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**AN INVESTIGATION INTO TECHNOLOGICAL PEDAGOGICAL
CONTENT KNOWLEDGE IN FACE-TO-FACE AND ONLINE
EDUCATION OF IN-SERVICE EFL TEACHERS**

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**HİZMET İÇİ İNGİLİZCE ÖĞRETMENLERİNİN YÜZ YÜZE VE
ÇEVİRİMİÇİ EĞİTİMDE TEKNOLOJİK PEDAGOJİK ALAN
BİLGİLERİNİN İNCELENMESİ**

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Dedicated to Hacı Mehmet ARPACI

ETİK BEYAN

Tezimin içerdığı yenilik ve sonuçları başka bir yerden almadığımı ve bu tezi AÜ Sosyal Bilimler Enstitüsünden başka bir bilim kuruluşuna akademik gaye ve unvan almak amacıyla vermediğimi; tez içindeki bütün bilgilerin etik davranış ve akademik kurallar çerçevesinde elde edilerek sunulduğunu, ayrıca tez yazım kurallarına uygun olarak hazırlanan bu çalışmada kullanılan her türlü kaynağa eksiksiz atıf yapıldığını, bu tezde sunduğum çalışmanın özgün olduğunu bildirir, aksinin ortaya çıkması durumunda aleyhime doğabilecek tüm hak kayıplarını kabullendiğimi beyan ederim. 07/02/2022

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Gökhan ARPACI

ABSTRACT

AN INVESTIGATION INTO TECHNOLOGICAL PEDAGOGICAL CONTENT KNOWLEDGE IN FACE-TO-FACE AND ONLINE EDUCATION OF IN-SERVICE EFL TEACHERS

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The concept of technological pedagogical content knowledge (TPACK) consists of seven knowledge bases. First of all, technological knowledge is about teachers' general knowledge regarding technology. Secondly, pedagogical knowledge is about teachers' degree of mastery on how to teach. On the other hand, content knowledge is about teachers' knowledge of their own branch. These are the main three knowledge bases in the TPACK framework. There are also convergent knowledge bases among these three knowledge bases. First, pedagogical content knowledge is about teachers' ability to convert their knowledge of their branch for teaching and learning purposes. Additionally, technological pedagogical knowledge has to do with teachers' ability to sustain teaching using specific technologies. Moreover, technological content knowledge is the ability to represent the content by using the technology. Finally, technological pedagogical content knowledge is the summation of these knowledge components. In other words, technological pedagogical content knowledge is the ability to utilize pedagogical skills while teaching the content by using specific technologies.

The term online education is now used interchangeably with distance education as the internet becomes more and more widespread. Likewise, online education can include hybrid or full-time online courses. Moreover, online education also requires some steps of planning as face-to-face education does. On the other hand, there has been a rapid shift from face-to-face education towards online education. This rapid shift caused some pitfalls in these planning procedures.

After the outbreak of the Covid-19 pandemic, educational environments have gone through many changes. Indeed, education has shifted from traditional face-to-face

environments to online environments. Hence, teachers had to face many problems, while students perceive some sort of difficulties. Besides, teachers' duties and activities also went under many changes before, during, and after the classes. Furthermore, the roles and competencies of an EFL teacher have also changed. Thus, this study aimed to find out the perceived TPACK levels for face-to-face and online education of in-service EFL teachers, and the possible change between those with the help of quantitative findings. Moreover, English Language Teachers' experiences, emotions, and perceived professional needs in face-to-face and online education were studied qualitatively. Overall, findings revealed that the in-service EFL teachers had lower perceived TPACK for online education compared to face-to-face education. On the other hand, qualitative findings revealed that the participants' experiences, emotions, and perceptions of professional needs varied across face-to-face and online education. Results will provide some important implications for the future of the EFL field.

Keywords: Technological pedagogical content knowledge, Online education, Teacher competencies, Teacher emotions.

ÖZET

HİZMET İÇİ İNGİLİZCE ÖĞRETMENLERİNİN YÜZ YÜZE VE ÇEVİRİMİÇİ EĞİTİMDE TEKNOLOJİK PEDAGOJİK ALAN BİLGİLERİNİN İNCELENMESİ

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Teknolojik pedagojik alan bilgisi (TPAB) konsepti yedi temel bilgi alanından oluşur. İlk olarak, teknolojik bilgi öğretmenlerin teknoloji hakkındaki genel bilgisini anlatır. İkincil olarak, pedagojik bilgi öğretmenlerin öğretme işindeki ustalık düzeyini anlatır. Öte yandan alan bilgisi, öğretmenlerin kendi branşlarındaki yeterlilikleri ile ilgilidir. Bunlar TPAB çerçevesinin temel bilgi alanlarıdır. Bunların birleşimiyle oluşan bilgi alanları da mevcuttur. İlk olarak, pedagojik alan bilgisi, öğretmenlerin kendi branşları hakkındaki bilgilerini öğretme ve öğrenme amaçlarına uygun olarak dönüştürme yeteneğidir. Ayriyeten, teknolojik pedagojik bilgi öğretmenlerin öğretimi belirli teknolojiler ile sürdürme becerilerini kapsar. Öte yandan teknolojik alan bilgisi, öğretmenlerin alan bilgilerini belirli teknolojileri kullanarak temsil etme becerisidir. Son olarak teknolojik pedagojik alan bilgisi bütün bu bilgi alanlarının toplamıdır. Bir diğer deyişle teknolojik pedagojik alan bilgisi, öğretmenlerin teknolojiden yararlanarak konuyu öğretirken pedagojik becerilerini kullanması ile ilgilidir.

Çevrimiçi eğitim kavramı, internetin yaygınlaşmasıyla beraber artık uzaktan eğitim kavramıyla dönüşümlü olarak kullanılmaktadır. Ayrıca, çevrimiçi eğitim hibrit veya tam zamanlı olabilir. Üstelik, çevrimiçi eğitim tıpkı yüz yüze eğitimde olduğu gibi bazı planlama aşamaları gerektirir. Fakat Kovid-19 salgınıyla birlikte, yüz yüze eğitimden çevrimiçi eğitime geçiş çok çabuk olmuştur. Bu da belirli planlama aşamalarını yürütmeye aksaklıklar yaşatmıştır.

Kovid-19 salgınından sonra eğitim çevreleri birçok değişimden geçmiştir. Dahası, eğitim geleneksel yüz yüze eğitimden çevrimiçi eğitime kaymıştır. Bu sebeple, Öğrenciler tarafından algılanan sorunların yanı sıra, öğretmenler de birçok sorunla yüzleşmek zorunda kalmıştır. Bunun yansıması, öğretmenlerin ders öncesinde, ders sırasında ve ders

sonrasında yapması gereken iş ve aktiviteler önemli ölçüde etkilenmiştir. Öte yandan İngilizce öğretmenlerinin sahip olması gereken rol ve yeterlilikler de değişime uğramıştır. Nitekim bu çalışma, öğretmenlerin yüz yüze ve çevrimiçi eğitim için algıladıkları TPAB seviyelerini ve bu iki faktör arasındaki muhtemel değişimi, nicel veriler eşliğinde ortaya koymayı amaçlar. Dahası, İngilizce öğretmenlerinin yüz yüze ve çevrimiçi eğitim bakımından tecrübeleri, duyguları ve algıladıkları profesyonel ihtiyaçlar nitel olarak çalışıldı. Genel olarak bulgular hizmet içi İngilizce Öğretmenlerinin çevrimiçi eğitim için algıladıkları TPAB seviyelerinin yüz yüze eğitime kıyasla daha düşük olduğunu ortaya koydu. Öte yandan, nitel sonuçlar katılımcıların yüz yüze ve çevrimiçi eğitim bakımından tecrübelerinin, duygularının ve algıladıkları profesyonel ihtiyaçların bu iki bağlamda değişkenlik gösterdiğini ortaya koydu. Sonuçlar İngilizce Öğretmenliği alanının geleceği hakkında önemli çıkarımlar sağlayacaktır.

Anahtar Kelimeler: Teknolojik pedagojik alan bilgisi, Çevrimiçi eğitim, Öğretmen yeterlilikleri, Öğretmen duyguları.

PREFACE

With the advent of the Covid-19 pandemic, everything has suddenly changed. Especially, the education which is normally provided in classroom environments transferred into online classrooms. No matter how EFL teachers are and/or students are good at the technological stuff, the quality of the education has been negatively affected for many reasons, such as infrastructural problems. Nevertheless, it was of great importance to use available opportunities to bring the best out of online education, so our devoted teachers and students did.

Technology and its use in education for both face-to-face and online education environments have been vital. However, 'new normal' will most likely require more importance to be attached to the field of technology as it is used in education. What is important to keep in mind is that the notion of technology is everchanging. So, integration of technology must constantly be a topic of research and implementation, especially nowadays in which people are getting more used to futuristic concepts such as Web 3.0., and blockchain technology. Hopefully, our devoted EFL teachers and teacher educators will make the best out of every possible situation.

This study aimed to shed light upon the possible differences between in-service EFL teachers' perceived TPACK levels, their experiences, emotions, and perceptions of professional needs for both face-to-face and online education. After presenting the literature about TPACK and online education, the findings of the current study are presented. The tiniest bits of the contribution that this current work provides for the EFL field would make me pretty satisfied.

Gökhan ARPACI

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Throughout the whole process of my master's journey, I experienced a lot of challenges. The biggest challenge for me was going back and forth between Amasya and Bingöl. However, this was the sweetest challenge up until the pandemic hit the world. The whole process transferred into online environments. So, I can express that I was both provider and receiver of education provided in online classrooms. I can't express enough gratitude to all my teachers at Amasya University for their being understanding and forgiving before and after the advent of online education, which encouraged me to go on studying.

I must also express my gratitude to my family, for they motivated me thorough the way. I'm especially grateful for my late father Hacı Mehmet ARPACI who always used to encourage me to go on studying. Except for his encouragement, I wouldn't be able to leave my comfort zone and pursue getting further education. I would always think of his sayings through my 12+ hours of road trips between Amasya and Bingöl.

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ABBREVIATIONS

TK: Technology knowledge

CK: Content knowledge

PK: Pedagogical knowledge

PCK: Pedagogical content knowledge

TCK: Technological content knowledge

TPK: Technological pedagogical knowledge

TPACK: Technological pedagogical content knowledge

EFL: English as a Foreign Language

TEFL: Teaching English as a Foreign Language

IT: Information technology

ICT: Information and communication technology

IWB: Interactive whiteboard

EBA: Educational Informatics Network

TISE: Self-efficacy beliefs towards technology integration

MoNE: Ministry of National Education

TRT: Turkish Radio and Television Corporation

YKS: University Entrance Examination

LGS: High School Entrance Examination

MOOCs: Massive Open Online Courses

ERT: Emergency remote teaching

EDE: Emergency distance education

LMS: Learning Management System

CHAPTER I

1. INTRODUCTION

This study is about perceived technological pedagogical content knowledge of English Language Teachers both in face-to-face education and in online education. This section includes the theoretical framework of the study, statement of the problem, purpose of the study, hypotheses and research questions, and significance of the study.

1.1. Theoretical Framework

The theoretical framework of this thesis is technological pedagogical content knowledge (TPACK). The TPACK framework refers to teacher competencies as in Shulman's (1986, 1987) pedagogical content knowledge (PCK) framework. Pedagogical knowledge basically means that how well a teacher can utilize approaches and methods to teach a subject matter in the best way. On the other hand, content knowledge simply means the teachers' competence in their discipline, which is English Language Teaching in this thesis.

However, Mishra and Koehler (2006) added PCK framework with technology knowledge component and developed TPCK framework, by emphasising that technology is now a knowledge area which teachers are required to possess. Thompson and Mishra (2007) renamed TPCK as TPACK, as in "Total PACKage" to emphasize the interconnectedness of knowledge bases in the framework. In other words, technological knowledge (TK), pedagogical knowledge (PK), content knowledge (CK) are not the only components of the TPACK framework. Their combinations also refer to other competencies that teachers are to possess, which are pedagogical content knowledge (PCK), technological content knowledge (TCK), technological pedagogical knowledge (TPK), and the TPACK itself.

1.2. Statement of the Problem

Teachers require a set of competencies which is stated in the TPACK framework. These competencies change from discipline to discipline. As the time passes by, the

knowledge that humans possess is continuously changing and improving. Thus, teachers need to adapt themselves to these changes, especially in their disciplines, and their abilities to teach their subject matter. However, one of the knowledge bases of the framework, technology knowledge, and its connected counterparts require the teachers to keep themselves up to date, because technological knowledge is the fastest evolving knowledge type in the TPACK framework.

Technological knowledge required to have may not be the same as yesterday's requirements. People utilize technology to make their lives easier. From this point of view, books, chalks, and blackboards (Mishra & Koehler, 2006; Mishra & Koehler, 2008) are all technologies. However, by using the word "technology" people should understand digital technologies (Mishra & Koehler, 2006; Mishra & Koehler, 2008) such as software programmes, operating systems, browsers, and e-mail.

With the outbreak of Covid-19, teachers' competencies may need to be reconsidered, especially in terms of their technological knowledge. Ward and Benson (2010) suggest that getting to know the TPACK framework may be beneficial for teachers to build a "new schema" when shifting from face-to-face education to online education. The current pandemic required teachers to use online teaching applications and tools. In other words, teachers are needed to be online teachers, which is a different notion than teachers in face-to-face classes. Most of them are faced to use technological tools in order to teach online for the first time. Moreover, teachers generally are not trained mainly for being online teachers. They are trained to be competent in presenting their subject matter to their students in appropriate ways, mostly in face-to-face classrooms. However, being a teacher in online classrooms has become a reality with the outbreak of Covid-19. Thus, competencies are needed to be reconsidered. Teachers' perceptions regarding their TPACK levels may not be the same in online education processes as they were in face-to-face classrooms. So, teachers are needed to be raised as competent online teachers as well as being teachers in face-to-face classrooms.

1.3. Purpose of the Study

The purpose of this thesis is to determine EFL teachers' perceived TPACK for face-to-face education and for online education. After determining the relationship between teachers' self-perceived competencies in face-to-face and online education, it will be possible to see the changes in required competencies for teachers of tomorrow or the so-called "new normal" (Cahapay, 2020; Pacheco, 2020) in education. Online education

practices gained importance and will probably keep their importance even after the Covid-19 pandemic ends. Thus, knowing the required teacher competencies for the future will help teachers, teacher trainers, and policymakers to draw on improving teacher competencies. All that being said, the main purpose of the study is to research whether or not the TPACK perceptions of EFL teachers change after implementing online education practices for a while. On the other hand, EFL teachers' experiences, emotions, and their perceptions of their professional needs in face-to-face and online education are aimed to be revealed.

1.4. Hypotheses/ Research Questions

This study hypothesizes that EFL teachers' perceptions of their TPACK may have differed either negatively or positively for face-to-face education and online education. Furthermore, the differences may be seen across demographic backgrounds of the EFL teachers; namely, genders, years of experience, educational background, degree of graduation, and the levels in which they teach. Thus, research questions of this study are

1. What are in-service EFL teachers' perceived TPACK levels for face-to-face education?
2. What are in-service EFL teachers' perceived TPACK levels for online education?
3. Do EFL in-service EFL teachers' perceptions of their TPACK levels for face-to-face education and online education differ?
4. Do in-service EFL teachers' perceived TPACK levels change across demographics as to face-to-face education?
5. Do in-service EFL teachers' perceived TPACK levels change across demographics as to online education?
6. What are in-service EFL teachers':
 - a) experiences in face-to-face and online education
 - b) emotions in face-to-face and online education
 - c) perceptions of their professional needs in face-to-face and online education?

1.5. Significance of the Study

Integrating technology into teaching practices is important. TPACK framework allows integrating technology in the teaching profession in many layers. Seven

components of TPACK allow educators to realise the importance of the interconnections of teachers' knowledge bases as well as the knowledge bases themselves. Teachers should possess technological knowledge, pedagogical knowledge and content knowledge to some extent, and they should improve these knowledge bases. On the other hand, teachers' understanding of the interconnected parts of TPACK is of importance. Teachers need to be competent in PCK, TCK, TPK, and TPACK as well. There are studies revealing teachers' TPACK and its relationship between; pre-service EFL teachers' overall teacher efficacy (Tunçer, 2014), and pre-service EFL teachers' technology adopter categories (Şenen, 2019), and EFL teachers' efficiency in integrating technology into their educational practices, and their self-efficacy beliefs towards technology integration (Dinçer, 2020), and in-service EFL teachers' frequency informal technology usage (Yıldız, 2020). This study is significant in terms of revealing EFL teachers' perceived TPACK for two occasions: face-to-face education and online education, and then comparing them.

The changes occurring in teachers' roles and requirements when moving from face-to-face education towards online education has been touched on by researchers (Berge, 1995; Anderson et al., 2001; Goodyear et al., 2001; Smith, 2005; Álvarez et al., 2009; Guasch et al., 2010; McGee et al., 2017; Rhode et al., 2017; Adnan, 2018; Martin et al., 2019). This study is also significant in emphasising this change. However, the shift from face-to-face education to online education was not so prepared. Moreover, this unprepared urgent shift will of course differ from a well-planned online education process (Hodges et al., 2020). Furthermore, this was an emergency reaction to stop or slow down the spread of the illness by lessening the physical interaction between people.

The study aims to contribute to English Language Education by making it possible to realise the needs of EFL teachers to be knowledgeable in their professions in "new normal" (Cahapay, 2020; Pacheco, 2020), by making it possible to realise whether the TPACK changes when a rapid shift occurs in the definition of the "teacher" profession. This study will enable teachers, policymakers, and teacher trainers to realise the importance of EFL teachers' ability to adapt to changes in every situation, even in emergency situations. Thus, the quality of the teaching will increase, and the outcomes of the teaching process will be better.

This study is one of few the studies implementing TPACK-EFL survey, which is specifically designed for the pre-service EFL context by Başer et al. (2016), to in-service teachers. On the other hand, this study is unique in terms of conducting TPACK-EFL survey on teachers teaching English in online environments for a while in order to gauge their perceived TPACK for online education.

CHAPTER II

2. LITERATURE REVIEW

This section includes detailed knowledge about TPACK and its intersected sub-parts. Furthermore, studies on TPACK in various contexts and online teaching is also presented. On the other hand, online education and different types of online education are demonstrated. Online teacher competencies and studies about online education amidst the Covid-19 pandemic are also presented. Furthermore, the topic of teacher emotions and their place in online education are presented.

2.1. The TPACK Framework

Pierson (2001) states that people welcomed computer technology and let it change their practices of producing, reaching, exchanging, and even contemplating about information. Affecting all areas of daily life, especially in the education field, technology made things easier and more manageable. However, technology is an ever-changing concept, and adapting to it is important.

Shulman (1987) mentions pedagogical content knowledge (PCK), providing the basis for technological pedagogical content knowledge (TPACK), by saying:

It represents the blending of content and pedagogy into an understanding of how particular topics, problems, or issues are organized, represented, and adapted to the diverse interests and abilities of learners, and presented for instruction (p. 8).

Acknowledging Shulman's (1986, 1987) pedagogical content knowledge approach, Mishra and Koehler (2006) state that an array of new, mainly digital, technologies have emerged and taken their place in the vanguard of the education field. Moreover, the necessity to learn how to apply these new technologies into teaching environments has become an issue. Therefore, technology knowledge has become one of the components of what makes a teacher. All that being said, they come up with the term technological pedagogical knowledge, abbreviating it as TPCK. They also emphasize the interconnectedness of knowledge bases of TPCK framework, rather than considering them as discrete items. Thompson and Mishra (2007) highlight the interconnectedness of

this new framework by naming it as TPACK, which remarks the wholeness of the framework by resembling it with the phrase 'Total PACKage'.

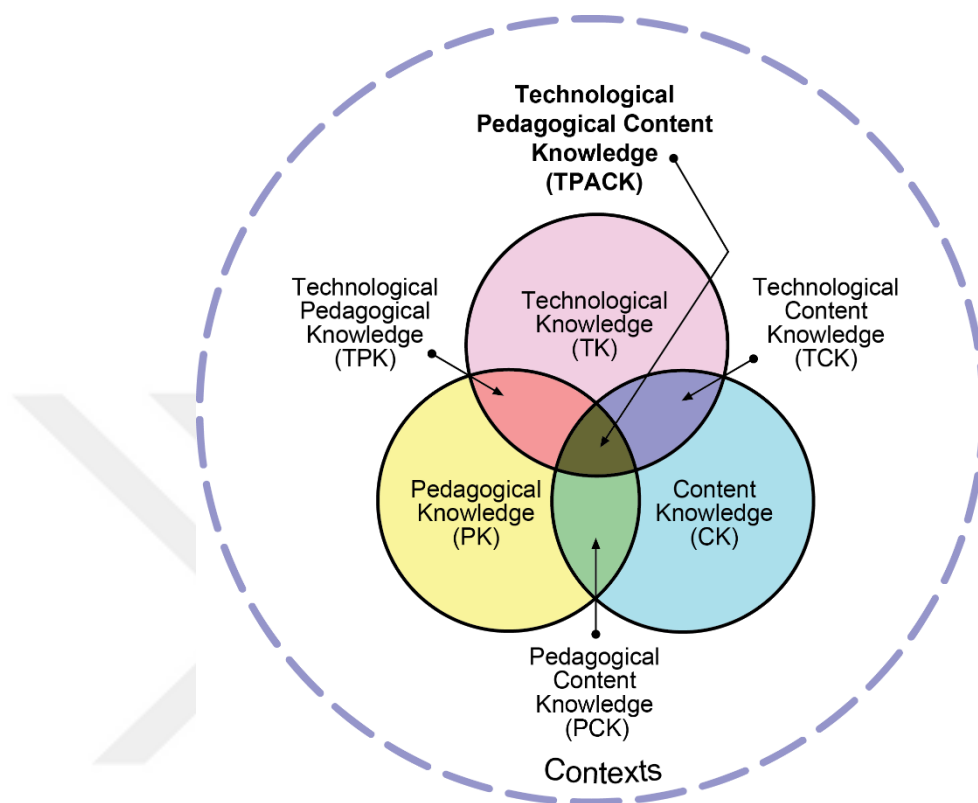


Figure 1. The TPACK framework and its knowledge components (Koehler & Mishra, 2009)

Figure 1 represents the TPACK framework and its intermeshing knowledge bases.

2.1.1. Technology Knowledge

Mishra and Koehler (2006, 2008) state that technology knowledge, or technological knowledge embraces the knowledge regarding both standard technologies like books, chalks and blackboards, and more modern technologies like the Internet and digital video. According to Mishra and Koehler (2008), this knowledge base, when it comes to digital technologies, is about having a good grasp of computer hardware and software, along with the knowledge of installing and upgrading them. Moreover, it is also about keeping up with the technology which is in a perpetual change. Koehler, Mishra and Cain (2013) state that technology knowledge is more fluid than the two other main knowledge bases of the TPACK framework, which makes it even more difficult to define. According to Mishne (2012) teachers with a good grasp of technology can make decisions

on technology use in the teaching environment. As technology knowledge increases, this process becomes easier and easier. On the other hand, Mishne (2012) states that lack of time, access, confidence, and motivation could set back teachers from acquiring technology knowledge.

