik: 'Bunu bunu yapıyoruz ama bunu konunun şurasında kullanabiliriz' diye bir şey öğrenmedik. Belki havada kalmış olabilir. Ona yanıt bulamamış olabiliriz. (C10_TPACK)

Q161. Her şeyi bilmiyorum olabilirim ama öğrenemeyeceğim anlamına da gelmiyor. Öğrenebilirim diye kendime çok telkinde bulunuyorum. Şimdilik kendime yeterli şeyleri biliyorum zaten ama ilerde öğretmen olduğumda bazı şeyleri kendim yapmam gerekecek falan. O zaman ne yaparım diye telaşlanıyorum. Yeterli görmüyorum kendimi. Her açıdan her şeyi bilmiyorum. Kendi kendime mesela programları kuramıyorum. O zaman kendime olan güvenim gidiyor; ama yapamayacağım anlamına da gelmiyor. Bir kere öğrenirsem tabii ki yapabileceğimi düşünüyorum. (C10_TPACK)

Q162. Sadece teknoloji değil de onu ders içinde İngilizce anlatırken teknolojiye nasıl kullanabileceğimiz ile ilgili bir dersimiz daha olsa, bizim için daha faydalı olabilir. ...Mesela tense'leri anlatacağız; tense'leri anlatırken nasıl araçlar kullanırız; hangi

yöntemleri kullanırız; öğretirken neler yaparız gibi konuları tartışıp daha sonra labda da bunun uygulamasını yapsak daha güzel olabilirdi. (C10_TPACK)

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FOREIGN LANGUAGES

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