2.1.2. Content Knowledge

Content knowledge (CK) addresses how much a teacher has the knowledge and how do they organize it (Shulman, 1986). It is the main knowledge relating to a subject to teach or to learn (Mishra & Koehler, 2006). An effective teacher is the one who has a far-reaching foundation of content knowledge (Mishne, 2012). Shulman (1986) also expresses that a teacher must be capable of understanding how a given thing works. Moreover, they also must be capable of understanding why that given thing works that way, and when its warrant should be put forward, and in what situations one's belief behind its confirmation can get weak or even get rejected. Mishne (2012) states that when a teacher has a good grasp of their field and the ability to think within the scope of it, they can implement it into real-life situations. Thus, this enables their students to make connections between unknown to known.

2.1.3. Pedagogical Knowledge

Pedagogical knowledge (PK) is the in-depth knowledge regarding the teaching and learning processes and implementations or methods, and the way it covers, amid other elements, general instructional aims, values and objectives. (Mishra & Koehler, 2006; Mishra & Koehler, 2008; Koehler & Mishra, 2009). Pedagogy, which means the science of teaching, encompasses the learning of students, classroom management, lesson planning, and student progressions (Mishne, 2012). Pedagogical knowledge embraces the understanding regarding methods or techniques to be used in the learning environment; the characteristics of the intended learners; and practices for checking students' understanding (Mishra & Koehler, 2006; Mishra & Koehler, 2008; Koehler & Mishra, 2009). Mishne (2012) states that a teacher who can manage the classroom, be flexible, and check learners' understanding will make light work of technology integration. They also state that pedagogical knowledge encompasses the professional understanding of analysing and figuring out the teaching process, regardless of the presence or absence of e technology.

2.1.4. Pedagogical Content Knowledge

Shulman (1986) explains that pedagogical content knowledge (PCK) includes how to represent and formulate the subject matter in order to make it understandable for others. This knowledge also encompasses knowing appropriate approaches for teaching the content, besides knowing how to organize components of the content for more effective teaching (Mishra & Koehler, 2006). It can also be described as a concept of converting the subject matter for teaching purposes (Koehler & Mishra, 2009; Mishne, 2012). Teachers must be innovative and fulfill the needs of all students, by representing the subject matter in a number of ways (Mishne, 2012). According to Mishra and Koehler (2008), different disciplines require to be taught in a different manner. Donald (2002, as cited in Mishra & Koehler, 2008) proposes six elements which include how students learn and think differently in different disciplines:

- *Description* of context, conditions, facts, functions, assumptions, and goals
- *Selection* of relevant information and critical elements
- *Representation*: organizing, illustrating, and modifying elements and relations
- *Inference*: drawing conclusions, forming propositions
- *Synthesis*: composing wholes from parts, filling gaps, developing course of action
- *Verification*: confirming accuracy and results, judging validity, using feedback (p.6)

Mishra and Koehler (2008) exemplify this differentiation of learning and thinking across different disciplines as 'verification' in engineering is different from 'verification' in literature. The former is pragmatic, and the latter is looking for interpretive coherence.

2.1.5. Technological Content Knowledge

Technological content knowledge (TCK) explains the knowledge about the relationship between technology and content (Mishra & Koehler, 2006). Even though technology restricts the available types of representations, emerging technologies often provide new and more complex representations and much more versatility moving through these representations (Mishra & Koehler, 2006; Mishra & Koehler, 2008). Perceiving the effect of technology on the implementations and knowledge of a discipline is crucial when it is aimed to develop suitable technological materials for educational goals (Mishra & Koehler, 2008; Koehler & Mishra, 2009). Teachers should master their subject matter, and utterly know how to present the subject matter in varied ways, specifically by applying technology (Mishne 2012). Mishne (2012) states that educational environments shift from print-based classrooms to digital ones, after telling the fact that people always put-up

resistance to change, as in the past when people stand against the conversion from oral tradition to written, then to ink, and then to print. They also state that teachers must have a good grasp of their subject matter, along with the knowledge of choosing the appropriate technology to present the content, and along with the ability to effectively present that content to their students.

2.1.6. Technological Pedagogical Knowledge

Mishra and Koehler (2006) describe technological pedagogical knowledge (TPK) as knowing various aspects of distinct technologies as they are used in teaching and knowing in which ways teaching will change as a consequence of utilizing particular technologies. Koehler and Mishra (2009) state that not all of the software programs are designed for educational programs, such as Microsoft Office, which includes sub-programs designed for business purposes. They also add that web-based technologies such as blogs or podcasts are generally designed for entertainment purposes. They state that teachers should optimize technologies like these for pedagogical purposes, by looking beyond their most common uses. Teachers that perceive technological pedagogical knowledge will understand that their teaching implementations and educational strategies will very likely change with the application of technology (Mishne, 2012).

2.1.7. Technological Pedagogical Content Knowledge

It is a generated form of knowledge that is beyond the content knowledge, pedagogical knowledge and technological knowledge (Mishra & Koehler, 2006). Technological pedagogical content knowledge (TPACK) is the foundation of good teaching and necessitates knowing how to represent concept with the use of technologies; knowing pedagogical methods that use technologies constructively in order to teach content; having the understanding of aspects that make concepts difficult or easy to learn and the ways in which technology can negate some of these problems learners encounter; having the knowledge of learners' background knowledge and doctrines of epistemology; and knowing the ways in which technologies can be utilized to add upon existing knowledge and to create new epistemologies or validate old ones (Mishra & Koehler, 2006). İşler and Yıldırım (2018) state that definitions of technological pedagogical content knowledge show that it is greater than the summation of its segments. Technological pedagogical content knowledge puts emphasis on the links among

technologies, syllabus content, and particular pedagogical approaches, showing the way in which teachers' knowledge of technology, pedagogy, and content can be in interaction with each other to generate effective discipline-based teaching with instructional technologies (Harris et al., 2009).

2.1.8. Studies on TPACK in Different Contexts

In chemistry, Karakaya (2013,) conveyed research on 103 chemistry teachers from 17 different cities in Turkey in order to find out their TPACK levels. They found out that chemistry teachers didn't have enough self-efficacy on TPACK. However, teachers with master's degrees had more self-efficacy on their TPACK levels more than the ones having undergraduate degrees. On the other hand, they found no relationship between chemistry teachers' self-efficacy on their TPACK levels and their genders.

In mathematics, Dağlı (2018) conveyed a study on pre-service mathematics teachers, consisting of 240 pre-service teachers for primary school mathematics, and 60 pre-service teachers for high school mathematics. They aimed to find out pre-service teachers' TPACK levels, their attitudes towards ICT, and if there is a relationship between these two variants. They revealed that pre-service mathematics teachers had enough levels of TPACK. While there is not a linear relationship between pre-service primary school mathematics teachers' TPACK levels and their attitudes towards ICT, there is a moderate and positive relationship between pre-service high school mathematics teachers' attitudes towards ICT and their TPACK levels. Another study on mathematics was carried out by Topçu (2020) with 151 in-service mathematics teachers. They found out that in-service mathematics teachers considered themselves as potent in TPACK and its all components. However, they found out that female in-service mathematics teachers' perceptions of their TK are low, which is explained by women's being cautious towards technology.

In elementary school teaching, Yılmaz (2020) conducted a study with 257 elementary school teachers and found out that participants' competencies in the knowledge bases of TPACK framework were respectively PK, PCK, TPACK, TCK, TPK, CK, and TK from the highest to lowest. They also found out that participants' TPACK levels and their occupational professionalism were in moderate positive correlation.

In science, Altunoğlu (2017) carried out a study with 188 in-service science teachers to find out their TPACK levels and the relation between their TPACK levels and their attitudes towards science. They stated that in-service science teachers had good levels of

TPACK and its sub-components. They also stated that male teachers scored better in TK, PK, TPK, TCK, PCK, and TPACK. Moreover, the relationship between participants' TPACK levels and their attitudes towards technology was in a slightly significant positive relationship. Another study by Muhaimin et al. (2019) indicates that science teachers' perceptions of their competencies in technology-based components of TPACK were lower than their non-technology-based competencies.

In social studies, Coşkun (2016) conducted a research study with pre-service teachers of social studies to find out their TPACK and their ability to integrate their TPACK competencies into their teaching practices. The results indicated that there is a weak relationship between their TK and PK, a moderate relationship between their TK and CK, and a strong relationship between their CK and PK. On the other hand, they indicated that there is not a significant difference in participants' TPACK levels when they are compared in terms of gender, active use of the computer, active use of the internet, and high school of graduation.

Archambault and Crippen (2009) conducted a study with 569 K-12 online teachers to measure their TPACK along with its sub-components. They stated that participants had the highest ratings in PK, CK, and PCK while being less confident in technology-related parts of TPACK. They imply the importance of technology integration and preparation for a new era in teaching environments, which are different from traditional classrooms, for teacher education.

Another study is carried out by Pamuk (2012) on pre-service teachers' TPACK development, whose outcome indicates that pre-service teachers' lack of teaching experience resulted in their limited ability to develop new knowledge bases like TPK, even if they have certain levels of TK, PK, and CK. They also stated that pre-service teachers are limited in terms of using or integrating technology in teaching in an effective way as a result of lack of direct teaching experience, while teacher education programmes could be considered as effective in getting students-teachers to achieve the theoretical, methodological, and technical knowledge and skills.

Bayyığıt Teker (2019) studied with 103 in-service teachers and discovered that participants had high TPACK levels, and they had positive attitudes towards EBA (Eğitim Bilişim Ağı). However, participants' TPACK levels were not a determining factor on EBA use. Furthermore, they also discovered that in-service teachers with 6-10 years of teaching experience were more competent in TK than ones with 26 or more years of teaching experience. Moreover, they also stated that in-service teachers with 11-15 years

of teaching experience had more competence in TCK and TPACK than the ones with 21-25 years of teaching experience.

2.1.9. Studies on TPACK in EFL Context

Ansyari (2012) carried out a design-based research study to develop and evaluate a professional development program for technology integration in ELT. They mainly aimed to find out the aspects of a such program for developing English lecturers' TPACK. They found out that participants reportedly had positive experiences with the programs for TPACK professional development.

Kurt et al. (2013) conducted a study with 22 pre-service EFL teachers. Participants are enrolled in a 12-week study during which they are informed on the TPACK framework; they explored technologies, developed technological materials, designed and taught technology-integrated lessons. As a result, pre-service EFL teachers had a significant increase in their TK, TCK, TPK, and TPACK scores.

Yüksel and Yasin (2014) carried out a study with 124 EFL teachers and revealed that the participants had an average competency in terms of TPACK. Moreover, they revealed that teachers with five years or less teaching experience achieved higher scores among other groups. On the other hand, they found out that gender or workplace did not have a significant impact on TPACK scores.

Tunçer (2014) carried out a study with 110 pre-service teachers on their teacher efficacy and on their TPACK competencies. They found out that pre-service EFL teachers had high scores in teacher efficacy beliefs and high levels of TPACK competence. Furthermore, they revealed that there is a meaningful relationship between pre-service English Language teachers' beliefs on overall teacher efficacy and their TPACK levels.

Saraç (2015) conducted a research study with 106 in-service EFL teachers on their TPACK levels and on their attitudes towards the use of interactional whiteboards (IWB). They revealed that Turkish EFL in-service teachers had high TPACK levels, and positive attitudes towards the use of IWB. Furthermore, they also revealed that there is a significant positive relationship between EFL teachers' TPACK and their attitudes towards the use of IWB. Moreover, they stated that there was a negative relationship between teaching experience and TPACK levels. On the other hand, they put forward that gender didn't play a significant role in TPACK levels and attitudes towards the use of IWB.

Delen (2016) conducted a study with 33 Turkish EFL teachers to reveal their TPACK levels and to find out if gender and teaching experience are determining factors on TPACK levels. They found out that Turkish EFL teachers had high TPACK levels. Moreover, there is no statistically significant relation between EFL teachers' genders and their TPACK levels. On the other hand, they stated that the more teachers were experienced the less they had TPACK levels.

Ramanair et al. (2017) carried out a research study with 83 tertiary level EFL teachers in Malaysia in order to reveal their competency in the knowledge bases of TPACK and their levels of confidence in technology integration into teaching. They revealed that tertiary level EFL teachers in Malaysia had knowledge in seven knowledge bases in the TPACK framework, along with having low scores on TK, TCK, TPK, and TPACK. They stated that participants' confidence levels in technology integration were low.

İşler and Yıldırım (2018) studied with 94 Turkish pre-service EFL teachers to find out their perceived TPACK levels, and the factor affecting their TPACK levels and their opinions about integrating technology into the English teaching environment. They found out that Turkish pre-service EFL teachers had high TPACK levels. Moreover, Turkish pre-service EFL teachers put the emphasis on personal interest, experience, knowledge and access while excluding their instructors' educational support on their TPACK development.

Nazari et al. (2019) carried out a research study with 427 EFL teachers on their perceived TPACK. They aimed to find out the relationship between teaching experience and perceived TPACK levels. They revealed that novice teachers had significantly higher scores in TK, TCK, TPK, and TPACK, while experienced teachers had significantly higher scores in PK and PCK.

Sarıçoban et al. (2019) discovered that pre-service EFL teachers had moderate to high TPACK levels. Moreover, they stated that male pre-service EFL teachers' technology knowledge was better. On the other hand, they found that age and participants' views on TPACK were in positive correlation.

Septiyanti et al. (2020) studied with 225 EFL undergraduate students and 3 lecturers. They found out that students' perceptions on their TPACK levels were generally good. Furthermore, students developed TPACK via observing lecturers' teaching practices in classrooms and learning autonomously with the internet as media. On the

other hand, lecturers' five roles in students' TPACK development were 'provider, model, controller, facilitator, and motivator.'

Dinçer (2020) carried out a research study with 101 in-service EFL teachers and discovered that the participants had high TPACK levels. They also indicated that in-service EFL teachers' self-efficacy beliefs towards technology integration (TISE) are in a significant predictive relationship.

To sum up, studies regarding TPACK are mostly about teachers' perceived TPACK levels, their development of TPACK during or after an implementation, or about teachers' perceived TPACK levels with a variable. However, it can be assumed that teachers' perceptions of their TPACK competencies may change after teaching in online courses. Developing teachers' TPACK will gain more importance in the quality of education when 'new normal' in teacher competencies are reviewed, as technology integration will be much more important. It can start with checking teachers' perceived TPACK levels after teaching in online classes for almost a year.

2.2. Online Education

Online education is gradually gaining importance day by day worldwide. Distance education evolved as time goes on. The history of distance education started with education via mails, then kept evolving through electronic communications, radio, and now the term distance education is used interchangeably with online teaching with the rise of the Internet (Tamim, 2020). With the outbreak of the Covid-19 pandemic, as it is started to be considered as a pandemic on March 11 by World Health Organisation (WHO, 2020), the world has gone through many changes, especially in educational environments. Educational practices have shifted from traditional classes to online classes in order to slow down the spread of the illness by reducing physical interaction among people.

Ministry of National Education (MoNE) in Turkey shifted educational practices towards TV broadcasts via Turkish Radio and Television Corporation (TRT) and EBA (Educational Informatics Network) online network, and so-called "live courses" which embraces 8th graders and 12th graders, who will take High School Entrance Examination (known as LGS) and University Entrance Examination (known as YKS) respectively (Özer, 2020). Choosing these grades was for providing students who will take a high-stake examination in the given educational year. As MoNE strengthened the infrastructure of EBA, remaining grades have been provided with the online classes. Teachers also use other video-conferencing software programs such as Zoom, Skype, and Google Meet.

Online teaching synchronously not only necessitates more focus but also is more exhausting and time-consuming than face-to-face teaching (Bryson & Andres, 2020). Teachers recognized that online EFL teaching practices, unlike face-to-face classroom practices, is constrained by the expertise of ICT by teachers; apparent benefits of online EFL teaching such as quality online materials, online records of the learning processes of the students and their achievements, and real-time interaction between the teacher and the student; on the other hand, online EFL teaching has overwhelming shortcomings in its lacking in instant interaction between the teacher and the student, tracking their performance in the class, in ensuring equality in education as a result of the imbalance in network devices throughout regions (Gao & Zhang, 2020). In face-to-face classrooms, teachers may utilize their inspiration and act spontaneously to alter the plan to make it more useful, but in online learning environments, teachers may not be able to utilize their inspirations as good as it was in face-to-face classrooms (Boettcher & Conrad, 1999).

2.2.1. Types of Online Courses

Boettcher and Conrad (2016, pp. 11, 12) classify the types of online and blended courses into four general categories according to their percentage of content delivered online. The first category is 'traditional face-to-face course' in which content is delivered online by none to 14%. The second category is 'lightly blended or hybrid courses', also called 'flipped' courses, in which the content is delivered online by 15% to 39%. The third category is 'blended or hybrid' courses in which content is delivered online by 40% to 79%. The fourth category is 'online courses' and 'massive open online courses (MOOCs)' in which the content is delivered online by 80% or more.

Traditional face-to-face education also includes some digital technologies now for such practices as sending course documents or readings (Boettcher & Conrad, 2016, p. 11). By the phrase "face-to-face education", it is understood that teachers and students are in the same classroom. The teacher's presence and other students' presence are important for some students in courses which they find 'important' or 'interesting' (Jaggars, 2014). Traditional face-to-face classrooms include non-verbal communication along with verbal communication. Teachers can convey meanings non-verbally via body language, gestures, and mimicry. Students not only expect their teachers to convey messages through a fine use of language and intonations, but also, they expect their teachers to utilize non-linguistic communication practices such as body language, gestures, and mimicry (Çelik, 2004).

There are course types which are in between face-to-face courses and online courses. In other words, these courses have both face-to-face practices and online practices. They are named hybrid, blended, flipped, and inverted models of courses. In hybrid courses, students make use of face-to-face learning practices and self-learning practices usually through internet tools (Marquis & Ghosh, 2017). Arispe and Blake (2012) describe hybrid learning as learning via combinations of scheduled classroom gatherings and online sessions. On the other hand, Boettcher and Conrad (2016) define blended / hybrid courses in which two-to-three-hour face-to-face education practices take place every two-to-three weeks, while the rest of the educational practices take place in digital environments. According to Garrison and Vaughan (2008), blended learning optimally integrates oral communication in face-to-face environments and written communication in online environments, by utilizing the best of both, in order to create a new learning experience coherent with the context and instructional goals. Furthermore, Nat (2015) classifies the flipped model as a type of blended model, and states that it fuses best of classroom practices with the best of online delivery by giving importance to utilizing in-class time to make use of not only the interaction between teacher and students but also collaboration among peers. The flipped model flips the role of homework and classroom practices; in other words, students are to learn the knowledge at home, and master their skills in face-to-face classroom environments, in which teachers act as a guide to correct them (Chen Hsieh et al., 2017). Strayer (2012) states that inverted / flipped learning is moving lectures out of, and practices with concepts into the classroom. Margulieux et al. (2014) classify hybrid, blended flipped, and inverted models regarding their underlying dimensions as:

Definitions of hybrid courses consistently describe instructional location; definitions of blended courses consistently describe delivery medium; definitions of flipped and inverted courses consistently describe instructional location and instruction type. These patterns suggest which dimensions are important to defining these terms. (p. 2)

Online courses convey most of the knowledge through online tools mostly asynchronously (at separate times) and occasionally synchronously (in real-time) (Boettcher & Conrad, 2016). According to Murphy et al. (2011), synchronous learning is classified as teacher-centred, while asynchronous learning refers to a student-centred and independent learning practice supported by synchronous online teaching sessions to answer students' questions and solve the problems they have faced. However, Bryson and Andres (2020) criticize the approach that synchronous/asynchronous duality creates,

which puts the emphasis on whether the simultaneous interaction is present or not. They state that the importance should be given to the approaches through which students are aimed to be facilitated by designs to reach instructional goals. Thus, they suggest that teachers should facilitate by 'curating' the online and offline learning practices 'intensively and extensively' rather than just undertaking the lecturer role. They also explain that extensive online learning is the process curated by the teacher so that students can self-study the subject and understand it through online resources on platforms like learning management systems (LMS), while intensive online learning includes teacher's facilitating real-time engagements via which students are encouraged to 'shape and deepen' their understanding. They finally emphasize that extensive and intensive online learning does not replace each other; they rather help students achieve distinct but related instructional goals.

MOOCs stands for massive open online courses, and it enables content to be delivered to a large number of students, whom it is not so physically possible to be brought together in the same face-to-face teaching environment (Boettcher & Conrad, 2016). According to Glance et al. (2013), the definition of MOOCs is ambiguous, and even the 'massive' part of it is hard to define precisely, because of the fact that MOOCs should at least include a number of students who are still too crowded to be lectured in a face-to-face environment. They also state that drop-out rates are high, and most of the enrolled students do not finish the course. Moreover, learners can attend MOOCs usually for free, and they usually do not receive a certification, although sometimes students are to pay for assessment procedures and receive a kind of certification (Boettcher & Conrad, 2016).

All that being said, the situation of online education has changed after the breakout of the Covid-19 pandemic. Education practices were tried to be pushed into an online environment in a blink of an eye. Moreover, this swift shift towards an online environment in the midst of a course can be hard (Gacs et al., 2020). Thus, researchers came up with new terms such as emergency remote teaching (ERT) concretise the distinction between a temporary online education process which has emerged as a reaction to a crisis, and a well-prepared online education process (Hodges, et al., 2020). Bozkurt and Sharma (2020) suggest that the distinction between online distance education and emergency remote teaching should be made, because the instructors' beliefs on distance education during the Covid-19 pandemic will affect the future of distance education after the pandemic. Karataş and Tunçer (2020) conducted a research study advantages and disadvantages of emergency distance education (EDE) with 118 Turkish pre-service EFL

teachers, and they stated that the most strengthened skills were writing as a result of the abundance of homework, assignment, and projects. Moreover, writing became the new resource of communication by replacing speaking, which is the most neglected skill during EDE.

2.2.2. Teacher Roles and Competencies in Online Education

The changes occurring in teachers' roles and requirements when moving from face-to-face education towards online education has been touched on by researchers (Berge, 1995; Anderson et al., 2001; Goodyear et al., 2001; Smith, 2005; Álvarez et al., 2009; Guasch et al., 2010; McGee et al., 2017; Rhode et al., 2017; Adnan, 2018; Martin et al., 2019). Compared with face-to-face education, teachers' workload increases in online education (Sun et al., 2020). It is important to acknowledge that online education requires specific roles and competencies. As online teaching competencies develop, training programs for these competencies ought to be set out, along with certifications for some cases (Spector & De La Teja, 2001). Moreover, it is vital for teachers to become aware of online-specific teaching strategies. If teachers get familiar with the complicatedness of developing online courses, they will be able to recognize the necessity of raising their students as "competent consumers" of online education (Ward & Benson, 2010). This section includes some roles and competencies of online teachers, as well as strategies that teachers may utilize in their online classes.

Gunawardena (1992) affirms that new roles add up when the educational context shifts from traditional face-to-face classes to distance classes. They state that teachers' role in distance education expanded into "facilitator, supporter, communicator, instructional designer, media expert, and coordinator". They also state that their teaching practices became more student-centred and interactive in also in a face-to-face environment after experiencing distance teaching. Other researchers also confirm that teachers' experiences in online teaching have reflections on their face-to-face teaching as well, such as having a better grasp of technology in general and how to integrate it into face-to-face classes (Peruski & Mishra, 2004).

According to Berge (1995), four roles of an online teacher are "pedagogical", "social", "managerial", and "technical". They state that online teachers should do their duties as instructional facilitators. Moreover, teachers should create a social and friendly environment. They also imply that the key to a successful online conference lies within a

well-organized schedule. Finally, an online teacher needs to inform learners on the use of software and system so that students can focus on the subject matter.

Anderson et al. (2001) state that “design and organisation”, “facilitating discourse”, and “direct instruction” are the roles of teachers in an online course. They state that designing and planning processes become more extensive and consume more time for online courses than face-to-face courses. Moreover, they state that teachers facilitate discourse and help the participants to build up a community of learning. Finally, they also state that online teachers lead students intellectually and contribute to students with their knowledge of the subject matter.

According to Goodyear et al. (2001), the roles of a teacher in online classes are “the process facilitator”, “the adviser-counselor”, “the assessor”, “the researcher”, “the content facilitator”, “the technologist”, “the designer” and “the manager-administrator”. “The process facilitator” role includes tasks such as welcoming students establishing rules. “The adviser-counselor” role requires teachers to counsel students to maximise their benefit from engaging in an online course. “The assessor” role necessitates teachers to be competent in assessing both the outcome and learning process in an online course. “The researcher” role indicates teachers to evaluate their online teaching practices and search for ways to improve them. Another role is “content facilitator” which requires teachers to be competent in practices such as building appropriate learning tasks for learners, advising them, and providing them with feedback. “The technologist” role includes being able to have enough technology knowledge and utilize it throughout online teaching practices. Last but not least, “the designer” role generally requires teachers to establish appropriate activities for instructional goals notwithstanding shortcomings of an online environment. Finally, “the manager-administrator” role includes requirements such as duties regarding student registration, their security, and keeping records.

Bennett and Lockyer (2004) online teaching expanded teachers’ role in both before and during the lesson. They also add that technology in face-to-face classes is difficult for teachers not to make use of, and teachers become almost utterly dependent on it in online classes. They state that cooperation between teachers and others, e.g., IT support staff, in the institution also expands in online education.

Alvarez et al. (2009) put forward three roles for online teachers at the university level: “Designer/planning role”, “social role” and “cognitive role”, and accordingly they emphasize teacher competencies in “technological domain” and “managerial domain”. “Designer/planning role” encompasses practices such as course planning, presentation of

content and questions, transferring the content from face-to-face environments into online environments, and developing interactive content. “Social role” encompasses teachers’ duty in establishing teacher-student and student-student communication. “Cognitive role” briefly includes guiding and assessment of learning in an online environment. As for the competencies, “technological domain” includes competencies on technology knowledge, abilities to use software programmes, and data analysis. “Managerial domain” briefly includes competencies that enable teachers to both create and accommodate planned activities and adapt teacher roles into the online environment; for example, managing an online classroom.

Abdous (2011) classified online teacher roles and competencies under three dimensions: (1) “before”, (2) “during”, and (3) “after”. The first dimension includes “preparation, planning and design”, which are the critical phases in terms of integrating appropriate learning activities notwithstanding the technical and procedural drawbacks. The second dimension includes “facilitation, interaction and feedback”, which are the main practices of the online teaching process. The last dimension includes “reflection and lessons learned”, by which teachers are encouraged to improve themselves by keeping records, and thus ‘reflecting’ on and ‘learn lessons’ from their online teaching practices.

Baran et al. (2013) put forward the term “online teacher persona”. By referring to this term, they state that teachers create a new persona by adopting distinct roles. They also state that the online teaching persona is a constantly changing notion, because teachers perpetually revise their views on teaching and learning in an instructional setting that is constantly under change. They, on the other hand, also state that teachers pay attention to students’ place in an online education setting, along with their online teacher personas, by thriving harder to get to know their students than they did in face-to-face environments.

Baran and Correia (2014) put forward a ‘holistic’, which amplifies the strength coming from its interrelatedness, professional development framework for online teachers by grouping them under three levels: (1) teaching, (2) community, and (3) organization. They also suggest supporting practices for each of these levels. At “teaching level” teachers are needed to be supported in terms of designing, pedagogy as well as technology fields. They, furthermore, state that at “community level” teachers are to be supported in terms of building an online teaching community to share help among each other and creating an atmosphere of master-apprentice relationship so that teachers can help each other when shifting towards online education contexts with success. Finally, at “organizational level”, they state an ‘organizational culture’ and ‘reward & recognition’ practices will encourage and motivate teachers in their online teaching careers.

Adnan (2018) stated that notwithstanding knowing the requirements and roles of being a language teacher, language teachers felt the necessity of adopting new roles and competencies, even though they were not sure about what might be these roles and competencies, for online teaching environments. They also suggest that teachers should be supported by both in-service and pre-service training on new roles, requirements, and sets of abilities brought up by shifting into an online teaching environment. Albrahim (2020) noted that teacher roles and competencies along with required sets of abilities should be clarified so that teachers can be supported by professional development programs. They categorize these sets of abilities into six main categories: (1) “pedagogical skills” which encompasses pedagogical understandings, methods, approaches, and practices suitable for contexts and instructional goals; (2) “content skills” which includes teachers general knowledge of their subject-matter and abilities to represent it; (3) “design skills” which encompasses designing and organizing teaching practices in an accordance with the teaching context; (4) “technological skills” which involves teachers’ competence in technology; (5) “management and institutional skills” which includes roles of managing classes, time, learning processes and outcomes, and institutional duties; and finally (6) “social and communication skills” which encompasses the social roles of a teacher such as building a friendly environment for learners, and roles in building and sustaining an interactive online learning community.

Teaching in a face-to-face environment where there is a lot of physical and mental factors utilized through the way of achieving pre-set goals will go under some changes in a virtual environment where teachers try to connect their learners and implement required educational practices through monitors of technological devices. Bao (2020) puts forward six strategies for online teaching after conducting a research with instructors of Peking University: First one is being prepared for unanticipated problems to occur during online education; second one is dividing content into smaller modules and teaching them in between 20 or 25 minutes to help students keep their concentrations; the third one is putting more emphasis on teachers’ voice because of the fact that “voice” can be utilized thoroughly through monitors whereas gestures and mimicry are restricted to be used in online classes; the forth one is working with teaching assistants before and after classes to get online support; the fifth one bolstering students’ active learning skills outside the class because of the fact that online classes not only cause instructors to have less control over education process, but also create more likelihood of students skipping the classes; the sixth one is blending online learning and offline self-learning by assigning students with specific out-class readings along with short papers based on the readings,

and by integrating discussion periods which will keep students away from just learning surface knowledge and help them acquire deeper meanings.

2.2.3. Online Education amidst Covid-19

The rapid shift from face-to-face classes towards online classes had many effects on both students and teachers. Researchers state that students face many obstacles during learning English online during the Covid-19 pandemic, which mainly are “teaching method, psychological, language skills, and the proficiency level” (Karuppannan & Mohammed, 2020). Zhou et al. (2020) state that teachers teach in online classes as they did in face-to-face classes, but they ignore factors like guiding students subjectively, the shortfall in the interaction among teachers and students, failure in teaching results. On the other hand, they also state students have disadvantages such as lack of self-control. Hebebe et al. (2020) stated that teachers had positive attitudes towards distance education during the Covid-19 pandemic more than students. They also explained that students who are dissatisfied with the distance education process put forward reasons such as not understanding the subject, incompetent teachers, insufficient time, and inadequacy of infrastructure. Khatoony and Nezhadmehr (2020) revealed that EFL teachers possessed positive attitudes towards integrating technology and the internet during the Covid-19 pandemic while favouring teaching English in online classes by staying at home rather than going to school to teach in face-to-face classes, which is better than not having classes. Allo (2020) stated that learners had positive attitudes towards online education during Covid-19. They also imply that learners expect their teachers to choose free-to-use applications such as Messenger because of their financial backgrounds and difficulty in getting internet access. Famularsih (2020) stated that online education was found to be efficient by learners. However, they also stated that there are problems related to the internet connection, not being able to apply some of the educational practices in online environments, and inadequate teacher-student interaction. They also noted that learners opted for WhatsApp to be utilized, because it is more cost-efficient in terms of internet quota.

Atmojo and Nughoro (2020) reported some challenges faced by both students and teachers during the online education period in the Covid-19 pandemic. On the students' side challenges occur because of such factors as the financial condition of families, low digital literacy levels and even low literacy levels in general, not being punctual, varying mastery levels on the subject, complaints about workload, and not giving adequate importance on online learning. On the other hand, teachers faced challenges such as lack

of experience and understanding in online teaching, not being able to give personal feedback as a consequence of insufficient time, lack of opportunities in technology integration, and consequently teachers' not being able to perform interactive online teaching practices, difficulties in keeping all students active during lessons, lack of preparation in online teaching as a consequence of the rapid shift towards online education, difficulties in carrying out morality education, difficulties in improving emotional connection, inadequate teacher-student interaction compared to face-to-face education, lack of parental supervision, dangers of health problems due to prolonged use of technological devices.

Shearear et al. (2020) suggest that an ideal online education environment should challenge learners in a way that they would exit their comfort zones while at the same time maintaining a "physiologically safe" environment. They, in other words, state that learners should know that try to solve problems without feeling anxious about failing. They also state that learners expected an individualized and adaptive online education experience which are in an accordance with their needs and preferences. However, they finally note that this educational environment should still form up a remarkably social learning community.

Destianingsih and Satria (2020) revealed learners' need for a successful online English instruction during the pandemic. They stated that most of the learners desired an effective online education process by use of Zoom and recordings of videos or voices by their teachers to give explanations and instructions. They also put forward that learners without good internet access can be reached through the WhatsApp application during online lessons. They further suggest that learners' speaking skills could be improved by assigning them video/voice recording tasks. Moreover, they also noted that learners called for their teachers to provide them with explanations and feedback.

Kim (2020) stated that the Zoom application was found to be beneficial in students' reading comprehension in English. They put forward that students found Zoom useful in such ways as "active interaction" and "self-directed learning", while they stated a number of drawbacks regarding the utility of Zoom application such as "poor audio quality". They finally suggest that teachers should improve themselves in integrating technology, such as Zoom, and in online teaching methods so that they can bolster active student participation.

Ersin et al. (2020) reported that a group of Turkish pre-service teachers of English was taken under the practice of "e-practicum" in order to negate the effects of lack of

teaching practices after school closures because of the pandemic. These pre-service teachers practiced micro-teaching, and reviewed by their peers, and supervised by their “e-mentors” after the sessions. According to the results, they state that “e-practicum” practices were considered beneficial by pre-service teachers in terms of reducing their anticipations towards teaching in online environments. In another study, Bailey and Lee (2020) stated that teachers who are not acquainted with online education practices encountered fewer barriers and utilized a broader variety of communication channels and a broader range of activities.

König et al. (2020) revealed that teachers with higher conceptual TPK levels were reportedly more able to sustain communication, and they were able to provide online adaptive teaching more often, after schools are closed during Covid-19. They also state that teachers who had experiences of using software programs in teaching were more advantageous after schools are closed. They suggest that teachers should be supported in terms of their competencies regarding teaching and learning with ICT in both pre-service and in-service levels.

MacIntyre et al. (2020) noted that language teachers faced with many difficulties during the Covid-19 pandemic. They state that language teachers are experiencing excessive levels of stress as a consequence of the fact that work and home life merge into each other and constant fear about the well-being of family members and themselves. Moreover, they discovered that teachers who adopt “approach-oriented” strategies to cope with these drawbacks are more prone to experience positive outcomes. On the other hand, they state that teachers who adopt “avoid-oriented” strategies to cope with the drawbacks are more prone to experience negative emotions such as anxiety and sadness. They finally suggest that teachers should be educated on how to cope with stress, because of the stress-generating nature of being a teacher, both pre- and in-service levels.

Bhattarai (2020) revealed that English language teachers consider online education as an opportunity and at the same time a challenge. They state that it is an opportunity because it enables English language teachers to go through brand new experiences. They, on the other hand, state that it is considered as a challenge because of the fact that no matter how hard teachers struggle, they were not able to build an interactive learning environment as it had been in face-to-face classes. On the students’ side, they state that students are required to be supervised by their parents due to the fact that maintaining motivation during online education is harder than it had been in face-to-face education. Wen and Kim Hua (2020) stated that instructors’ self-perceived competencies ICT,

availability of infrastructure along with the likelihood of their intent to embrace online instructional technologies in the future.

2.3. Teacher Emotions

It has been stated that emotions in teaching are often neglected, although they are, either positively or negatively, everywhere including schools (Hargreaves, 1998b). Hargreaves (1998a) suggests that the teaching job doesn't just consist of technical competencies, rather it includes an intense 'emotional labor'. Leithwood and Beatty (2008) state that the teaching job is extensively rich in emotions – which greatly impact teachers' practices- although it is usually narrowed down to teacher 'knowledge' and 'skills'. (Leithwood & Beatty, 2008). Zembylas (2003) put forward three reasons behind the scarcity of research regarding teacher emotions; first, strong bias against the topic of emotions in Western culture; second, lack of objectivity regarding measuring them; third, they are regarded as a topic related to feminism and women which in turn was neglected by patriarchal structure because they are considered unworthy of studying (Boler, 1999; as cited in Zembylas, 2003). Besides being included in teaching procedures (Hargreaves, 2000; Schutz & Lanehart, 2002), emotions also affect teacher identity (Woods & Carlyle, 2002). Thus, keeping in mind teachers develop an 'online teacher persona' (Baran et al., 2013) when transitioning from face-to-face education towards online education, the topic of teacher emotions could also be considered a vital topic of research regarding online education.

Generally being classified as positive and negative emotions in the literature (Sutton & Wheatley, 2003), teacher emotions are found out to be somewhat predictor of teachers' wellbeing along with students' wellbeing, which consequently affects learning processes in the classroom, by researchers (Hagenauer et al., 2015). Schutz and Williams-Jonhson (2009) suggest that the classroom environment is highly emotional, which is mainly affected by teachers and students. Also, they further suggest that the administration, parents, and other possible stakeholders might have a part in this emotional atmosphere. Taxer and Gross (2018) revealed that teachers tried to regulate both their and the students' emotions to lessen the presence or exposition of negative emotions. They also revealed that teachers believed positive emotions in the classroom result in better teaching and learning while negative emotions do the vice versa. On the other hand, Cuéllar and Oxford (2018) reported a teacher of the Chinese language regulated their emotions to create an emotionally welcoming classroom atmosphere, fortify the notion of caring as an emotional attribute, and fulfill their students' needs. Pinar (2019) also

revealed that EFL teachers' emotions and their motivation can be affected by the administrators' manner of communication. They also stated that EFL teachers expressed negative emotions which may be because of their wages, errands regarding documentation submitted to them by their administrators, being away from their families, and challenging working conditions such as work overload because of lack of personnel in some schools. İner (2020) found out that EFL teachers' negative emotions turned into positive ones after action research which also helped them develop professionally. They also revealed that EFL teachers' wellbeing also improved because of the fact that their negative emotions are canceled via action research.

Emotions are also present in online education (Lehtonen et al., 2007; Artino Jr, 2012; Regan et al., 2012; Brooks & Young, 2015; Sarsar & Kisla, 2016; Kim & Ketenci, 2020; Naylor & Nyanjom, 2021; Nyanjom & Naylor, 2021; Papaja, 2021). Naylor and Nyanjom (2021) revealed higher education instructors and their emotions while shifting from face-to-face education to online education. They categorized the instructors into four categories according to their emotions and perceptions of institutional support they perceived to have received about online education. 'Futuristic' instructors are the ones with most dominantly showing positive emotions along with the high perceptions of instructional support while shifting towards online education. Next, there were 'ambivalent' ones who acknowledged the immediate changes when shifting towards online education along with feeling frustrated because of the lack of student interaction. The 'disillusioned' instructors expressed negative emotions while perceiving to have received required institutional support. Lastly, the 'cautious' instructors hold negative emotions along with perceiving to have received less institutional support. Collie (2021) revealed a connection between teachers' emotional exhaustion and their administrators' attitudes towards their autonomy during the Covid-19 pandemic. They revealed that 'autonomy-supportive' administration practices resulted in less emotional exhaustion while 'autonomy-thwarting' administration practices resulted in vice versa. Nabe-Nielsen et al. (2021) found out that public school teachers in Denmark expressed emotional reactions such as fear during the Covid-19 pandemic. They indicated that teachers expressed less fear related to the Covid-19 when there is sufficient test behaviour, and appropriate actions of their colleagues to lessen the possibility of transmission. On the other hand, they stated that lack of protective equipment and exposure to other people including the students, students' parents, and other colleagues with the Covid-19 infection increased the incidence of emotional reactions by the teachers. Similarly, Jakubowski and Sitko-Dominik (2021) found out that teachers in Poland experienced stress, anxiety, and depression during the first two waves of the Covid-19 pandemic. They also stated that

teacher wellbeing was negatively affected as a result of the merging of home and work life.



CHAPTER III

3. METHODOLOGY

This section includes the research design, participants, data collection procedures, and data analysis procedures as well as limitations of the study.

3.1. Research Design

This “cross-sectional research, which refers to a snapshot-like analysis of the target phenomenon at one particular point time” (Dörnyei, 2007, p. 78), aims to measure perceived TPACK levels of in-service EFL teachers regarding their practices in face-to-face education and online education. For this purpose, an “explanatory sequential mixed method design” (Creswell, 2014, p. 224) is utilized. So, it respectively includes quantitative and qualitative data collection procedures. For the quantitative part of the research, an adapted online version of the TPACK-EFL (Başer et al., 2016) survey is utilized to measure participants' perceived TPACK levels. This survey includes 9 items for measuring TK, 5 items for measuring CK, 6 items for measuring PK, 5 items for measuring PCK, 3 items for measuring TCK, 7 items for measuring TPK, and 4 items for measuring TPACK, adding up to 39 items. The original version of the survey included Likert 9 type scale. However, items are reduced to Likert 5 type scale to provide convenience for participants who will most probably answer the questions on their smartphones. The original Likert 9 type version would require participants to swipe back and forth horizontally for answering every single item. The Likert 5 type online version of the TPACK-EFL (Başer et al., 2016) properly fits into the screens of smartphones. When answering the survey items, participants are supposed to answer each of the items twice, which is displayed as two back-to-back lines as face-to-face education and online education. When participants answer all of the items, they are offered an option to voluntarily attend a follow-up interview. The type of interview is a “semi-structured interview” (Dörnyei, 2007, p. 136) because it includes premade questions requiring open-ended answers. If they opt to participate in the follow-up interviews, they are supposed to add their contact information. As to follow-up interviews, which form up the qualitative part of the study, ten questions are to be asked to potential volunteers. With these interview questions, it is aimed to reveal their experiences, emotions, and their perceptions on their

professional needs as EFL teachers working in face-to-face and online education environments.

3.2. Participants

Participants of the study are reached via stratified random sampling. "In 'stratified random sampling' the population is divided into groups, or 'strata', and a random sample of a proportionate size is selected from each group" (Dörnyei, 2007, p. 97). Hence, the participants are 185 in-service EFL teachers working at primary, secondary, and high state schools in Bingöl, Turkey. All the teachers had both face-to-face and online teaching experiences. After the Covid-19 outbreak, again all the teachers experienced teaching online. While the data were being gathered, online teaching was around for them for nearly one year. Of course, sometimes they had to teach online only, but as the Covid-19 cases go up and down schools are shifted between hybrid education and online education. Demographic information about the participants is presented below. Demographic information of the participants is gathered to demonstrate the general state of the sample.

Table 1. Genders of Participants

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	42	22.7	22.7	22.7
	Female	143	77.3	77.3	100
	Total	185	100	100	

Table 1 shows the gender distribution of the participants. 77.3% ($f=143$) of the participants are females, while 22.7% ($f=42$) of them are males.

Table 2. Teaching Experiences of the Participants

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-1 year	17	9.2	9.2	9.2
	2-5 years	79	42.7	42.7	64.9
	6-10 years	63	34.1	34.1	100
	11-15 years	17	9.2	9.2	18.4

16-20 years	7	3.8	3.8	22.2
21+ years	2	1.1	1.1	65.9
Total	185	100	100	

Table 2 shows the distribution of the teaching experiences of the participants. 42.7% ($f=79$) of the teachers have been teaching for 2-5 years. On the other hand, 34.1% ($f=63$) of the teachers have been teaching for 6-10 years. 9.2% ($f=17$) of the teachers have been teaching for 0-1 year, and again 9.2% ($f=17$) of the teachers have been teaching for 11-15 years. Moreover, 3.8% ($f=7$) of the teachers have been teaching for 16-20 years. Lastly, 1.1% 2 ($f=2$) of the teachers have been teaching for more than 21 years.

Table 3. Current Workplaces of the Participants

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary School	19	10.3	10.3	10.3
	Secondary School	108	58.4	58.4	100
	High School	58	31.4	31.4	41.6
	Total	185	100	100	

Table 3 shows the current workplaces of the participant teachers. 58.4% ($f=108$) of the teachers are currently working at secondary schools. On the other hand, 34.1% ($f=58$) of the teachers are currently working at high schools. Lastly, 10.3% ($f=19$) of the teachers are currently working at primary schools.

Table 4. Graduation Departments of the Participants

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	American Culture and Literature	1	0.5	0.5	0.5

English Language and Literature	52	28.1	28.1	28.6
English Language Teaching	131	70.8	70.8	99.5
Translation and Interpreting	1	0.5	0.5	100
Total	185	100	100	

Table 4 demonstrates the graduation departments of the participants. Clearly, 70.8% ($f=131$) of the teachers have been graduated from English Language Teaching Department. On the other hand, 28.1% ($f=52$) of the teachers have been graduated from the English Language and Literature Department. Moreover, 0.5% ($f=1$) of teachers have been graduated from the American Culture and Literature Department, and 0.5% ($f=1$) of the teachers have been graduated from the Translation and Interpreting Department.

Table 5. Graduation Degrees of the Participants

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Undergraduate	174	94.1	94.1	94.6
	Graduate	10	5.4	5.4	100
	Ph.D.	1	0.5	0.5	0.5
	Total	185	100	100	

Table 5 demonstrates the graduation degrees of the participants. Clearly, 94.1% ($f=174$) of the teachers hold an undergraduate degree. On the other hand, 5.4% ($f=10$) of the teachers hold a graduate degree. Lastly, 0.5% ($f=1$) of the participants hold a Ph.D. degree.

As for the qualitative part of the study, 18 of the participant teachers who are willing to attend Zoom meetings to answer interview questions are selected. Their demographic information is demonstrated below.

Table 6. Genders of the Interviewees

	Frequency	Percent
Male	6	33.33
Female	12	66.67
Total	18	100

Table 6 demonstrates the genders of the teachers who are selected for the interviews. 66.67% ($f=12$) of the teachers are females, while 33.33% ($f=6$) of them are males.

Table 7. Current Workplaces of the Interviewees

	Frequency	Percent
Primary School	3	16.67
Primary and Secondary School	3	16.67
Secondary School	6	33.33
High School	6	33.33
Total	18	100

Table 7 demonstrates the current workplaces of the interviewee teachers. 33.33% ($f=6$) of the teachers are teaching at secondary schools, and 33.33% ($f=6$) of the teachers are teaching at high schools. 16.67% ($f=3$) of the teachers are currently teaching at a primary school, while the other 16.67% ($f=3$) of the teachers are currently teaching at primary and secondary schools at the same time. The interviewees are tried to be selected equally across the three school levels, but the fact that the primary school students only receive two hours of English a week (MoNE, 2020) posed a problem. Some of the in-service English teachers who are teaching at primary schools actually cannot meet their compulsory weekly teaching hours. For that reason, some of them are also teaching at a nearby secondary school or any other school to meet the compulsory weekly teaching hours. After all, only 10.3% ($f=19$) of the total 185 participants are working at primary schools. Not surprisingly, finding volunteer teachers who are teaching only at primary schools is challenging, which creates another reason to combine these primary school teachers and the teachers who work at primary and secondary schools at the same time.

Table 8. Graduation Departments of the interviewees

	Frequency	Percent
English Language and Literature	3	16.67
English Language Teaching	15	83.33
Total	18	100

Table 8 demonstrates the graduation departments of the interviewee teachers. 83.33% ($f=15$) of the teachers have graduated from English Language Teaching Department, while 16.67% ($f=3$) of the teachers have graduated from English Language and Literature department.

Table 9. Teaching Experiences of Interviewees

	Frequency	Percent
2 years	4	22.22
3 years	2	11.11
4 years	2	11.11
5 years	4	22.22
6 years	1	5.56
7 years	1	5.56
10 years	1	5.56
12 years	1	5.56
14 years	1	5.56
18 years	1	5.56
Total	18	100

Table 9 demonstrates the teaching experiences of teachers who are selected for the interviews. 22.2% ($f=4$) of them have been teaching for 2 years. Also, 22.2% ($f=4$) of them have been teaching for 5 years. On the other hand, 11.1% ($f=2$) of the teachers have been teaching for 2 years, and the other 11.1% ($f=2$) of them have been teaching for 4 years. Moreover, 5.56% ($f=1$) of the teachers have been teaching for 6 years, 5.56% ($f=1$) of the teachers have been teaching for 7 years, 5.56% ($f=1$) of the teachers have been teaching for 10 years, 5.56% ($f=1$) of the teachers have been teaching for 12 years, 5.56% ($f=1$) of the teachers have been teaching for 14 years, and 5.56% ($f=1$) of the teachers have been teaching for 18 years.

Table 10. Graduation Degrees of the Interviewees

	Frequency	Percent
Undergraduate	17	94.44
Graduate	1	5.56
Total	18	100

Table 10 demonstrates the graduation degrees of the interviewee teachers. 94.44% ($f=17$) of the teachers hold an undergraduate degree, while 5.56% ($f=1$) of the teachers hold a graduate degree.

3.3. Data Collection Procedures

Data collection procedures are conducted on online platforms based on the voluntariness of the participants. For the data collection procedures, ethical permissions are taken from Amasya University Social Sciences Ethical Commission, and the permissions from the Ministry of Education are taken before conducting the research. At the very beginning of the survey, volunteer participants are asked to state their genders, the duration of teaching experiences, current workplaces, departments of bachelor's degrees, and degrees of graduation. Then, the survey included items that measure participants' perceived TPACK levels for face-to-face and online education separately. For the structured interview, volunteered participants are reached out through either their e-mail addresses or phone numbers, which were expected to submit at the end of the online questionnaire if they were willing to be an interviewee. However, some of the participants didn't necessarily submit their contact information as they were told they could attend the interview, which was immediately noted by the researcher, and then reached out later for the Zoom conference.

Table 11. Data Collection Procedures

Participants	In-service EFL Teachers in Bingöl City	
	Quantitative Data	Qualitative Data
Collection Phase	06.03.2021 / 21.04.2021	24.03.2021 / 09.04.2021
Context	Google Forms	Zoom

Table 11 demonstrates the data collection procedures. The data were gathered from in-service EFL teachers in Bingöl city. Quantitative data were gathered between

06.03.2021 and 21.04.2021. On the other hand, qualitative data were gathered between 24.03.2021 and 09.04.2021. The reason behind gathering the data through Google Forms and conducting the interviews on Zoom was because of the unforeseeable Covid-19 lockdowns and school closures. Moreover, it was intended to reduce physical contact by choosing online tools while gathering the data, which was a precaution against the spread of the Covid-19 virus. While the data were being gathered, schools were providing hybrid-like education. Some schools were visited, and participants were kindly requested to receive the Google Forms link to attend the questionnaire - from a distance enough to prevent the virus from spreading. Other schools were called via the phone numbers presented on their website, and the in-service EFL teachers teaching at those schools are requested to participate in the research. Google Forms links were sent via WhatsApp or e-mail. On the other hand, participants who were willing to attend Zoom meetings to answer interview questions were reached via the contact information they provided.

3.4. Data Collection Instruments

Details about the research instruments are presented in this section as well as their validity and reliability conditions. For the adapted online version of the TPACK-EFL (Başer et al., 2016) survey, participants are supposed to choose from 1 to 5, respectively (1) 'none/nothing', (2) 'very little', (3) 'some', (4) 'quite a bit', and (5) 'a great deal', if they agree with the statements regarding their perceived TPACK knowledge. Moreover, the participants were to select those numbers twice for each item of the survey, for face-to-face and online education. Qualitative data were gathered by 10 semi-structured interview questions. The validity of both quantitative and qualitative instruments was provided by getting help from two different researchers who hold Ph.D. degrees in the field. They confirmed that the online adapted version of the TPACK-EFL survey by Başer et al. (2016), and the semi-structured interview questions are appropriate for finding out the answers to the research questions of this study.

Table 12. Reliability Results of TPACK-EFL Survey Provided by Other Researchers

Researchers	Başer et al. (2016)	Sarıçoban et al. (2019)	Nazari et al. (2019)	Yıldız (2020)	Lamminpää (2021)
Participants	Pre-service EFL teachers	Pre-service & In-service EFL teachers	In-service EFL teachers	In-service EFL teachers	In-service EFL Teachers

Sample Size	204	77	427	105	69
Likert Scale	9	5	9	9	5
TK	.89	.84	.78	.86	.85
CK	.88	.83	.86	.87	
PK	.92	.85	.83	.83	.80
PCK	.91	.86	.82	.85	.80
TCK	.81	.71	.81	.69	
TPK	.91	.89	.93	.84	.70
TPACK	.86	.80	.94	.86	.82
TPACK-EFL (Total)		.94	.91	.93	.93

Table 12 presents participants, sample sizes, Likert scales, and alpha values found by other researchers using the TPACK-EFL survey by Başer et al. (2016). Actually, the first researchers in the table are the developers of the survey. They developed this survey in two rounds and presented their alpha values for the last version of their survey, which was between .81 and .92, conducting the instrument on 204 pre-service EFL teachers with a Likert-9 scale. However, they didn't present the alpha results of the total survey. Sarıçoban et al. (2019); on the other hand, found alpha values between .71 and .94, including the results for all 39 items. They used the instrument on 77 pre-service and in-service teachers with a Likert-5 scale. Moreover, Nazari et al. (2019) also presented the alpha results for all knowledge domains along with the values for all 39 items in the instrument, which were between .78 and .94, after conducting the instrument on 427 in-service EFL teachers with a Likert-9 scale. Furthermore, Yıldız (2020) presented alpha values between .69 and .93 after implementing the instrument on 105 in-service EFL teachers with a Likert-9 scale. They also presented the total alpha value for all 39 items of the survey. On the other hand, Lamminpää (2021) utilized this instrument and presented alpha values between .70 and .93, after implementing the survey on 69 in-service EFL teachers with a Likert-5 scale. However, they excluded the items measuring perceived CK and PCK because the scope of their study was reportedly more limited. After all, the TPACK-EFL survey by Başer et al. (2016) yields reliable results in measuring perceived

TPACK levels of both pre-service and in-service EFL teachers, when utilized in a range of different sample sizes and by both using Likert-9 and Likert-5 scales.

There are two different reliability results, as the same questionnaire is answered by the participants two times: for face-to-face education and online education. Scholars suggest that there is not a set-in-stone formula for deciding if an alpha value is acceptable while stating that the general guideline which applies to most circumstances is: “ $\alpha > .9$ – excellent, $\alpha > .8$ – good, $\alpha > .7$ – acceptable, $\alpha > .6$ – questionable, $\alpha > .5$ – poor, $\alpha < .5$ – unacceptable” (George & Mallery, 2016, p. 240).

Table 13. Reliability Analysis of Face-to-Face Education Data

	N of Items	Cronbach's Alpha
TK	9	.88
CK	5	.93
PK	6	.93
PCK	5	.91
TCK	3	.77
TPK	7	.90
TPACK	4	.83
TPACK- EFL	39	.96

Table 13 demonstrates the Cronbach's Alpha Reliability Coefficient results for the data gathered in terms of in-service English Language teachers' perceived TPACK scores regarding face-to-face education. Cronbach's Alpha results indicate .88 for TK, .93 for CK, .93 for PK, .91 for PCK, .77 for TCK, .90 for TPK, .83 for TPACK, and .96 for TPACK-EFL. Consequently, the results indicate that the instrument proves to be applicable in terms of reliability.

Table 14. Reliability Analysis of Online Education Data

	N of Items	Cronbach's Alpha
TK	9	.90
CK	5	.91
PK	6	.92
PCK	5	.92
TCK	3	.79
TPK	7	.92
TPACK	4	.86

Table 14 demonstrates the Cronbach's Alpha Reliability Coefficient results for the data gathered in terms of in-service English Language teachers' perceived TPACK levels regarding online education. Cronbach's Alpha results indicate .90 for TK, .91 for CK, .92 for PK, .92 for PCK, .79 for TCK, .92 for TPK, .86 for TPACK, and .97 for TPACK-EFL. Consequently, the alpha results indicate that the instrument proves to be applicable in terms of reliability.

The qualitative data were handled via utilizing MAXQDA software during coding and theming procedures in order to help improve the reliability and validity. Also, another researcher who holds a Ph.D. in the field is involved in the coding and analyzing procedures of the semi-structured interviews so that interrater reliability is ensured.

3.5. Data Analysis

The quantitative data are analysed via SPSS software. In-service EFL teachers' perceived TPACK results regarding both face-to-face education and online education practices are demonstrated. Results are compared between face-to-face and online education practices. Paired Sample T-Test is applied between the two datasets: Face-to-face education, and Online education. On the qualitative part, content analysis of the interviews is conducted on participants' experiences, emotions, and their perceptions of their professional needs as in-service EFL teachers. For the coding and analyzing part of the qualitative data, MAXQDA software is utilized.

Table 15. Data Analysis Procedures

Research Questions	Methodological Approaches	Data Collection Tools	Data Analysis
RQ1: What are in-service EFL teachers' perceived TPACK levels for face-to-face education?	Quantitative	TPACK-EFL Survey (Online Adapted)	Descriptive Statistics
RQ2: What are in-service EFL teachers' perceived TPACK levels for online education?	Quantitative	TPACK-EFL Survey (Online Adapted)	Descriptive Statistics

RQ3: Do in-service EFL teachers' perceptions on their TPACK levels for face-to-face education and online education differ?	Quantitative	TPACK-EFL Survey (Online Adapted)	Paired Samples T-Test
RQ4: Do in-service EFL teachers' perceptions on their TPACK levels change across demographics as to face-to-face education?	Quantitative	TPACK-EFL Survey (Online Adapted)	Non-parametric Tests and Independent Samples T-Test
RQ5: Do in-service EFL teachers' perceptions on their TPACK levels change across demographics as to online education?	Quantitative	TPACK-EFL Survey (Online Adapted)	Non-parametric Tests and Independent Samples T-Test
RQ6: What are in-service EFL teachers': a) experiences in face-to-face and online education b) emotions in face-to-face and online education c) perceptions of their professional needs in face-to-face and online education?	Qualitative	Interview Questions	Content Analysis

Table 15 demonstrates the methodological approaches and the data collections tools which are expected to help answer the research questions as well as data analysis procedures. Moreover, data analysis methods for each research question are being presented. For RQ1 and RQ2 descriptive statistics are utilized. For RQ3 Paired Samples T-test is conducted. For RQ4 and RQ5 non-parametric tests are frequently utilized as most of the demographics do not share normal distribution. Finally, for RQ6, content analysis of the interviews is conducted.

3.6. Limitations

Limitations of this study are listed in this section.

- First, the sample of this study is limited to the in-service EFL teachers working at state schools in Bingöl, Turkey. Thus, the findings cannot be generalized to all of the in-service EFL teachers in Turkey.
- Second, the data were collected under pandemic conditions. The participants are expected to answer the survey items on Google Forms. However, this was a kind of obligation because of the unpredictable state of the Covid-19 restrictions.
- Third, the sample of this study was not normally distributed in terms of demographics.
- Fourth, the instrument which was normally developed to measure the perceived TPACK of the EFL teachers were utilized in measuring the participants' perceived TPACK levels for online education as well.
- Fifth, the qualitative data were mostly collected in the participants' native language after they are asked what language would be more comfortable for them, which is done in order to obtain their answers more precisely. Later, the data were transcribed and translated into English as the language of this thesis is English. However, the translation process was carefully done in order not to alter the data by paying attention to informal and/or ungrammatical sentences which were occasionally uttered by the interviewees as the semi-structured questions were not presented to them beforehand. Thus, they had to think aloud sometimes, which resulted in informal and/or ungrammatical sentences.
- Sixth, the data were gathered in the times of online education because of the Covid-19 restrictions, which might affect the participants' answers, especially the ones about face-to-face education, for both quantitative and qualitative instruments.
 - Seventh, some of the data gathered via semi-structured interview questions were outside the scope of this study, so they were kept outside the tables; instead, they were exemplified with some excerpts from the interviews.

CHAPTER IV

4. FINDINGS

This chapter includes the quantitative and qualitative findings.

4.1 Quantitative Findings

Quantitative findings of the research are displayed in this section. Participants' perceived TPACK levels for both face-to-face and online education, and the comparison between these levels is presented. Also, participants' perceived TPACK levels for face-to-face education and online education are displayed along with their demographic information.

RQ1. *What are in-service EFL teachers' perceived TPACK levels for face-to-face education?*

In this section, in-service EFL teachers' perceived TPACK levels for face-to-face education are aimed to be revealed.

Table 16. Perceived TPACK Levels for Face-to-Face Education

	Number of Items	N	Minimum	Maximum	Mean	Std. Deviation
TK	9	185	1.44	5.00	3.76	.75
CK	5	185	2.40	5.00	4.45	.57
PK	6	185	2.00	5.00	4.32	.60
PCK	5	185	2.20	5.00	4.40	.56
TCK	3	185	1.67	5.00	3.63	.90
TPK	7	185	2.29	5.00	4.15	.65
TPACK	4	185	1.75	5.00	3.73	.83
TPACK-EFL	39	185	2.13	5.00	4.07	.57

Table 16 demonstrates the participants' perceived TPACK levels for face-to-face education. Out of 5 items, participants' mean score for CK ($M=4.45$) lies between '4= quite a bit' and '5= a great deal', which holds the highest mean score among other knowledge

areas. On the other hand, participants' mean score for PCK out of 5 items ($M=4.40$) reveals that they perceived themselves competent as they opted between '4= quite a bit' and '5= a great deal'. Participants' mean score for PK ($M=4.32$) out of 6 items reveals that they chose between '4= quite a bit' and '5= a great deal', but closer to the former. Participants' mean score for TPK ($M= 4.15$) out of 7 items reveals that they opted between '4= quite a bit' and '5= a great deal', yet again closer to the former. Moreover, participants' mean score for TK ($M=3.76$) out of 9 items reveals that they chose between '3= some' and '4= quite a bit', closer to the latter. Participants' mean score for TPACK ($M=3.73$) out of 4 items reveals that they chose between '3= some' and '4= quite a bit', being closer to the latter. Last but not least, participants' mean score for TCK ($M=3.63$) out of 3 items reveals that they chose between '3= some' and '4= quite a bit', yet again closer to the latter. Finally, participants' mean score for TPACK-EFL out of all 39 items reveal that they chose between '4=quite a bit' and '5= a great deal', but closer to the former. To sum up, participants' perceptions of their TPACK levels regarding face-to-face education respectively goes by high to very high for CK, high to very high for PCK, high to very high for PK, high to very high for TPK, moderate to high for TK, moderate to high for TPACK, moderate to high for TCK, and high to very high for TPACK-EFL.

RQ2. What are in-service EFL teachers' perceived TPACK levels for online education?

In this section, in-service EFL teachers' perceived TPACK levels for online education are aimed to be revealed.

Table 17. Perceived TPACK Levels for Online Education

	Number of Items	N	Minimum	Maximum	Mean	Std. Deviation
TK	9	185	1.33	5.00	3.70	.83
CK	5	185	2.40	5.00	4.41	.61
PK	6	185	2.00	5.00	4.04	.76
PCK	5	185	1.40	5.00	3.91	.94
TCK	3	185	1.67	5.00	3.56	.95
TPK	7	185	2.00	5.00	3.94	.81
TPACK	4	185	1.75	5.00	3.65	.88
TPACK-EFL	39	185	2.21	5.00	3.90	.70

Table 17 demonstrates the participants' perceived TPACK levels regarding online education. To start with, the participants' mean score for CK ($M= 4.41$) out of 5 items reveals that they chose between '4= quite a bit' and '5= a great deal', closer to the former.

The participants' mean score for PK ($M=4.04$) out of 6 items reveals that they chose between '4= quite a bit' and '5= a great deal', closer to the former. Moreover, the participants' mean score for TPK ($M=3.94$) out of 7 items reveals that they chose between '3= some' and '4= quite a bit', but closer to the latter. Again, the participants' mean score for PCK ($M=3.91$) out of 5 items reveals that they chose between '3= some' and '4= quite a bit', closer to the latter. The participants' mean score for TK ($M=3.70$) out of 9 items reveals that they chose between '3= some' and '4 = quite a bit', closer to the latter. On the other hand, the participants' mean score for TPACK ($M=3.65$) out of 4 items reveals that they chose between '3= some' and '4= quite a bit', closer to the latter. The participants' mean score for TCK ($M=3.56$) out of 3 items reveals that they chose between '3= some' and '4= quite a bit', closer to the latter. Finally, the participants' mean score for TPACK-EFL out of all 39 items reveals that they chose between '3= some' and '4= quite a bit', closer to the latter. To sum up, the participants' perceived TPACK levels regarding online education respectively goes by high to very high for CK, high to very high for PK, moderate to high for TPK, moderate to high for PCK, moderate to high for TK, moderate to high for TPACK, moderate to high for TCK, and moderate to high for TPACK-EFL.

RQ3. *Do in-service EFL teachers' perceptions on their TPACK levels for face-to-face education and online education differ?*

In this section, the comparison between in-service EFL teachers' perceptions on their TPACK levels for face-to-face education and online education is presented.

Table 18. Paired Samples Statistics of TPACK means for Face-to-Face and Online Education

		N	$\bar{X}$	S	sd	t	p
TK	Face-to-face	185	3.76	.75	184	1.69	.091
	Online	185	3.70	.83			
CK	Face-to-face	185	4.45	.57	184	4.31	.000*
	Online	185	4.41	.61			
PK	Face-to-face	185	4.32	.60	184	7.29	.000*
	Online	185	4.04	.76			
PCK	Face-to-face	185	4.40	.56	184	8.70	.000*
	Online	185	3.91	.94			
TCK	Face-to-face	185	3.63	.90	184	1.96	.051
	Online	185	3.56	.95			
TPK	Face-to-face	185	4.15	.65	184	5.85	.000*
	Online	185	3.94	.81			
TPACK	Face-to-face	185	3.73	.83	184	2.63	.009*

	Online	185	3.65	.88			
TPACK-EFL	Face-to-face	185	4.07	.57	184	6.44	.000*
	Online	185	3.90	.70			

Table 18 demonstrates the Paired Sample T-Test Statistics for in-service English Language teachers' perceived TPACK levels for face-to-face and online education. Participants' perceived TK levels are not significantly lower for online education than face-to-face education $t(184) = 1.69, p > .05$. Their perceived TK levels' mean is $\bar{X} = 3.76$ for face-to-face education, while it is $\bar{X} = 3.70$ for online education. Participants' perceived CK levels are significantly lower for online education than face-to-face education, $t(184) = 4.31, p < .01$. Their perceived CK levels' mean is $\bar{X} = 4.45$ for face-to-face education, while it is $\bar{X} = 4.41$ for online education. Participants' perceived PK levels are significantly lower for online education than face-to-face education, $t(184) = 7.29, p < .01$. Their perceived PK levels' mean is $\bar{X} = 4.32$ for face-to-face education, while it is $\bar{X} = 4.04$ for online education. Participants' perceived PCK levels are significantly lower for online education than face-to-face education, $t(184) = 8.70, p < .01$. Their perceived PCK levels' mean is $\bar{X} = 4.40$ for face-to-face education, while it is $\bar{X} = 3.91$ for online education. Participants' perceived TCK levels do not meaningfully differ from each other regarding face-to-face and online education, $t(184) = 1.96, p > .05$. Their perceived TCK levels' mean is $\bar{X} = 3.63$ for face-to-face education, while it is $\bar{X} = 3.56$ for online education. Participants' perceived TPK is significantly lower for online education than face-to-face education, $t(184) = 5.85, p < .01$. Their perceived TPK levels' mean is $\bar{X} = 4.15$ for face-to-face education, while it is $\bar{X} = 3.94$ for online education. Participants' perceived TPACK levels are significantly lower for online education than face-to-face education, $t(184) = 2.63, p < 0.01$. Their perceived TPACK levels' mean is $\bar{X} = 3.73$ for face-to-face education, while it is $\bar{X} = 3.65$ for online education. Participants' TPACK-EFL levels are significantly lower for online education than face-to-face education, $t(184) = 6.44, p < .01$. With all these findings, it is affirmed that in-service English Language Teachers' perceived TPACK levels are high both for face-to-face and online education. However, their perceived TK, CK, PK, PCK, TPK, TPACK, and TPACK-EFL levels are significantly lower for online education than face-to-face education. On the other hand, their perceived TCK levels don't present a statistically significant difference between face-to-face and online education. Moreover, the significant differences between these means levels respectively go from highest to lowest as PCK, PK, TPK, TPACK-EFL, TPACK, TK, and CK.

RQ4. *Do in-service EFL teachers' perceptions on their TPACK levels change across demographics as to face-to-face education?*

In this section, various non-parametric test results are presented in order to present the change across demographics regarding participants' perceived TPACK levels for face-to-face education. Non-parametric test methods are mostly selected since the demographics of the participants don't share normal distribution.

Table 19. Perceived TPACK for Face-to-Face Education U Test Results Regarding Genders of the Participants

	Group	n	Mean Rank	Sum of Rank	U	p
TK	Male	42	118.04	4957.50	1951.50	.001*
	Female	143	85.65	12247.50		
CK	Male	42	108.06	4538.50	2370.50	.033*
	Female	143	88.58	12666.50		
PK	Male	42	95.18	3997.50	2911.50	.761
	Female	143	92.36	13207.50		
PCK	Male	42	97.80	4107.50	2801.50	.498
	Female	143	91.59	13097.50		
TCK	Male	42	114.88	4825.00	2084.00	.002*
	Female	143	86.57	12380.00		
TPK	Male	42	99.24	4168.00	2741.00	.387
	Female	143	91.17	13037.00		
TPACK	Male	42	108.58	4560.50	2348.50	.031*
	Female	143	88.42	12644.50		
TPACK-EFL	Male	42	109.04	4579.50	2329.50	.027*
	Female	143	88.29	12625.50		

Table 19 presents Mann-Whitney U test results of the participants' perceived TPACK results for face-to-face education regarding their genders. According to the results, participants' levels for TK are statistically significantly different in terms of their genders: $U = 1951.50$, $p < .01$. When the mean ranks are considered, male participants' perceived TK levels are higher than that of female participants. Moreover, there is a statistically significant difference between perceived CK levels of male and female participants: $U = 2370.50$, $p < .05$. When the mean ranks are considered, male participants' perceived CK levels are higher than that of female participants. On the other hand, participants' levels for perceived PK do not present a statistically significant difference in terms of their genders: $U = 2911.50$, $p > .05$. Also, the perceived PCK levels of the participants do not present a statistically significant difference in terms of their genders: $U = 2801.50$, $p > .05$. However, there is a statistically significant difference between participants' perceived TCK levels: $U = 2084.00$, $p < .01$. Mean ranks of the groups reveal

that male participants' TCK levels are higher than that of female participants. On the other hand, there is not a statistically significant difference between the participants' TPK regarding their genders: $U = 2741.00$, $p > .05$. However, the participants' perceived TPACK levels pose a statistically significant difference in terms of their genders: $U = 2348.50$, $p > .05$. When the mean ranks are considered, male participants' TPACK levels are higher than that of female participants. Finally, the TPACK-EFL levels of the participants, which is the summation of the whole survey, are shown to present a statistically significant difference between the male and female participants: $U = 2329.50$, $p < .05$. When the mean ranks are considered, the male participants' TPACK-EFL levels are higher than that of the female participants.

Table 20. Paired Samples T-Test Statistics for Perceived TPACK for Face-to-Face Education Regarding Participants' Teaching Experiences

	Teaching Experience	N	$\bar{X}$	S	sd	t	p
TK	5 or fewer years	96	3.81	0.76	183	1.05	.294
	6 or more years	89	3.70	0.74			
CK	5 or fewer years	96	4.49	0.55	183	1.02	.308
	6 or more years	89	4.41	0.59			
PK	5 or fewer years	96	4.32	0.59	183	0.02	.981
	6 or more years	89	4.32	0.60			
PCK	5 or fewer years	96	4.42	0.55	183	0.53	.592
	6 or more years	89	4.38	0.58			
TCK	5 or fewer years	96	3.69	0.93	183	0.88	.377
	6 or more years	89	3.57	0.87			
TPK	5 or fewer years	96	4.18	0.66	183	0.55	.582
	6 or more years	89	4.12	0.64			
TPACK	5 or fewer years	96	3.76	0.86	183	0.51	.609
	6 or more years	89	3.70	0.80			
TPACK-EFL	5 or fewer years	96	4.11	0.58	183	0.81	.417
	6 or more years	89	4.04	0.56			

Table 20 demonstrates the T-Test statistics for participants' perceived TPACK levels for face-to-face education regarding their teaching experiences. Participants are divided into two groups to find out the effect of their teaching experiences on their perceived TPACK levels for face-to-face education. 96 participants (17 of them have been teaching for less than 1 year; 79 of them have been teaching for 2 to 5 years) have been teaching for five years or less. On the other hand, 89 participants (63 of them have been teaching for 6 to 10 years; 17 of them have been teaching for 11 to 15 years; 7 of them have been

teaching for 16 to 20 years; 2 of them have been teaching for more than 21 years) have been teaching for 6 or more years. To begin with, there is not a statistically significant difference in TK levels between the participants who have been teaching for 5 or fewer years ($\bar{X} = 3.81$) and the participants teaching for 6 or more years ($\bar{X}=3.70$), $t(183)=1.05$, $p>.05$. Moreover, there is not a statistically significant difference in CK levels between the participants who have been teaching for 5 or fewer years ($\bar{X}=4.49$) and the participants who have been teaching for 6 or more years ($\bar{X}=4.41$), $t(183)=1.02$, $p>.05$. Furthermore, there is not a statistically significant difference in PK levels between the participants who have been teaching for 5 or fewer years ($\bar{X}= 4.32$) and the participants who have been teaching for 6 or more years ($\bar{X}=4.32$), $t(183)=0.02$, $p>.05$. Moreover, there is not a statistically significant difference in PCK levels between the participants who have been teaching for 5 or fewer years ($\bar{X}= 4.42$) and the participants who have been teaching for 6 or more years ($\bar{X}=4.38$), $t(183)=0.53$, $p>.05$. Additionally, there is not a statistically significant difference in TCK levels between participants who have been teaching for 5 or fewer years ($\bar{X}=3.69$) and the participants who have been teaching for 6 or more years ($\bar{X}=3.57$), $t(183)=0.88$, $p>.05$. Furthermore, there is not a statistically significant difference in TPK levels between the participants who have been teaching for 5 or fewer years ($\bar{X}=4.18$) and the participants who have been teaching for 6 or more years ($\bar{X}=4.12$), $t(183)=0.55$, $p>.05$. Moreover, there is not a statistically significant difference in TPACK levels between the participants who have been teaching for 5 or fewer years ($\bar{X}=3.76$) and the participants who have been teaching for 6 or more years ($\bar{X}=3.70$), $t(183)=0.51$, $p>.05$. Finally, there is not a statistically significant difference in TPACK-EFL levels between the participants who have been teaching for 5 or fewer years ($\bar{X}=4.11$) and the participants who have been teaching for 6 or more years ($\bar{X}=4.04$), $t(183)=0.81$, $p>.05$.

Table 21. Perceived TPACK for Face-to-Face Education Kruskal-Wallis Results Regarding Participants' Current Workplaces

	Current Workplaces	n	Mean Rank	sd	X^2	p
TK	Primary School	19	72.21	2	4.61	.100
	Secondary School	108	91.77			
	High School	58	102.10			
CK	Primary School	19	80.03	2	6.25	.044*
	Secondary School	108	87.92			
	High School	58	106.71			
PK	Primary School	19	85.68	2	5.15	.076
	Secondary School	108	87.30			
	High School	58	106.01			

PCK	Primary School	19	94.13	2	5.34	.069
	Secondary School	108	86.02			
	High School	58	105.62			
TCK	Primary School	19	70.00	2	4.51	.105
	Secondary School	108	93.40			
	High School	58	99.79			
TPK	Primary School	19	74.37	2	3.09	.213
	Secondary School	108	93.03			
	High School	58	99.04			
TPACK	Primary School	19	74.87	2	2.48	.288
	Secondary School	108	94.55			
	High School	58	96.06			
TPACK-EFL	Primary School	19	74.39	2	4.78	.091
	Secondary School	108	90.58			
	High School	58	103.59			

Table 21 demonstrates the Kruskal-Wallis H Test results of the participants' perceived TPACK levels for face-to-face education regarding their current workplaces. According to the results, there is not a statistically significant difference in TK levels among the participants considering their workplaces, X^2 (sd=2, n=185) = 4.61, $p > .05$. However, the results indicate that there is a statistically significant difference in CK levels among the participants regarding their current workplaces, X^2 (sd=2, n=185) = 6.25, $p < .05$. When the mean ranks of the groups are considered, participants who are currently teaching at a high school have the highest CK levels, respectively followed by the ones teaching at secondary schools and the ones teaching at primary schools. However, there is not a statistically significant difference in PK levels among the participants considering their current workplaces, X^2 (sd=2, n=185) = 5.15, $p > .05$. Furthermore, there is not a statistically significant difference in PCK levels among the participants considering their current workplaces, X^2 (sd= 2, n=185) = 5.34, $p > .05$. Moreover, there is not a statistically significant difference in TCK levels among the participants regarding their current workplaces, X^2 (sd=2, n= 185) = 4.51, $p > .05$. Also, there is not a statistically significant difference in TPK levels among the participants regarding their current workplaces, X^2 (sd=2, n= 185) = 3.09, $p > .05$. Furthermore, there is not a statistically significant difference in TPACK levels of the participants regarding their current workplaces, X^2 (sd=2, n= 185) = 2.48, $p > .05$. Finally, there is not a statistically significant difference in TPACK-EFL levels among the participants considering their current workplaces, X^2 (sd=2, n= 185) = 4.78, $p > .05$.

Table 22. Perceived TPACK for Face-to-Face Education U Test Results Regarding Participants' Departments of Graduation

	Graduation Degree	n	Mean Rank	Sum of Rank	U	p
TK	English Language Teaching	131	97.38	12756.50	2963.50	.083
	Other Departments	54	82.38	4448.50		
CK	English Language Teaching	131	98.70	12930.00	2790.00	.020*
	Other Departments	54	79.17	4275.00		
PK	English Language Teaching	131	96.68	12664.50	3055.50	.140
	Other Departments	54	84.08	4540.50		
PCK	English Language Teaching	131	97.58	12783.00	2937.00	.063
	Other Departments	54	81.89	4422.00		
TCK	English Language Teaching	131	92.96	12177.50	3531.50	.987
	Other Departments	54	93.10	5027.50		
TPK	English Language Teaching	131	96.76	12675.00	3045.00	.134
	Other Departments	54	83.89	4530.00		
TPACK	English Language Teaching	131	94.11	12329.00	3391.00	.657
	Other Departments	54	90.30	4876.00		
TPACK-EFL	English Language Teaching	131	96.99	12705.50	3014.50	.114
	Other Departments	54	83.32	4499.50		

Table 22 demonstrates Mann-Witney U Test results of the participants' perceived TPACK levels for face-to-face education regarding their departments of graduation. There are 131 participants' who graduated from the English Language Teaching (ELT) Department, while there are 54 participants who graduated from other related departments (52 of them graduated from the English Language and Literature Department, 1 of them graduated from the American Culture and Literature Department, 1 of them graduated from Translation and Interpreting Department). According to the

results, there is not a statistically significant difference in TK levels between the participants who graduated from ELT and the participants who graduated from other departments, $U=2963.50$, $p>.05$. However, there is a statistically significant difference in CK levels between the participants who graduated from ELT and the participants who graduated from other departments, $U=2790.00$, $p<.05$. Mean ranks of the groups reveal that participants who graduated from ELT have higher CK levels than that of the participants who graduated from other departments. On the other hand, there is not a statistically significant difference in PK levels between the participants who graduated from ELT and the participants who graduated from other departments, $U=3055.50$, $p>.05$. Moreover, there is not a statistically significant difference in PCK levels between the participants who graduated from ELT and the participants who graduated from other departments, $U= 2937.00$, $p>.05$. Furthermore, there is not a statistically significant difference in TCK levels between the participants who graduated from ELT and the participants who graduated from other departments, $U= 3531.50$, $p>.05$. Similarly, there is not a statistically significant difference in TPK levels between the participants who graduated from ELT and the participants who graduated from other departments, $U=3045.00$, $p>.05$. Moreover, there is not a statistically significant difference in TPACK levels between the participant who graduated from ELT and the participants who graduated from other departments, $U=3391.00$, $p>.05$. Finally, there is not a statistically significant difference in TPACK-EFL levels between the participants who graduated from ELT and the participants who graduated from other departments, $U=3014.50$, $p>.05$.

Table 23. Perceived TPACK for Face-to-Face Education U Test Results Regarding Participants' Graduation Degrees

	Graduation Degree	n	Mean Rank	Sum of Rank	U	p
TK	Undergraduate	174	90.32	15715.50	490.50	.007*
	Graduate & Ph.D.	11	135.11	1489.50		
CK	Undergraduate	174	92.01	16010.50	785.50	.305
	Graduate & Ph.D.	11	108.59	1194.50		
PK	Undergraduate	174	92.10	16026.00	801.00	.358
	Graduate & Ph.D.	11	107.18	1179.00		
PCK	Undergraduate	174	92.57	16106.50	881.50	.653
	Graduate & Ph.D.	11	99.86	1098.50		
TCK	Undergraduate	174	90.83	15804.50	579.50	.027*
	Graduate & Ph.D.	11	127.32	1400.50		
TPK	Undergraduate	174	91.40	15903.00	678.00	.102
	Graduate & Ph.D.	11	118.36	1302.00		
TPACK	Undergraduate	174	90.54	15753.50	528.50	.102
	Graduate & Ph.D.	11	131.95	1451.50		

TPACK-EFL	Undergraduate	174	90.97	15829.50	604.50	.041*
	Graduate & Ph.D.	11	125.05	1375.50		

Table 23 demonstrates the Mann-Witney U Test results of the participants' perceived TPACK levels for face-to-face education regarding their degrees of graduation. 174 participants hold an undergraduate degree, and 11 participants hold graduate(n=10) and Ph.D. (n=1) degrees. According to the results, there is a statistically significant difference in TK levels between the participants with an undergraduate degree and the participants who pursued postgraduate studies, $U=490.50$, $p<.01$. Mean ranks of the groups reveal that the participants who pursued postgraduate studies have higher TK levels than that of the participants with an undergraduate degree. On the other hand, there is not a statistically significant difference in CK levels between the participants with an undergraduate degree and the participants who pursued postgraduate studies, $U=785.50$, $p>.05$. Moreover, there is not a statistically significant difference in PK levels between the participants with an undergraduate degree and the participants who pursued postgraduate studies, $U=801.00$, $p>.05$. Similarly, there is not a statistically significant difference in PCK levels between the participants with an undergraduate degree and the participants who pursued postgraduate studies, $U=881.50$, $p>.05$. Furthermore, there is a statistically significant difference in TCK levels between the participants with an undergraduate degree and the participants who pursued postgraduate studies, $U=579.50$, $p>.05$. Mean ranks of the groups reveal that the participants who pursued postgraduate studies have higher TCK levels than that of the participants with undergraduate degrees. However, there is not a statistically significant difference in TPK levels between the participants with an undergraduate degree and the participants who pursued postgraduate studies, $U=678.00$, $p>.05$. Moreover, there is not a statistically significant difference in TPACK levels between the participants with undergraduate degrees and the participants who pursued postgraduate studies, $U=528.50$, $p>.05$. Finally, there is a statistically significant difference in TPACK-EFL levels between the participants with an undergraduate degree and the participants who pursued postgraduate studies, $U=604.50$, $p<.05$.

RQ5. *Do in-service EFL teachers' perceptions on their TPACK levels change across demographics as to online education?*

In this section, various non-parametric test results are presented in order to present the change across demographics regarding participants' perceived TPACK levels for

online education. Non-parametric test methods are mostly selected since the demographics of the participants don't share normal distribution.

Table 24. Perceived TPACK for Online Education U Test Results Regarding Genders of the Participants

	Group	n	Mean Rank	Sum of Ranks	U	p
TK	Male	42	119.25	5008.50	1900.50	.000*
	Female	143	85.29	12196.50		
CK	Male	42	108.54	4558.50	2350.50	.028*
	Female	143	88.44	12646.50		
PK	Male	42	97.25	4084.50	2824.50	.556
	Female	143	91.75	13120.50		
PCK	Male	42	97.29	4086.00	2823.00	.552
	Female	143	91.74	13119.00		
TCK	Male	42	119.98	5039.00	1870.00	.000*
	Female	143	85.08	12166.00		
TPK	Male	42	103.77	4358.50	2550.50	.136
	Female	143	89.84	12846.50		
TPACK	Male	42	112.93	4743.00	2166.00	.006*
	Female	143	87.15	12462.00		
TPACK-EFL	Male	42	109.50	4599.00	2310.00	.023*
	Female	143	88.15	126.00		

Table 24 presents Mann-Whitney U test results of the participants' perceived TPACK results for online education regarding their genders. Results show that there is a statistically significant difference between perceived TK levels of participants regarding their genders: $U=1900.50$, $p<.01$. Mean ranks of the groups reveal that male participants' perceived TK levels are higher than that of female ones. Moreover, there is a statistically significant difference between participants' perceived CK levels regarding their genders: $U= 2350.50$, $p<.05$. The mean rank of the participants reveals that male participants' perceived CK levels are higher than that of female ones. On the other hand, there is not a statistically significant difference between participants' perceived PK levels regarding their genders: $U=2824.50$, $p>.05$. Also, there is not a statistically significant difference between participants' perceived PCK levels regarding their genders: $U=2823.00$, $p>.05$. However, there is a statistically significant difference between participants' perceived TCK levels regarding their genders: $U=1870.00$, $p<.01$. Mean ranks of the groups reveal that male participants' TCK levels are higher than that of female ones. On the other hand, there is not a statistically significant difference between participants' perceived TPK levels

regarding their genders: $U=2550.50$, $p>.05$. However, there is a statistically significant difference between participants' perceived TPACK levels regarding their genders: $U=2166.00$, $p<.01$. Mean ranks of the groups reveal that male participants' TPACK levels are higher than that of female ones. Also, there is a statistically significant difference between perceived TPACK-EFL levels of the participants regarding their genders: $U=2310.00$, $p<.05$. Mean ranks of the groups reveal that male participants' perceived TPACK-EFL levels are higher than that of female ones.

Table 25. Paired Samples T-Test Statistics for Perceived TPACK for Online Education Regarding Participants' Teaching Experiences

	Teaching Experience	N	$\bar{X}$	S	sd	t	p
TK	5 or fewer years	96	3.84	0.76	183	2.35	.020*
	6 or more years	89	3.55	0.89			
CK	5 or fewer years	96	4.46	0.58	183	1.11	.266
	6 or more years	89	4.35	0.63			
PK	5 or fewer years	96	4.08	0.72	183	0.79	.429
	6 or more years	89	3.99	0.79			
PCK	5 or fewer years	96	4.05	0.80	183	1.97	.050*
	6 or more years	89	3.77	1.06			
TCK	5 or fewer years	96	3.70	0.91	183	2.02	.044*
	6 or more years	89	3.41	0.97			
TPK	5 or fewer years	96	4.06	0.77	183	2.14	.033*
	6 or more years	89	3.81	0.84			
TPACK	5 or fewer years	96	3.77	0.87	183	1.80	.073
	6 or more years	89	3.53	0.89			
TPACK-EFL	5 or fewer years	96	4.00	0.64	183	2.12	.035*
	6 or more years	89	3.78	0.75			

Table 25 demonstrates the T-Test statistics for participants' perceived TPACK levels for online education regarding their teaching experiences. Participants are divided into two groups to find out the effect of their teaching experiences on their perceived TPACK levels for online education. 96 participants (17 of them have been teaching for less than 1 year; 79 of them have been teaching for 2 to 5 years) have been teaching for five years or less. On the other hand, 89 participants (63 of them have been teaching for 6 to 10 years; 17 of them have been teaching for 11 to 15 years; 7 of them have been teaching for 16 to 20 years; 2 of them have been teaching for more than 21 years) have been teaching for 6 or more years. Firstly, there is a statistically significant difference in TK levels between the

participants who have been teaching for 5 or fewer years ($\bar{X}=3.84$) and the participants who have been teaching for 6 or more years ($\bar{X}=3.55$), $t(183)=2.35$, $p<.05$. However, there is not a statistically significant difference in CK levels between the participants who have been teaching for 5 or fewer years ($\bar{X}=4.46$) and the participants who have been teaching for 6 or more years ($\bar{X}=4.35$), $t(183)=1.11$, $p>.05$. Furthermore, there is not a statistically significant difference in PK levels between the participants who have been teaching for 5 or fewer years ($\bar{X}=4.08$) and the participants who have been teaching for 6 or more years ($\bar{X}=3.99$), $t(183)=0.79$, $p>.05$. However, there is a statistically significant difference in PCK levels between the participants who have been teaching for 5 or fewer years ($\bar{X}=4.05$) and the participants who have been teaching for 6 or more years ($\bar{X}=3.77$), $t(183)=1.97$, $p=.05$. Moreover, there is a statistically significant difference in TCK levels between the participants who have been teaching for 5 or fewer years ($\bar{X}=3.70$) and the participants who have been teaching for 6 or more years ($\bar{X}=3.41$), $t(183)=2.02$, $p<.05$. Also, there is a statistically significant difference in TPK levels between the participants who have been teaching for 5 or fewer years ($\bar{X}=4.06$) and the participants who have been teaching for 6 or more years ($\bar{X}=3.81$), $t(183)=2.14$, $p<.05$. On the contrary, there is not a statistically significant difference in TPACK levels between the participants who have been teaching for 5 or fewer years ($\bar{X}=3.77$) and the participants who have been teaching for 6 or more years ($\bar{X}=3.53$), $t(183)=1.80$, $p>.05$. Finally, there is a statistically significant difference in TPACK-EFL levels between the participant who have been teaching for 5 or fewer years ($\bar{X}=4.00$) and the participants who have been teaching for 6 or more years ($\bar{X}=3.78$), $t(183)=2.12$, $p>.05$.

Table 26. Perceived TPACK for Online Education Kruskal-Wallis Results Regarding Participants' Current Workplaces

	Current Workplaces	n	Mean Rank	sd	X^2	p
TK	Primary School	19	86.26	2	2.63	.268
	Secondary School	108	89.16			
	High School	58	102.35			
CK	Primary School	19	80.18	2	4.61	.100
	Secondary School	108	89.04			
	High School	58	104.57			
PK	Primary School	19	91.89	2	4.73	.094
	Secondary School	108	86.55			
	High School	58	105.37			
PCK	Primary School	19	94.61	2	1.69	.428
	Secondary School	108	88.91			

TCK	High School	58	100.09	2	4.12	.127
	Primary School	19	80.45			
	Secondary School	108	89.24			
TPK	High School	58	104.11	2	0.71	.699
	Primary School	19	89.95			
	Secondary School	108	90.91			
TPACK	High School	58	97.89	2	1.03	.597
	Primary School	19	86.50			
	Secondary School	108	91.19			
TPACK-EFL	High School	58	98.51	2	2.68	.262
	Primary School	19	89.16			
	Secondary School	108	88.56			
	High School	58	102.53			

Table 26 demonstrates the Kruskal-Wallis H Test results of the participants' perceived TPACK levels for online education regarding their current workplaces. The results indicate that there is not a statistically significant difference in TK levels among the participants regarding their current workplaces, X^2 (sd=2, n= 185) =2.63, $p>.05$. Moreover, there is not a statistically significant difference in CK levels among the participants regarding their current workplaces, X^2 (sd=2, n= 185) = 4.61, $p>.05$. Furthermore, there is not a statistically significant difference in PK levels among the participants considering their current workplaces, X^2 (sd=2, n= 185) = 4.73, $p>.05$. Similarly, there is not a statistically significant difference in PCK levels among the participants regarding their current workplaces, X^2 (sd=2, n= 185) = 1.69, $p>.05$. Moreover, there is not a statistically significant difference in TCK levels among the participants regarding their current workplaces, X^2 (sd=2, n= 185) = 4.12, $p>.05$. Furthermore, there is not a statistically significant difference in TPK levels among the participants regarding their current workplaces, X^2 (sd=2, n= 185) = 0.71, $p>.05$. Moreover, there is not a statistically significant difference in TPACK levels among the participants considering their current workplaces, X^2 (sd=2, n= 185) = 1.03, $p>.05$. Finally, there is not a statistically significant difference in TPACK-EFL levels among the participants regarding their current workplaces, X^2 (sd=2, n= 185) =2.68, $p>.05$.

Table 27. Perceived TPACK for Online Education U Test Results Regarding Participants' Departments of Graduation

Graduation Degree	n	Mean Rank	Sum of Rank	U	p
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TK	English Language Teaching	131	99.93	13090.50	2629.50	.006*
	Other Departments	54	76.19	4114.50		
CK	English Language Teaching	131	98.88	12953.50	2766.50	.017*
	Other Departments	54	78.73	4251.50		
PK	English Language Teaching	131	98.19	12863.50	2856.50	.039*
	Other Departments	54	80.40	4341.50		
PCK	English Language Teaching	131	98.04	12843.50	2876.50	.044*
	Other Departments	54	80.77	4361.50		
TCK	English Language Teaching	131	97.79	12810.50	2909.50	.056
	Other Departments	54	81.38	4394.50		
TPK	English Language Teaching	131	98.97	12964.50	2755.50	.018*
	Other Departments	54	78.53	4240.50		
TPACK	English Language Teaching	131	97.79	12810.00	2910.00	.057
	Other Departments	54	81.39	4395.00		
TPACK-EFL	English Language Teaching	131	99.63	13051.00	2669.00	.009*
	Other Departments	54	76.93	4154.00		

Table 27 demonstrates Mann-Witney U Test results of the participants' perceived TPACK levels for online education regarding their departments of graduation. There are 131 participants' who graduated from the English Language Teaching Department, while there are 54 participants who graduated from other related departments (52 of them graduated from the English Language and Literature department, 1 of them graduated from the American Culture and Literature department, 1 of them graduated from Translation and Interpreting department). Results reveal that there is a statistically significant difference in TK levels between the participants who graduated from ELT and the participants who graduated from other departments, $U=2629.50$, $p<.01$. Mean ranks of the groups reveal that the participants who graduated from ELT have higher TK levels than that of the participants who graduated from other departments. Moreover, there is a statistically significant difference in CK levels between the participants who graduated

from ELT and the participants who graduated from other departments, $U=2766.50$, $p<.05$. Mean ranks reveal that the participants who graduated from ELT have higher CK levels than that of the participants who graduated from other departments. Furthermore, there is a statistically significant difference in PK levels between the participants who graduated from ELT and the participants who graduated from other departments, $U=2856.50$, $p<.05$. The mean ranks of the groups reveal that the participants who graduated from ELT have higher PK levels than that of the participants who graduated from other departments. Similarly, there is a statistically significant difference in PCK levels between the participants who graduated from ELT and the participants who graduated from other departments, $U=2876.50$, $p<.05$. Mean ranks of the groups reveal that the participants who graduated from ELT have higher PCK levels than that of the participants who graduated from other departments. On the other hand, there is not a statistically significant difference in TCK levels between the participants who graduated from ELT and the participants who graduated from other departments, $U=2909.50$, $p>.05$. On the contrary, there is a statistically significant difference in TPK levels between the participants who graduated from ELT and the participants who graduated from other departments, $U=2755.50$, $p<.05$. The mean ranks of the groups reveal that the participants who graduated from ELT have higher TPK levels than that of the participants who graduated from other departments. However, there is not a statistically significant difference in TPACK levels between the participants who graduated from ELT and the participants who graduated from other departments, $U=2910.00$, $p>.05$. Finally, there is a statistically significant difference in TPACK-EFL levels between the participants who graduated from ELT and the participant who graduated from other departments, $U=2669.00$, $p<.01$. Mean ranks of the groups reveal that the participants who graduated from ELT have higher TPACK-EFL levels than that of the participants who graduated from other departments.

Table 28. Perceived TPACK for Online Education U Test Results Regarding Participants' Graduation Degrees

	Graduation Degree	n	Mean Rank	Sum of Rank	U	p
TK	Undergraduate	174	90.53	15752.50	527.50	.013*
	Graduate & Ph.D.	11	132.05	1452.50		
CK	Undergraduate	174	91.98	16005.00	780.00	.292
	Graduate & Ph.D.	11	109.09	1200.00		
PK	Undergraduate	174	91.77	15968.50	743.50	.212
	Graduate & Ph.D.	11	112.41	1236.50		

PCK	Undergraduate	174	92.16	16035.50	810.50	.391
	Graduate & Ph.D.	11	106.32	1169.50		
TCK	Undergraduate	174	90.66	15775.00	550.00	.017*
	Graduate & Ph.D.	11	130.00	1430.00		
TPK	Undergraduate	174	90.50	15747.00	522.00	.011*
	Graduate & Ph.D.	11	132.55	1458.00		
TPACK	Undergraduate	174	90.19	15692.50	467.50	.004*
	Graduate & Ph.D.	11	137.50	1512.50		
TPACK-EFL	Undergraduate	174	90.93	15821.00	596.00	.036*
	Graduate & Ph.D.	11	125.82	1384.00		

Table 28 demonstrates the Mann-Witney U Test results of the participants' perceived TPACK levels for online education regarding their degrees of graduation. 174 participants hold an undergraduate degree, and 11 participants hold graduate(n=10) and Ph.D. (n=1) degrees. According to the results, there is a statistically significant difference in TK levels between the participants with an undergraduate degree and the participants who pursued postgraduate education, $U=527.50$, $p<.05$. Mean ranks of the groups reveal that the participants who pursued postgraduate studies have higher TK levels than that of the participants with undergraduate degrees. On the other hand, there is not a statistically significant difference in CK levels between the participants with an undergraduate degree and the participants who pursued postgraduate studies, $U=780.00$, $p>.05$. Moreover, there is not a statistically significant difference in PK levels between the participants with an undergraduate degree and the participants who pursued postgraduate studies, $U=743.50$, $p>.05$. Furthermore, there is not a statistically significant difference in PCK levels between the participants with an undergraduate degree and the participants who pursued postgraduate studies, $U=810.50$, $p>.05$. However, there is a statistically significant difference in TCK levels between the participants with an undergraduate degree and the participants who pursued postgraduate studies, $U=550.00$, $p<.05$. Mean ranks of the groups reveal that the participants who pursued postgraduate studies have higher TCK levels than that of the participants with an undergraduate degree. Moreover, there is a statistically significant difference in TPK levels between the participants with an undergraduate degree and the participants who pursued postgraduate studies, $U=522.00$, $p<.05$. Mean ranks of the groups reveal that the participants who pursued postgraduate studies have higher TPK levels than that of the participants with undergraduate degrees. Furthermore, there is a statistically significant difference in TPACK levels between the participants with an undergraduate degree and the participants who pursued postgraduate studies, $U=467.50$, $p<.01$. Finally, there is a statistically significant difference in TPACK-EFL levels between the participants with an undergraduate degree and the participants

who pursued postgraduate studies, $U=596.00$, $p<.05$. Mean ranks of the groups reveal that the participants who pursued postgraduate studies have higher TPACK-EFL levels than that of the participants with an undergraduate degree.

4.2. Qualitative Findings

This section includes the qualitative findings of this thesis. Participants' experiences, emotions, and perceptions of their professional needs are presented regarding both face-to-face and online education. Participants' experiences, the conveniences and difficulties they experienced, and their perceptions of their professional needs regarding face-to-face and online education are displayed along with the frequencies of the participants. However, findings regarding emotions are displayed along with the frequency of codes instead of participants. This is because of the fact that all of the participants are asked to reveal three emotions, and the emotions they revealed vary a lot.

RQ6. *What are in-service EFL teachers':*

- a) *experiences in face-to-face and online education*
- b) *emotions in face-to-face and online education*
- c) *perceptions of their professional needs in face-to-face and online education?*

4.2.1. Emerged Experiences Regarding Face-to-Face Education and Online Education

The participants had varying experiences regarding face-to-face and online education. The interview questions were mostly about online education and the participants revealed their experiences mostly about online education. The word experience here is a broad term and it includes some ideas and statements of participants on face-to-face and online education.

Table 29. Themes and Codes Regarding the Emerged Experiences on Face-to-Face and Online Education

Themes	Codes	The Number of Participants
Contributions of Former Education and Teaching Experience	Teaching Experience Helps	10
	Learning Online Teaching by Doing	7
	Teaching Experience is not Helpful	5

	Knowing the Students Beforehand is Helpful	4
	Content Knowledge Helps Adapt Online Education	3
Technology Related Experiences	Contributions of Former Education on Technology for Online Education	7
	Being Accustomed to the Technology is Helpful	5
Experiences Regarding Face-to-Face Education	Face-to-Face Education is More Beneficial	3
	Experience Transfer Towards Face-to-Face Education	2

Table 29 demonstrates the themes and codes regarding the participants' emerged experiences on face-to-face and online education. The first theme "contributions of former education and teaching experience" includes five codes. Content analysis of the interviews revealed that teaching experience is thought to be helpful by more than half of the participants ($f=10$). Furthermore, some of the participants ($f=7$) put forward the idea that they learned how to teach online during the process of online teaching. On the other hand, there are some participants ($f=5$) who consider former teaching experience is not helpful during online education. However, some of the participants ($f=4$) revealed that knowing the students beforehand is helpful during online education. Lastly, for the current theme, content knowledge is found to be helpful by some of the participants ($f=3$) during online education because of the fact that the interfaces of the software being used during online education were mostly in English.

The second theme "technology-related experiences" includes two codes. It is concluded after the content analysis that some of the participants ($f=7$) consider former education on the technology as helpful during the online education period. Moreover, some of the participants ($f=5$) stated that their being accustomed to the technology beforehand made their jobs easier during the online education process.

The third theme "experiences regarding face-to-face education" includes two codes. Through the content analysis, it is concluded that there are some participants ($f=3$) who state that face-to-face education is more beneficial. Furthermore, some participants ($f=2$) stated that the experience gathered during online education transfers into face-to-face education positively.

4.2.1.1. Contributions of Former Education and Teaching Experience

More than half of the participants ($f=10$) revealed that their former teaching experience helped them during the online education period. This situation includes knowledge about the available materials in the field.

Err, I even used Youtube. I was making them recite songs. Normally, I would make the class recite songs every week when I was at school during face-to-face education. Or, at the end of the every topic, or unit, we would make them recite a song about the unit. I did these even in my online classes for example. Err, I would share [the screen] and the lyrics, the children would sing along. Or, they would record a video of themselves, and send it to me later. Err, as I mentioned, on every occasion, I tried to use different techniques during online education. Thus, I think I have done well enough. (Teacher 2).

Of course, having a certain amount of experience helps you a lot in many different ways. I, yeah, As I told you, I have been trying to integrate those, I mean some applications, or digital materials... using digital materials during my classes before the pandemic. I have been doing that for years now, and I believe that I have gained a lot of experience. So of course, having that experience before the pandemic contributed to me a lot. (Teacher 11).

Answers by Teacher 2 and Teacher 11 shed some light upon the fact that having former experiences on the materials turned out to be helpful during the online education period.

On the other hand, the training we have on guidance has helped us in some ways; such as trying to find out, in proper ways, why students didn't attend the class. Our experiences have been somewhat beneficial for us in counseling with the parents, speaking with the parents appropriately, encouraging the parents to increase attendance. (Teacher 14).

This answer by Teacher 14 reveals that former education and the teaching experience are helpful when it comes to counseling with the parents.

"I have utilized from my experiences drawing less interested and unwilling students' attention to the lesson." (Teacher 17).

Also, former teaching experience is reported to be helpful for motivating the students during online education.

On the other hand, some of the participants (f=7) learned how to teach online by doing it.

Of course, we had a period of inexperience for about a week. Then, we started to proceed more professionally. However, we have a problem like... I mean we can use all of those materials on the internet, or the system during online education right now (Teacher 5).

"Training we had beforehand didn't help us in this regard, sir. We have learned to teach online during the online education period." (Teacher 13).

As Teacher 5 and Teacher 13 reported they experienced some type of deficiencies, and as time goes on, they mastered how to teach online through teaching online.

However, there are also some participants (f=5) who do not consider former teaching experience as helpful.

The difficulties we encountered were, as I have just said, not all of the pupils could attend the classes. So, to solve this problem, there is no way to utilize, make use of the professional experiences. Making use of [the experience] and to solve it is not possible. (Teacher 3).

It hasn't contributed much, as we can't afford to solve the difficulties we faced. I mean, we can't make the children participate in the class. Because they don't have the opportunity to access the internet. Actually, my professional experience does not contribute to this issue. However, err, my experiences helped me adapt face-to-face education to online. (Teacher 10).

As reported by Teacher 3 and Teacher 10, there are some difficulties that cannot just be solved by utilizing former teaching experience. In other words, the problems they

reported here have to do with lack of students' attendance and infrastructural problems, which naturally are impossible to solve via former teaching experience.

Last but not least, the participants ($f=4$) revealed that knowing the students beforehand from the face-to-face education period results in a better education process during the online education.

My professional experience err has contributed to me, for example, of course, knowing the student beforehand is a great advantage. I mean, knowing the student that will attend the class, or knowing the student profile of the class is a great advantage. For example, my professional experience has played an important role in attracting and err, activating the students because I know their profiles beforehand. (Teacher 15).

I knew my students, my students knew me. I mean, we proceeded really well because they knew the things I had taught in the class, and how I would teach them. The fact that the children knew me and the system has really contributed to me (Teacher 16).

As it is clear by these answers by Teacher 15 and Teacher 16, knowing the students beforehand contributed to the education they provide during online education.

I actually have experienced it. We have started with ninth-graders in that way. It was too much difficult for me. I didn't know the faces of the children. I tried to recognize them by their voices. I didn't know who answered what, who asked a question. For this reason, I always keep the name list open on the side. I try to realize who is talking, whose microphone is moving by looking at there. For example, I have a couple of very good students in ninth grade. Do you know that I love them so much, but I have never seen their faces? (Teacher 13).

On the flip side, the answer by Teacher 13 strengthens the idea that knowing the students beforehand transfers into online education. They reported the sorrow of not knowing the students beforehand caused them to conduct online lessons with less liveliness and more difficulties.

Finally, some of the participants ($f=3$) revealed that their content knowledge, in other words, their English knowledge, helped them during the online education process.

As the online platforms are in English, I mean, I haven't experienced any problems to solve regarding the English language. Err, speaking of my branch, I mean, the language of the internet is generally, what we call lingua-franca, all English. So, I can say that it has contributed to me a lot. (Teacher 5).

On the other hand, our privilege at the beginning is that we started with Zoom, and Zoom was easy for us than the other branches because its interface was in English. I have had those kinds of eases, and I can say that I haven't that any difficulty. (Teacher 8).

As reported by Teacher 5 and Teacher 8, having a grasp of the English Language is really beneficial, because the interfaces of the software used during online education are mostly in English let alone the fact that the language of the internet is English.

It is also worth noting that there is one participant stating that teachers and students are needed to be educated in terms of technology.

Sometimes we see, err, they teach a lesson by rotating a normal board towards the computer, this is not an appropriate technique. This shows that the teacher does not use web 2.0 tools, actually it shows that they can't use those tools. So, everybody is needed to be educated in terms of technology including the student and the teacher. Then, they can switch [to online education]. Because, I don't think we are proceeding well as a country. As far as we've seen on social media you know... So, it looks like devotion, but it actually is not a devotion, it is a sign of ignorance. It results from their ignorance. (Teacher 1).

The statement by teacher 1 reveals their experience and observation regarding the lack of technological education both in some of the teachers and students. Also, they think that some of the teachers are not aware of their lack of technological knowledge, rather they proudly think that the situation of using normal boards through the cameras of their technological devices is a situation of devotion.

4.2.1.2. Technology Related Experiences

Participants reported some experiences related to the technology. First of all, contributions of former education on the technology are reported by the participants ($f=7$).

Simply for example err, if I haven't had experience err, with Zoom, I wouldn't know screen sharing, and it would be inadequate. I wouldn't be able to provide a good education to children, as I was unqualified at technology. How to prepare a presentation, for example, power point presentations, or word, children wouldn't be able to receive a good education if we haven't known these you know. (Teacher 1).

"Regarding technology, yes, exactly, being able to use the computer, and being able to use technology have contributed to us a lot." (Teacher 8).

Teacher 1 and Teacher 8 report and shed some light upon the contributions of former education on the technology helped during online education. Having a basic knowledge of how to utilize technological hardware and software made their jobs easier during online education and enabled them to convey their lessons better.

Apart from the former education on the technology in general, having been accustomed to the technology beforehand helped some of the participants ($f=5$) during their online teaching duties.

Err, I am good at technology, but this has nothing to do with the in-service training, or any training before and after it. It all has to do with me improving myself...I mean, I would most probably be insufficient in technology, if I relied solely on the education that I had received and did not improve myself. (Teacher 10).

As it is clear by this answer by Teacher 10, being accustomed to the technological stuff is also beneficial during online education. On the other hand, they stated that former education is not helpful, and they couldn't have relied on the education they have received on technology beforehand; consequently, they would have been insufficient.

4.2.1.3. Experiences Regarding Face-to-Face Education

This theme includes two codes, the first of which is the statements by some of the participants ($f=3$) on face-to-face education being more efficient.

“I have realized that face-to-face education is more fruitful after experiencing online education. It is far better considering the materials, and it is far better at reaching to the student.” (Teacher 10).

They reported that face-to-face education is more efficient when it comes to the fact that there are better materials. Furthermore, reaching out to the students is another ease during face-to-face education, which is another statement by the participant. On the other hand, some of the participants ($f=2$) reported that there is an experience transfer from online education towards face-to-face education.

“After all, we can transfer all the content, technology, and stuff into the classroom. We have this opportunity now. Almost in every school. We have this opportunity anywhere with an internet connection.” (Teacher 13).

As Teacher 13 states, there is now an opportunity of transferring the content, technology, and other things which are learned during the online teaching period towards face-to-face classroom settings.

4.2.2. Emotions Regarding Face-to-Face Education and Online Education

Participants are asked to tell the three emotions that come to their minds regarding face-to-face and online education. As mentioned above, only for this section, the number of the codes are presented instead of the number of the participants. Themes, frequencies, and subsequent emotions for this part are presented in the table below.

Table 30. Emotions for Face-to-Face Education

Themes	Frequency of Codes	Emotions
Positive Emotions	32	excited (7) happy (5) energetic (5) Sincerity (3) ambitious (2) enthusiastic (2) entertaining (2) satisfied connected realistic

		good peaceful lively
Negative Emotions	2	longing aggressive
Irrelevant Answers	31	

Table 30 reveals that participants' emotions for face-to-face education are mostly positive ($f=32$). Negative emotions ($f=2$) for face-to-face education are limited. However, there are irrelevant answers by participants when they are asked to talk about their emotions regarding face-to-face education ($f=31$).

I can say excitement because you can teach the lesson according to the target audience, as you are able to see their gestures and mimicry, and all of the other stuff, when there is face-to-face education. On the other hand, you can't experience those during remote teaching. (Teacher 7).

"Actually, I am a lot happier during face-to-face education. I mean in an actual classroom. And I feel more energetic in face-to-face education." (Teacher 11).

During face-to-face education, you are happier, more energetic, and more dynamic. Err, as you are able to see the students' expressions, you can adjust your reactions accordingly. If they are bored with the lesson, you can change the topic. Sure, we have more chances to encourage them into the lesson. (Teacher 18).

As seen in the answers by the participants, they have positive emotions for face-to-face education, and they are inclined to compare their positive emotions for face-to-face education with their emotions for online education.

"We can be more aggressive sometimes." (Teacher 17).

"Longing, I mean it was so immense." (Teacher 4)

As it is seen by the answers, half of the negative emotions have nothing to do with the nature of face-to-face education. The feeling of longing (teacher 4) is because of the

fact that the teacher missed the real classroom atmosphere and yearned for it. Alongside the positive and negative emotions, there are irrelevant answers by the participants when they are asked to talk about their emotions for face-to-face education.

“Face to face teaching experience... with three emotions... such as, what? What do you mean by emotions?” (Teacher 3).

Face-to-face teaching... I can say the efficiency of course, If I am to compare it with the live courses. Efficiency, err, cooperation with the students, connection. Thus, I can summarize so. I have very much experienced its importance after the live courses. (Teacher 4).

“Err, more full-of-action... Yes, full of action. I mean, action is needed in English as you know. I mean, you can conduct a lesson better, but we can’t do this during remote teaching.” (Teacher 7).

The answers by some of the participants reveal that they don’t bring their feelings to their teaching environments. They sometimes faltered to think about their emotions regarding face-to-face education. Moreover, some teachers answered the question regarding their emotions for face-to-face education with irrelevant utterances.

Table 31. Emotions for Online Education

Themes	Frequency of Codes	Emotions
Negative Emotions	27	disappointed (2) tired (5) sad (5) anxious (2) lack of motivation (2) tranquil isolated sense of emptiness bored fear lacklustre insincerity troublesome challenging emotion of robotization feeling of insufficiency
Positive Emotions	5	powerful

happy
relaxed
goodwill
ambition

Irrelevant Answers

20

Table 31 reveals the participants' emotions for online education. When the themes are analyzed, it is clear that most of the emotions are negative ($f=27$) when compared to positive emotions ($f=5$).

"There is sadness err... because during online education people can't look at one another in the face." (Teacher 18).

I really feel tired during online education. I feel more tired than I do during face-to-face education. I mean, err, really, err, online education is a wearing process, for teachers. Err, I feel upset. Because I have a lot of students who don't attend classes even if they have the opportunities. (Teacher 16).

Another thing is err, speaking of the students, people out there are like "let the teacher lecture and let me listen" during remote teaching. I mean, they put the phone aside, and you don't know whether they are listening or not. I mean, err, my motivation falls. So, this has a bad influence on me. (Teacher 7).

As it is seen in the answers, some teachers have negative emotions because their students are badly affected throughout the process of current emergency remote teaching.

"Err, however, I feel happy at the same time, because we can reach out to our students no matter what. For this occasion, I think we utilize online education in a good way." (Teacher 16).

"I can say ambition again. I started to work more. I mean, it's to be more useful for the children now, in the same way." (Teacher 4).

The answers by the participants above reveal that some of the positive emotions exist because of the fact that the participants are able to reach out to their students and be beneficial for them.

However, there are irrelevant answers ($f=20$) yet again regarding the emotions for online education. Some teachers cannot think of emotions related to their jobs, or they just give irrelevant answers.

Especially for our branch, face-to-face education is a must. To be honest, online education hasn't been too much fruitful for us. I haven't gotten efficiency out of online education at all. I couldn't carry out the things as I had wished, I mean, the education. (Teacher 13).

"More innovative, less comprehensive, with abundancy of materials." (Teacher 5).

Also, some of the participants needed some time to think about their emotions.

"Yeah, my feelings towards online education umm, yeah... Questions are kind of hard. I haven't thought about it ehehe." (Teacher 11).

The irrelevant answers by the participants when they are asked to reveal their emotions for online education reveal that the teachers are refraining from bringing their emotions to their teaching environments.

Summing up the topic of teacher emotions regarding face-to-face and online education, participants mostly have positive emotions for face-to-face education; on the other hand, they mostly have negative emotions for online education. However, for both circumstances, there are irrelevant answers by the teachers when they are asked about their emotions. For this reason, the irrelevant answers are not presented in the tables. Some of the participants are inclined to keep their emotions away from their professions.

4.2.3. Difficulties of Face-to-Face and Online Education

This section includes the themes that emerged after the content analysis of the participants' answers regarding the difficulties they experienced during face-to-face and

online education. The themes, codes, and the number of participants are presented in the table below.

Table 32. Themes and Codes Regarding the Difficulties of Face-to-Face and Online Education

Themes	Codes	The Number of Participants
Difficulties Related to Face-to-Face Education	Infrastructure-Related Issues	8
	Classroom Management	5
	Student Profile	4
	Crowded Classes	2
	Environmental Effects on Students	2
	Physical Fatigue	2
	Students Not Speaking Turkish	1
Difficulties Related to Online Education	Lack of Student Attendance	12
	Infrastructure-Related Issues	8
	Lack of Interaction	8
	Not Being Able to Monitor	3
	Assessment Related Issues	2
	Work and Home Life Merges Negatively	2
	Students' Lack of Technological Knowledge	1

Table 32 demonstrates the difficulties that the participants experienced for face-to-face education and online education. For the first theme “difficulties related to face-to-face education,” there are seven codes. Some of the participants ($f=8$) reported some infrastructure-related issues during face-to-face education. On the other hand, some participants ($f=5$) stated that they experience difficulties while managing the classroom. Furthermore, some of the participants ($f=4$) stated some problems regarding the students' profiles. Also, crowded classes posed difficulties for some of the participants ($f=2$). On the other hand, some of the participants ($f=2$) reported some negative environmental effects on the students which include high academic expectancies by the parents and the literal environmental effects such as the temperature in the classroom being either too hot or too cold. Some participants($f=2$) stated that they experience difficulties due to physical fatigue; and lastly, one participant stated that they had difficulties because some of their students do not speak Turkish.

Considering the second theme “difficulties related to the online education”, more than half of the participants ($f=12$) experienced difficulties because of the lack of student participation. Also, nearly half of the participants ($f=8$) stated that they experience difficulties rooting from infrastructure-related issues. Moreover, nearly half of the participants ($f=8$) stated that there is a lack of interaction during the online classes which is another difficulty experienced by them. On the other hand, there are some difficulties reported by the participants which include not being able to monitor the students ($f=3$), and assessment-related issues ($f=2$). Lastly, one participant reported difficulty caused by students’ lack of technological knowledge.

4.2.3.1. Difficulties Related to Face-to-Face Education

This theme includes seven codes. The most common difficulties reported by the participants ($f=8$) are infrastructure-related issues.

...we have problems with the internet nowadays, sir. Actually, I am a teacher who constantly seeks to utilize the technology, directly visual... let the children see visually as well. For example, let us do listening, and everything... let us do writing as well. I mean, I try to do all of them. Actually, I don’t know how to conduct the lesson when there is no internet. (Teacher 7).

Oh, what are the difficulties? You can’t find every technological device in the classroom environment. For example, you can’t share content immediately. You can’t just connect to the internet and download things. Yes, we had some difficulties in that regard. (Teacher 13).

As Teacher 7 and Teacher 13 reported, the infrastructural problems cause some difficulties while conducting face-to-face education. They experience those kinds of difficulties because they cannot use the materials they needed during the classes when there is a lack of necessary technological devices and internet connection.

The participants ($f=5$) also experience some difficulties with classroom management.

“As for the difficulties, they may be some problems related to classroom management.” (Teacher 10).

“The most remarkable part for me is that classroom management is more challenging during face-to-face education.” (Teacher 17).

As they report in the answer above, classroom management is one of the biggest problems while conducting face-to-face education. Most particularly, when the answer by Teacher 17 is analysed, some of the participants find it more difficult when it comes down to managing a face-to-face class.

Another difficulty experienced by the participants ($f=4$) has to do with the student profiles.

...because the thing that I have realized in general with my students is that they are extremely prejudiced to foreign language, learning a foreign language. They find it so hard and unnecessary. This was the biggest problem for me. Second, students had a lack of self-esteem. I mean, you can't active students especially in terms of speaking skills. Err, because their self-esteem is not enough in that regard, and also err, I have realized that we observe too much peer pressure in this process. (Teacher 12).

As the participants above tell, student profile is another determiner of the difficulties experienced during face-to-face education. Students' being prejudiced against the foreign language, or not having enough self-esteem, amplified by peer pressure, cause some difficulties.

Some of the participants ($f=2$) report that crowded classes cause difficulties for them, while some others ($f=2$) report some environmental effects on the students. Also, there are participants ($f=2$) reporting they experience physical fatigue during face-to-face education.

“However, we were getting tired during face-to-face education, because our classes were crowded which is generally due to our school's structure.” (Teacher 2).

As it is reported by Teacher 2, crowded classes are causing difficulties for them such as physical fatigue during face-to-face education.

4.2.3.2. Difficulties Related to Online Education

There are seven codes under this theme, and the most prominent one is the lack of student attendance during online classes, reported by more than half of the participants ($f=12$).

Err, as for difficulties, I can say, as I have just said, it is hard to have a school atmosphere going on when you are at home, speaking both students' and my motivation. Not all students may have the opportunities. For example, I had a student living in a house with one stove, they had TV running in the background, or they had guests; however, the child attended to the class, I had to turn off their microphone. However, I didn't know whether they listen to me or not. (Teacher 7).

As for online education, the biggest difficulty that I have experienced is to gather the students... Err... gathering them for the lesson. Nobody would want to lecture a class when only two of the thirty students participate in the lesson, everybody would want every single one of them to join, but you know, it's the pandemic, students' opportunities, internet infrastructure, connection problems, and so on. This is the biggest problem, the lack of students in online education. (Teacher 15).

As Teacher 7 reports, the difficulty can cause by the participation even the student attended. Because the atmosphere that the student has to attend the online classes is not suitable, they can't participate in the class enough. Moreover, as Teacher 15 reports, lack of student attendance during online classes causes difficulties and makes them feel less motivated to teach.

Also, for online education, infrastructure-related problems cause difficulties for nearly half of the participants ($f=8$).

Err, we had many problems because of the infrastructure of EBA and Zoom, and because of the internet, especially the internet. Also, the children didn't have the opportunity. We had many problems in that respect. I couldn't reach out to every child. (Teacher 2).

The first and foremost problem that I have encountered during online education, how to say that, could we call it infrastructure, I'm not sure, I mean the system... the

problems about the system... I mean, the loss of connections, weak connections, weak communication. (Teacher 17).

As Teacher 2 and Teacher 17 report, infrastructure-related issues cause difficulties for the teachers. These include learning management systems, online education software, and internet connection.

Another difficulty reported by the participants ($f=8$) is that there is not enough interaction during conducting online education.

"They attend while they are lying or sitting. It is not so efficient after all. Moreover, the child goes on a visit and attends the class there. They can't turn on their voice and answer when we ask." (Teacher 10).

"The problems, as far as I mentioned, the first one and maybe the biggest one is lack of interaction. Yeah, there are some black screens in front of us. I cannot see the faces of my students." (Teacher 11).

I mean, where are they, are they at home, at a café, outside? Are they with you at that moment? Are busy with the lesson? You can't just figure these out. Err, you don't have the chance to figure those out their videos are off. The children can't enough... If they are not ready at that moment, you can't help them focus on the lesson. (Teacher 13).

As the participants above report, they experience difficulties because of a lack of interaction during online classes. Students turn off their microphones and videos and they can't turn them on when asked. Also, this lack of interaction affects the teacher's way of teaching, as Teacher 13 reports. They are not happy with the issue of not being able to attract students' attention for the lesson.

It is also worth noting that some of the participants ($f=2$), experience difficulties when the work and home life merge.

... I really struggle to adjust the things at home and proceed with teaching online. Because I have two children. My elder daughter always attends live classes, and at the same time, she takes supplementary courses. She has to go outside. I ferry her

around. And also, I have live classes, and I have a reading hour after all. Or, there are occasions where I must look after my younger daughter. I haven't been able to adapt these into my life yet. I couldn't find the balance, create such a schedule, even though a year has passed. It is really psychologically hard for me to cope with this. Because I am neither at home nor at work, sir. (Teacher 13).

As Teacher 13 reports, the merging of work and home life caused them to experience difficulties. Having to teach online and taking care of the children causes difficulties, and this issue can't easily be solved by just getting familiar with this lifestyle. Reportedly, they had been experiencing this difficulty for a year as the interview was being conducted.

4.2.4. Conveniences of Face-to-Face and Online Education

The participants are also asked to talk about the conveniences they had during teaching both face-to-face and online classes.

Table 33. Themes and Codes Regarding the Conveniences of Face-to-Face and Online Education

Themes	Codes	The Number of Participants
Conveniences Related to Face-to-Face Education	Interaction	11
	Being able to Monitor Students	8
	Having more Control over the Classroom	2
Conveniences Related to Online Education	Having to be able to use Digital Materials	11
	Individual Tracking	3
	Classroom Management is Easier	2
	Improved Technological Knowledge - Students	2
	Flexible	2
	Work and Home Life Merges Positively	1
	Online Education is More Efficient	1
	Improved Technological Knowledge - Teachers	1

Table 33 demonstrates the themes, related codes, and the number of participants regarding the conveniences experienced by the participants regarding both face-to-face and online education. As for the conveniences experienced by the participants regarding face-to-face education, the most prominent one is the component of interaction. More than half of the participants ($f=11$) reported the component of interaction is a big convenience during face-to-face education. Furthermore, nearly half of the participants ($f=8$) reported that they experienced conveniences because they were able to monitor the students during face-to-face education. Lastly, some of the participants ($f=2$) reported that they experience the convenience of having more control over the classroom.

As for the conveniences regarding online education, more than half of the participants ($f=11$) reported that they have the convenience of having to be able to use digital materials. Other conveniences regarding online education reported by the participants include individual tracking ($f=3$), easier classroom management ($f=2$), students getting better at the technology ($f=2$), flexibility- mostly time-wise- ($f=2$), work and home life merging positively ($f=1$), providing more efficient education ($f=1$), improved technological knowledge as a teacher ($f=1$).

4.2.4.1. Conveniences Related to Face-to-Face Education

The interaction component is a big convenience for more than half of the participants ($f=11$) regarding face-to-face education.

So, the advantages that face-to-face education provide umm, yeah, the biggest one is “we are all in an actual classroom setting”. The level of interaction is so high. I really prefer having it in a classroom setting, or in a lesson, in a class. Because if I cannot do that, if I cannot see the faces of my students, umm, if I cannot interact with them in a way, umm yeah, it decreases my motivation actually. I need that interaction with my students. And also, I actually enjoy having or doing umm group activities while teaching, and I believe that, I have realised that, I have experienced that the best ways of such kind of activities, group activities, or sometimes individual activities, the best setting is umm, or the best way to do it is umm doing it in a face-to-face education setting actually, in an actual classroom. So, that is another big advantage of, for me, umm I mean for face-to-face education, yeah. (Teacher 11).

As reported by Teacher 11, the interaction component provides convenience for them. It also motivates them to be in a real classroom atmosphere. Moreover, the component of interaction enables the current participant to utilize some of the group or individual activities that are more efficient during face-to-face education.

Being able to monitor the students is another convenience of face-to-face education reported by nearly half of the participants ($f=8$).

“As for the conveniences, we can monitor the pupils simultaneously. The pupils do not... cannot focus on other stuff in the classroom environment. Even if they do, we can monitor them. So, this is the convenience.” (Teacher 3).

So, we teach err... our lesson, I mean, we teach a language to the children after all, and keeping up the mutual dialogue... I mean, do they understand what we have taught, I mean, it enables us to see whether or not we could receive the fruits of our labour (Teacher 6).

As reported by Teacher 3 and Teacher 6, being able to monitor the students during a face-to-face lesson provides convenience for them. In this way, they can get the efficiency out of being able to monitor whether the students' attentions are up and being able to monitor students' level of understanding.

4.2.4.2. Conveniences Related to Online Education

The first and foremost convenience of the online education experienced by the participants ($f=11$), is being able to use digital materials.

“Err, during online education... we can use the technology effectively no matter what. We can fully make use of websites, videos, interactive games, and all of this stuff. I think the biggest advantage, of online education, is this.” (Teacher 3).

As for the conveniences, for example, it has a technological convenience. I mean, we can instantly present the children with different kinds of sources with a click of a button. Other than that, it doesn't, to be honest, have conveniences. (Teacher 6).

So, when it comes to the advantages, umm yeah. It is actually quite easier for me to make use of some applications instantly, or effectively, or easily in online teaching.

For example, I try to make use of such applications as Kahoot, Quizizz, umm or, Padlet. I can show or I can... Most of the time I use some videos or screenshots features. It is a lot easier to share those materials with my students and to use those applications actively at the same time. It is a lot easier for me or for my students in an online setting. (Teacher 11).

As Teacher 3, Teacher 6, and Teacher 11 reports, the advantage of the ability to find and use digital materials during online classes brought convenience for the participants.

Another convenience of the online education reported by the participants ($f=3$) is the ability to track students individually.

I mean we don't have many chances to take care of them individually during face-to-face teaching. I have benefitted from remote teaching in that way. I mean, for the students who are more prone to learning, we had coaching... we had students whom we coached. I mean, like a tutoring session with them on Zoom, and so on. Err, I have benefitted from remote teaching in this way during this period, of course. I proceeded at a much slower pace for a student, a student who learns more slowly. However, I tried to proceed more, to proceed faster with a student who learns at a faster pace. Err, like this way, by considering individual learning paces, it turned out to be better. That is, we didn't have such chances during face-to-face education, I mean, you have to proceed at an average pace in the classroom. (Teacher 4).

As Teacher 4 reports, online education enabled them to track the students individually and teach some of them in their own pace. On the flip side, they couldn't do it during face-to-face education because of some reason.

It is worth noting that the merging of work and home is regarded as a convenience by one of the participants.

As for the conveniences of online education, let me say, it is the easiness of working from home, err, I mean, you are at home and you do your job. Because you are in a home atmosphere, you are relaxed, err, I mean, you aren't even in a formal atmosphere. However, you have to provide that formality during the lesson. I mean,

being in a home atmosphere was the biggest convenience of online education. (Teacher 15).

As they report, online education provides the convenience of not having to do your job in a formal environment. On the flip side, they report that they feel the obligation to set a formal atmosphere during conducting a face-to-face class.

4.2.5 Perceptions of Professional Needs Regarding Face-to-Face and Online Education

This section includes three main themes which are perceptions of professional needs regarding face-to-face, online and hybrid education. Participants are asked if they would like to attend seminars and if they should attend what would be the titles of these seminars in case of only face-to-face education, in case of only online education, and in case of hybrid education. Also, there was another question which asked the participants how it would be to teach for the first time in an online environment, and about what would they feel lacking. The answers are coded, and participants' professional needs are tried to be revealed. However, emerged codes outside of the answers to these three questions are also coded.

First of all, it is decided to be asked to the participants if they would like to proceed to the interview in English or Turkish as the course of the interview period. Most of the participants ($f=15$) wanted to or hinted to, proceed in Turkish, and only one of the participants indicated that they would like to proceed with the interview in English.

“Turkish would feel more comfortable.” (Teacher 3).

“I mean, if it won’t pose a problem, we can conduct the interview in Turkish.” (Teacher 10).

“Let’s do it in Turkish. My English may not be enough.” (Teacher 14).

These answers make it clear that most of the participants refrain from giving an interview in English.

“Err, secondly, I would wish to improve myself much more in terms of speaking, although generally err... it doesn’t happen so often during the classes, as I don’t

have any problems giving the directions now, but err... more err..., in terms of the speaking activities that I can carry out with my students.” (Teacher 12).

As it is clear, participants perceive the lacking in their speaking skills, being one of the components of the content knowledge of an English Language Teacher.

“As you wish, sir, however as you wish.” (Teacher 11).

Teacher 11 answered as above when he is asked whether to proceed with the interview in Turkish or in English. They hinted that it is not a real problem whether or not proceeding in English or Turkish. Having been proceeded in English, the interview with Teacher 11 concluded successfully in English.

Table 34. Themes and Codes Regarding the Perceptions of Professional Needs on Face-to-Face, Online, and Hybrid Education

Themes	Codes	The Number of Participants
Perceptions of Professional Needs for Face-to-Face Education	Pedagogical Knowledge	5
	How to Recover Pupils Psychologically	4
	Education on Technology in General	4
	Pedagogical Content Knowledge	3
	Preparing for the Next Emergency Situation	2
	How to Compensate the Educational Loses	2
	Personal Development	1
Perceptions of Professional Needs for Online Education	Education on Technology in General	13
	How to Adapt Education for Online Environment	10
	Former Education on Technology is not Helpful	9
	Undergraduate Education doesn't Contribute Much to Online Education	8
	Creating Content and Materials for Online Education	5

Perceptions of Professional Needs for Hybrid Education	The necessity of Online Teaching Experience	4
	Curriculum-wise Education	5
	Methodologies for Hybrid Education	4
	Pedagogical Content Knowledge	2
	Education on Technology in General	2
	Creating Content and Materials	1
	Pedagogical Knowledge	1
	How to Recover Pupils Psychologically	1
	Time Management	1
	Hybrid Education from the Scratch	1

Table 34 demonstrates the themes, related codes, and the number of participants regarding the perceptions of professional needs of the participants for face-to-face education, online education, and hybrid education. The first theme “perceptions of professional needs for face-to-face education includes pedagogical knowledge ($f=5$), how to recover pupils psychologically ($f=4$), education in technology in general ($f=4$), pedagogical content knowledge ($f=3$), preparing for the next emergency situation ($f=2$), how to compensate the educational loses ($f=2$), and personal development ($f=1$).

The second theme “perceptions of professional needs for online education” includes codes of education on technology in general ($f=13$), how to adapt education for the online environment ($f=10$), former education on technology is not helpful ($f=9$), undergraduate education doesn’t contribute much to online education ($f=8$), creating content and materials for online education ($f=5$), the necessity of online teaching experience ($f=4$).

The third theme “perceptions of professional needs for hybrid education” includes codes of curriculum-wise education ($f=5$), methodologies for hybrid education ($f=4$), pedagogical content knowledge ($f=2$), education on technology in general ($f=2$), creating content and materials ($f=1$), pedagogical knowledge ($f=1$), how to recover pupils psychologically ($f=1$), time management ($f=1$), hybrid education from the scratch ($f=1$).

4.2.5.1. Perceptions of Professional Needs for Face-to-Face Education

To begin with, some of the teachers ($f=5$) perceived the need to improve their pedagogical knowledge on many levels.

“Err, I don’t know, but it would probably be seminars on classroom management, on motivation, or things like these.” (Teacher 2).

I would have considered more student-centred ones. “How can I further activate the student?”, “How can I receive feedback better?”, “How can I conduct a reliable assessment?”, more like those. I would want to attend seminars whom titles are like those. (Teacher 8).

When the answers by the Teacher 2 and Teacher 8 are analysed, it is understood that the need to improve their pedagogical knowledge is perceived by themselves. First of all, they would like to improve their classroom management and the way they motivate the class. Also, they would like to improve themselves in the fields of giving feedback and assessing the students.

Unfortunately, during this period, it was hard to reach out to the students, to listen to them; or even if we were able to reach out to them, err, it got harder to hear from them. Because everybody became more individualized. We could keep them as a whole neither by using WhatsApp groups, nor classes, nor live classes. Actually, we lost the class culture, unfortunately, during online education. Class consciousness is lost. It was not so during face-to-face education, of course. I mean, we were able to set up this wholeness and class consciousness because err, it is an obligation for students to attend classes, and because they have to be in interaction with both their friends and teachers. So, training on counselling, I mean, counselling, key points that a class counsellor teacher should take care of, or what should we do with the frailties and weaknesses of students. What can I do to keep them in class consciousness, and to make them adopt this psychology? I mean, of course, I could attend training sessions on this topic also. (Teacher 15).

As Teacher 15 reports, there are emerging problems among the students after the phase of emergency online education. Thus, this participant reported that they would like to improve their pedagogical knowledge in terms of guiding and counselling their students in order to prepare them for face-to-face education again, inject them with the classroom culture, and adapt them psychologically for the classroom culture.

Moreover, some of the participants ($f=4$) perceived the professional need of having to be able to recover the students psychologically.

For example, the pupils coming after an eight-to-ten week of online education... they have attention deficiency, they seemingly are learning little bit slower. For example, I mean, to recover children from these situations, to return them back to old days, what could we do about these. I would attend this sort of a seminar, if there is such kind of one, I mean. (Teacher 3).

Err, especially, I would want professional seminars to be held regarding the psychological effects of this period on the students, the psychological problems that the pandemic created. Err, I would attend all of the seminars regarding how to revert all of these losses back to the old days during face-to-face education. (Teacher 9).

As Teacher 3 and Teacher 9 report, some of the students were negatively affected during the emergency remote teaching period, and these teachers would like to improve themselves in helping their students recover back to their old selves. These negative effects include psychological problems for the students.

That being said, some of the participants ($f=4$) stated they would like to attend seminars related to technology in general.

...as I said, the things such as technology, computer language, or the internet, infrastructure, or connection... I would definitely attend a professional development seminar on these topics. And, if it is necessary, I would attend seminars with certification. Err, I would attend seminars or training sessions on let's say technology... (Teacher 15).

As Teacher 15 reports, they would like to improve their technological knowledge.

On the other hand, some of the participants ($f=3$) reported the need of improving pedagogical content knowledge

I would want to attend them more on my branch, to be honest. Because I am aware of the fact that we really have problems in English language teaching as a county. "How can we go further in language teaching?", "How can we make language learning more permanent?" And, "Are there techniques other than the ones we know and be accustomed to? Can we measure their efficiency?" "If we can measure them, how can we apply them in our country?" and so on. I would attend those kinds of seminars which broad in scope, you know. I would attend. (Teacher 14).

As Teacher 14 reports, they would like to improve the way teach the content of their branch, which is English on this occasion. They would like to improve their pedagogical content knowledge so that they would be better at teaching the language, and they can expand their knowledge in required methodologies for language teaching, and they can assess the content they taught better.

4.2.5.2. Perceptions of Professional Needs for Online Education

On the side of online education, the most outstanding professional need by more than half of the participants ($f=13$) is education on technology in general.

It could be the technical part of the job. I mean, just having the knowledge of English, maths is not enough; it is also important to know the technology, to use technology. For this reason, there could be titles on the technical part of this job. For example, what are we to do when problems with audio occurs, video... what we are to do when we have problems with the video? We experience loss of connection, so there could be titles on these also. (Teacher 3).

As for the pieces of training on these online... Of course, it is possible that the pandemic couldn't be foreseen back then, but at least we could be trained, or we could have a class on using technology with English rather than just Word and Excel on which we were trained during information technologies classes. That could be good. (Teacher 5).

I mean, as I said, I would err... really want to get the benefit out of this Web 2.0 tools. There is really good stuff out there. It is like an ocean; all we know is a little. There are many more things indeed. Regarding these, err, I would like to attend informatic meetings, for sure. About Web 2.0 tools (Teacher 16).

As Teacher 3, Teacher 5, and Teacher 16 report, the participants perceived the professional need of getting better at technology in general. The phrase 'technology in general' includes a wide range of topics from troubleshooting when a technological problem occurs to having a better grasp of Web 2.0. tools

Likewise, more than half of the participants ($f=10$) perceived the professional need of having to be able to adapt the education for online education.

Nevertheless, we surely would like to attend seminars on the technical part of the job, or seminars on how to improve this job further. About the titles of these... on online education. Actually, we learned many different things for children or adults during our face-to-face university education. "How to adapt these to online education", "How to set up interaction with young learners, intermediate learner groups, or advanced learners in online education". Actually, titles could be about these (Teacher 3).

I mean, speaking of my branch especially; "How can I benefit from websites, and which websites can I benefit from?" err, or "Quiz-preparing training." I mean, how to solve questions with the children simultaneously, and how to see their answers, I mean their wrong and right answer, and their average. I would want to learn this kind of system. (Teacher 7).

Other than that, we suffered from inexperience as it was a new period, I mean. Err, we suffered from inexperience considering how can we adapt the activities we would normally carry out at the school into the online education procedures, we suffered from this dilemma. "We used to do this like that at the school, but now how are we going to do it in online education, in front of a computer?" We really suffered from this dilemma. (Teacher 12).

As the participants above report, they perceived the professional need of how to adapt the education to the online environment. This includes how to teach appropriately for students' levels, how to utilize technological tools for online education, how to conduct assessments online, and how to adapt teaching methodologies for an online environment.

On the other hand, half of the participants ($f=9$) perceived that the education on the technology they received in advance was not really effective during online education

Sir, we did not receive much education on technology, I mean, other than classes during our university years, like using computer, Word, Excel. Other than that, we have learned how to conduct classes on Zoom by doing it, after we transitioned towards online education. (Teacher 5).

They didn't show these beforehand. For example, there were such means as making students solve tests around this time in the evenings, and also getting their answers immediately, I have learned all of these after I started teaching. And I would want these lessons to be in the university. I currently work with secondary schoolers. I have students preparing for LGS. For this reason, I would want to be more accustomed to technology. (Teacher 14).

As Teacher 5 and Teacher 14 report, former education they have received was not so helpful for them while teaching online. They reported that they happened to learn the necessary technological knowledge by themselves after started teaching.

Also, nearly half of the participants ($f=8$) reported that they perceived the fact that the undergraduate education they have received didn't contribute much when they are to teach online.

Err, you know we mostly proceed by using EBA and Zoom. Err, I didn't know how to use these. Now I remember; frankly speaking, it would be traumatic for me. Because, classes are all about theoretical knowledge. Also our micro teaching wasn't so fruitful actually. Students are needed to be held under a technological [education] process. However, applied courses are required. We attended computer courses, but it was vain actually... They only taught us to use Word. (Teacher 1).

Sir, we were taught on face-to-face education during university. We were trained, as English Teachers, even on vocabulary choice while teaching vocabulary, or handing out a worksheet. Let me say, those had nothing to do with the education which is provided in an online atmosphere. Of course, this is because of the unpredictability of the pandemic back then. Err, we would have many deficiencies if we were to directly start teaching in online environments. (Teacher 5).

As Teacher 1 and Teacher 5 report, the undergraduate education they have received didn't contribute to them necessary enough when they are to conduct online education. This issue has to do with the undergraduate education provided to them being either too superficial or theoretical. Thus, the achievements that their undergraduate programs provide are not necessarily transferred into an online teaching atmosphere in which a wide range of different qualities is required.

Moreover, some of the participants ($f=5$) reported that they perceived the professional need of how to create content and materials for the online education environment.

Let me say, we use materials ready on the internet, or we use what we call internet materials on the web sites. Seminars on developing materials appropriate for my own students, or creating my own website... For example, a website that I can upload my songs and all... Normally, we do these in online teaching [face-to-face teaching*], by preparing worksheets ourselves, and use those same materials every year after updating them. If these are to continue in online education with our practices, I would upload them on websites, and create my own website. Likewise, by updating them with the helps of other teachers. Err, I could utilize them. I would attend a training on content, developing content I mean, sir. (Teacher 5).

"I would want to learn about this, I mean arranging visuals via photoshop, like creating sources on my own, creating listening texts, etc., I would want to learn how to provide these." (Teacher 6).

As the Teacher 5 and Teacher 6 report, they would like to create their own content or materials for the online education environment. They would like to be able to create their own websites and upload their materials there and create visual and audial materials.

Some other participants ($f=4$) perceived the need for online teaching experience as a class during the undergraduate years, just like the normal teaching experience that undergraduate teacher training programs provide.

Now, speaking of the knowledge "what to do, how to do?", like those. Speaking of the experience, now, for instance, we undergo practicum courses in face-to-face classes during our undergraduate education. For instance, we have practicum courses as well. We observe other teachers. Also, we lecture classes as well. We recorded videos about these, for example. Micro teaching... just like these all, like the practicum of online education... I would have wanted to conduct online classes with a group, with pupils, for example, during the university. (Teacher 3).

As you know, we, err, we were interns during the last year of the university. We undertake practicum. Monitoring for one term and practicing for one term. I mean, just like this; monitoring for one term, and practicing for one term; I mean, I wish we

had such classes during the university years as well. I wish I taught a student err, or someone who has no idea of English like a pre-school student English during university. I mean, I had such an opportunity, I would be better and more prepared as I would have had previous experience. (Teacher 7).

As Teacher 3 and Teacher 7 report, they perceived the need of online teaching practicum as it was done for face-to-face education. They stated that they would be more prepared if they were to undergo online teaching practicum classes including online classroom experience and online teaching experience.

4.2.5.3. Perceptions of Professional Needs for Hybrid Education

To start with, some of the participants ($f=5$) perceived the professional need of receiving a curriculum-wise education on hybrid education.

Or, in the hybrid model, which lessons are, hm-hm, are to be carried out online, which lessons are to be carried out face-to-face, or how good it is to proceed with the hybrid model. Is it an advantage for the students, I would apparently want seminars to find answers for my questions. (Teacher 9).

"I would attend the seminars to carry out the hybrid model better. Err, I would want to improve myself to combine, to combine in a better way, the education that I provide face-to-face and online education." (Teacher 10).

As Teacher 9 and Teacher 10 report, they perceived the need of learning the possible curriculum of a hybrid education period. They reported that they would like to understand the nature of hybrid education and divide the curriculum accordingly for face-to-face and online parts of the hybrid system.

Moreover, some of the participants ($f=4$) perceived the professional need of getting better at the methodologies that are to be used during a hybrid education period.

"Or, err, "Common grounds of face-to-face and online education, and the suitable methodologies to be used in both" could be a good seminar." (Teacher 2).

"What could be the differences in teaching languages in online and face-to-face education?" "What techniques should we use?" "Which of them are more suitable

for face-to-face, and which of them are more suitable for online?” and so on. I would want those kinds of seminars, the seminars with these titles. (Teacher 14).

As Teacher 2 and Teacher 14 report, they would like to get better at how to choose required methodologies for face-to-face and online parts of the hybrid education.

On the other hand, some of the participants ($f=2$) perceived the need of improving their pedagogical content knowledge.

“I would attend, and again my priority would be about providing active student participation, changing students’ thoughts towards learning languages positively. These works would be my priority.” (Teacher 12).

As Teacher 12 reports, they would like to guide their students so that they can learn the content, which is the English Language, better. Furthermore, there is one participant perceiving the professional need of improving their pedagogical knowledge when there is a hybrid education scenario.

Actually, I want to attend the stuff, let me say, I would want to attend informatic meetings regarding guiding the children. Because the students will say during this process “Duh online, duh face-to-face, things get mixed up” and so on. I would want to attend informatic meetings about these in order to guide them better. To be able to find the best of both worlds. (Teacher 16).

As Teacher 16 reports, guiding the students when there is a hybrid scenario would be a topic that they consider necessary. They state that students would be affected by the continuous switching from and face-to-face and online education. They would like to help their students better on this issue.

It is worth noting that one of the participants stated that they perceived the need of receiving an education in terms of time management regarding hybrid education.

Because, let me speak of myself, as I teach both the twelfth graders and ninth, tenth, and eleventh graders, I have to teach at school, and in the afternoon, I have to teach online. I mean, considering this aspect, I would consider attending seminars on time management, for example. “How can I spend my time more efficiently?”, “When should I spare my time for my family?” and err “In what ways should I

conduct online education?” or “What should I do during face-to-face education?” I mean, I would precisely want to attend a seminar on time management. Because it is a problematic issue, as I said, if you have both face-to-face classes and online classes, your day will most probably be over. When you sit down in the evening, and when you have a daughter... (Teacher 15).

As it is reported by Teacher 15, he would like to manage their time better. This utterance was given during a hybrid education period, and they perceived the need to manage the time better between work and home life.



CHAPTER V

5. DISCUSSION

In this section, quantitative and qualitative findings for each research question are discussed and tried to be answered. The first five research questions are tried to be answered by the quantitative data gathered from 185 in-service English Language Teachers working in primary, secondary, and high state schools in Bingöl, Turkey. The sixth research question is tried to be answered by the qualitative data gathered from 18 interviewees selected out of these 185 participants.

5.1. Discussion of the Quantitative Findings

As explained above, the quantitative findings are discussed for the first, second, third, fourth, and fifth research questions. The data were gathered using an online adapted TPACK-EFL survey which was developed by Başer et al. (2016). The participants were to answer each of the items in this survey twice, for face-to-face and online education. Each single research question mentioned above has its own title. Before starting, it is necessary to mention that the tables regarding quantitative findings include all seven categories of the TPACK framework. The eighth line named TPACK-EFL, which is also the name of the instrument, shows the overall perceived TPACK levels. The section named TPACK is the section of the research instrument used in this study and includes 4 items. Overall perceived TPACK levels are found after analysing all 39 items in the instrument and given in the tables as “TPACK-EFL”. This information is repeated across the discussion section occasionally to prevent confusion.

5.1.1 Discussion of the Findings Related to the First Research Question

“What are in-service EFL teachers’ perceived TPACK levels for face-to-face education?” is the question which is discussed in the light of the related findings. For face-to-face education, participants’ perceived TPACK levels are high, all areas combined. Total perceived TPACK levels can be seen in the tables of the finding section as “TPACK-EFL”. EFL teachers’ scoring high TPACK levels are in line with the findings of others

(Tunçer, 2014; Şaraç, 2015; Delen, 2016; Şenen, 2019; Dinçer, 2020; Yıldız, 2020; Atan, 2021; Lamminpää, 2021). As for the sub-categories of the framework, participants got the highest score in CK, which is followed by PCK. Participants' perceived CK levels are between high and very high levels, so the perceived PCK levels are. Not surprisingly, their perceived PK levels are also between high and very high levels, being a little bit less than the former two knowledge areas mentioned. When the technology component is kept outside, the participants have nearly very high levels of perceived CK, PK, and PCK. However, when the next highest knowledge area, TPK, is analysed, it is noticeable that the levels are still between high and very high, being closer to the high. This might be explained by their next highest knowledge area, TK, which is moderate to high, closer to the latter. The situation is nearly the same with the perceived TPACK area, which is again moderate to high, closer to the latter. As for the last knowledge area, participants again got moderate to high levels in perceived TCK levels, being a little bit less close to the high end. Overall, it can be concluded that participants perceive that they have around high levels of perceived CK, PK, and PCK, but when the T component is added, they perceive they are less competent. However, TK, TCK, TPK, and TPACK levels are still high or nearly high. Moreover, their highest scores for both face-to-face and online education contexts are their perceived CK levels. A similar trend can be seen in the Indonesian context revealed by Mukminin et al. (2020); they revealed that Indonesian EFL teachers' highest knowledge area is CK, and there is lower -reportedly low- scores TK, TCK, and TPACK. On the other hand, Lamminpää (2021) revealed that Finnish EFL teachers got higher scores in TK along with other domains and the total TPACK.

As mentioned before, the original instrument by Başer et al. (2016) included Likert-9 items. However, the items are adapted for the current research into Likert-5 types. Thus, within the guide of reliability tests, this instrument keeps being reliable when the Likert-5 scale is chosen. Similarly, Lamminpää (2021) also used this survey instrument with the Likert-5 scale in their study.

5.1.2. Discussion of the Finding Related to the Second Research Question

"What are in-service EFL teachers' perceived TPACK levels for online education?" is the question which is discussed in the light of the related findings. Thus, participants' perceived TPACK levels for online education are relatively high, which is shown as TPACK-EFL in the tables. As mentioned earlier, this study is conducted in a way that participants can answer the items twice: for face-to-face and online education. When the participants think about their online teaching experiences, their perceived TPACK levels

go down a bit. This can also be seen in the sub-categories of the framework. Participants' perceived CK levels can be considered between high and really high, being a little bit lower than their perceived CK levels in face-to-face education. Moreover, participants' perceived PK levels for online education are high, being lower than their perceived PK levels for face-to-face education. Furthermore, participants' perceived TPK scores hold the third-highest rank among the sub-categories of the framework, which is relatively high. However, perceived TPK levels for online education are still lower than their perceived TPK levels for face-to-face education, again. Also, participants' perceived PCK levels for online education are relatively high, being lower than their perceived PCK for face-to-face education. On the other hand, participants' perceived TK levels for online education are moderate to high, being lower than their perceived TK levels for face-to-face education, again. As for the perceived TPACK levels for online education, it is again moderate to high, being lower than their perceived TPACK levels for face-to-face education. TPACK here is the division of the survey, not the total TPACK levels. Moreover, participants' perceived TCK levels for online education are moderate to high, being lower than their perceived TCK levels for face-to-face education. To sum up, participants' total perceived TPACK levels for online education are relatively high, but it is slightly lower than their total perceived TPACK levels for face-to-face education. Besides, the trend is the same considering every single sub-category of the framework. It is also worth noting that this is the first time that the TPACK-EFL survey by Başer et al. (2016) is utilized in order to measure in-service EFL teachers' perceived TPACK levels for online education.

5.1.3. Discussion of the Finding Related to the Third Research Question

"Do in-service EFL teachers' perceptions on their TPACK levels for face-to-face education and online education differ?" is the question which is discussed under the light of the related findings. Paired sample T-Test results also confirm that there is a statistically significant difference between the participants' perceived TPACK levels for face-to-face education and online education, as seen in the finding section in table 17 as "TPACK-EFL". It is not a surprise that the perceived TPACK levels change across face-to-face and online education, as the researchers emphasized the idea that online teaching requires a different set of competencies and roles mentioned by others (Berge, 1995; Anderson et al., 2001; Goodyear et al., 2001; Smith, 2005; Álvarez et al., 2009; Guasch et al., 2010; McGee et al., 2017; Rhode et al. 2017; Adnan, 2018; Martin et al., 2019). Thus, this may be the reason behind the change of their perceived TPACK levels across these two situations. As for the sub-categories of the framework, most of them also significantly

change across face-to-face and online education, when it comes to the participants' perceptions. However, no statistically significant difference was found between the participants' perceived TK and TCK levels for face-to-face education and online education. This change across the teaching environments may be explained with the interviewees' experiences in both educational contexts, which is explained in the discussion of the qualitative findings section.

5.1.4. Discussion of the Findings Related to the Fourth and Fifth Research Questions

“Do in-service EFL teachers' perceptions on their TPACK levels change across demographics as to face-to-face education?”, and “Do in-service EFL teachers' perceptions on their TPACK levels change across demographics as to online education?” are the questions which are discussed under the light of the related findings. Mann-Whitney- U Tests are done for both face-to-face and online education situations in order to find answers to the fourth and the fifth research questions. As for the genders of the participants, there is a statistically significant difference between the participants' perceived TPACK, shown in related tables as TPACK-EFL, levels for both face-to-face and online education. Starting with face-to-face education, male participants scored higher overall perceived TPACK levels than female participants. As for the sub-categories of the framework, statistically significant differences were found in perceived TK, CK, TCK, and TPACK levels regarding the genders of the participants. In all of these sub-categories mentioned, male participants got higher perceived levels. However, there is not a statistically significant difference among the genders regarding the participants' perceived PK, PCK, and TPK levels. As for online education, the situation is similar to the findings related to face-to-face education. Again, the male participants' perceived overall TPACK levels are statistically significantly higher than that of the female participants. Moreover, there are also statistically significant differences among the genders of the participants regarding their perceived TK, CK, TCK, and TPACK levels, which also indicate that male participants have higher perceived levels than female participants in all of these categories. On the other hand, there is not a statistically significant difference among the genders of the participants regarding their perceived PK, PCK, and TPK levels. To sum up, gender plays a relatively important role in determining the participants' perceived overall TPACK levels. Compared with the other findings, gender was not a determining factor in TPACK levels (Saraç, 2015; Atan, 2021). However, Alharbi (2021) revealed that female EFL teachers from Saudi Arabia got better scores than that of their male

counterparts, while others (Kozikoğlu & Babacan, 2019) revealed male EFL teachers got higher TPACK skills.

As for the participants' teaching experiences, Paired Samples T-Test are conducted. Thus, the results indicate that there is no statistically significant difference between the participants with 5 or fewer years of teaching experience and the participants with 6 or more years of teaching experience regarding their overall perceived TPACK, as well as all of the sub-categories of the framework when the results considering face-to-face education are considered. Similarly, Atan (2021) revealed that the number of years of teaching experience was not a significant factor in determining in-service EFL teachers' TPACK levels. On the contrary, results indicate that there is a statistically significant difference between the participants with 5 or fewer years of teaching experience and the participants with 6 or more years of teaching experience regarding their overall perceived TPACK levels, as well as their perceived TK, PCK, TCK, and TPK levels when the results of online education are analysed. In all of the mentioned categories, participants with 5 years or less teaching experience got higher perceived levels. However, the sub-categories of CK, PK, and TPACK do not hold statistically significant differences across teaching experiences regarding the results of online education. Thus, it can be concluded that teaching experience plays an important role when it comes to the participants' overall TPACK levels for online education, but it is not as strong determining the participants' perceived overall TPACK levels for face-to-face education. Considering the results for face-to-face and online education, it may be concluded that in-service EFL teachers with fewer years of teaching experience perceived themselves more competent for online education environment than the in-service EFL teachers with more years of teaching experience did - as Nazari et al. (2019) confirms novice EFL teachers got higher TK, TCK, TPK and TPACK levels than the experienced ones did – because of the fact that the online education context is all made up of technology.

As for the participants' current workplaces, the Kruskal-Wallis H test was conducted. Thus, the results indicate that there is not any statistically significant difference among the participants from different workplaces regarding their perceived overall TPACK levels regarding face-to-face education. The only significant difference is found in their perceived CK levels, which shows that the participants working in high schools got the highest perceived CK levels, respectively followed by the participants working in secondary schools and the participants working in primary schools. When the results considering online education are analysed, there is not any statistically significant difference among the participants from different workplaces regarding their overall perceived TPACK levels,

as well as all of the other sub-categories of the framework. Overall, it can be concluded that participants perceived overall TPACK levels for face-to-face or online education do not significantly change across their current workplaces. However, further research is needed to be done, as Cheng and Xie (2018) also expressed; teaching level and its relationship with TPACK has not been clearly revealed so far, and they revealed that teachers working at secondary schools had higher TPK than the ones teaching at primary schools.

As for the participants' departments of graduation, Mann-Whitney U Test is conducted. Starting with face-to-face education, there is not any statistically significant difference between the participants who graduated from English Language Teaching Departments and the participants who graduated from other related departments. The only statistically significant difference is found between the participants regarding their departments of graduation is their perceived CK levels. The participants who graduated from English Language Teaching Department got higher perceived CK levels than the participants who graduated from other departments. On the other hand, the situation is really different when it comes to the perceived TPACK levels for online education. The participants who graduated from English Language Teaching Departments got higher perceived overall TPACK levels, as well as TK, CK, PK, PCK, TPK levels, than the participants who graduated from other related departments, which is confirmed with a statistically significant difference. When it comes to the TCK and the TPACK sections of the survey, there is not any statistically significant difference among these two groups. So, it is fair to assume that the department of graduation is an important factor determining the perceived overall TPACK levels for online education, but it is not as strong for face-to-face education. The participants who graduated from English Language Teaching Department having higher perceived overall TPACK levels for online education than the other participants, who are mostly graduated from the English Language and Literature Department, could also be compared with the findings of Uçar and Yazici (2021), via which they revealed that pre-service teachers studying in English Language Teaching Department hold more positive attitudes than the students of English Language and Literature Department regarding Web. 2.0 tools for their own language learning purposes.

As for the participants' graduation degrees, Mann-Whitney U Tests are conducted. For face-to-face education, the participants who pursued post-graduate studies got higher perceived overall TPACK levels, as well as TK and TCK levels than the participants with undergraduate degrees. On the other hand, there are not any statistically significant differences among the participants' perceived CK, PK, PCK, TPK, and TPACK levels, not

to be confused with overall TPACK levels. For online education, participants' perceived overall TPACK levels, as well as their TK, TCK, TPK, and TPACK levels, statistically significantly changed on behalf of the participants who pursued post-graduate studies. However, there is not any statistically significant difference between the participants with undergraduate degrees and the participants with graduate and/or Ph.D. degrees regarding their perceived CK, PK, and PCK levels for online education. So, it can be concluded that the degree of graduation plays a relatively important role in determining the participants' perceived overall TPACK levels for both face-to-face and online education. This finding is slightly in line with others which revealed some students from various fields pursuing M.A in education (Hofer & Grandgenett, 2012) improved their TPACK throughout the process, and some students from various fields pursuing a distance M.A program which centralizes upon developing TPACK (Staus et al., 2014) showed improved perceived TPACK levels. However, further research needs to be done because the current study does not scrutinize the participants' M.A or Ph.D. areas, and the contents of their postgraduate studies. Also, there is not a normal distribution in the current sample.

5.2. Discussion of the Qualitative Findings

Although there is only one research question with requires qualitative findings in order to discuss, the research question itself has many layers. It includes participants' emotions, experiences, and their perceptions of professional needs for both of the teaching environments.

5.2.1. Discussion of the Finding Related to the Sixth Research Question

"What are in-service EFL teachers':

a) experiences in face-to-face and online education

b) emotions in face-to-face and online education

c) perceptions of their professional needs in face-to-face and online education?" is the question that is discussed in the light of the related findings. Regarding the experiences, there are three general themes for this section. The first theme includes contributions of former education and teaching experience. Findings reveal that participants reported different for this occasion. While more than half of the participants report that their previous teaching experience helped them, there are some participants who disagree.

Moreover, other researchers (Redmond, 2011) indicated that teachers felt the difference between the pedagogical differences between face-to-face and online education, which is a notion that can be compared with the teachers' not being able to make use of their former teaching experiences in this study. Interestingly, nearly half of the participants indicated that they learned online teaching by experiencing. Gao and Zhang (2020) also revealed EFL teachers got ready for online teaching by learning and exploring necessary competencies on their own. Also, Farrell (2021) stated that EFL teachers improved their digital competence during emergency remote teaching by trial and error. On the other hand, there were some participants stating that knowing the students beforehand is helpful. As Varışlı (2021) states, the lack of face-to-face interaction between the teacher and the students causes students to have problems in recognizing the authority as well as loss of motivation. Lastly, the participants' content knowledge helped them adapt to the online education environment. In other words, their English skills helped them learn the software utilized during online education more easily. Connectedly, there are researchers reporting that teachers perceived the need to learn English in order to be able to utilize Zoom software better during online education (Avcı & Güven, 2021). The second theme includes technology-related experiences. Participants reported ideas about the contributions of former education on technology being helpful during online education. Also, they reported that being accustomed to technology is helpful during online education. Can and Silman-Karanfil (2021) revealed that EFL teachers with high TPACK levels or who integrated technology into the education they had provided before the pandemic adapted to emergency remote teaching better. The third theme includes experiences regarding face-to-face education. Some of the participants reported that they find face-to-face education more beneficial. Other researchers (Cantürk & Cantürk, 2021) also indicated that online education is regarded as ineffective by teachers. On the other hand, some of the participants stated that the experience they had gained during online education had reflections in face-to-face education, which is confirmed by other researchers (Peruski & Mishra, 2004). Furthermore, Van Der Spoel et al. (2020) claimed that teachers intended to make more use of technology in their future lessons when face-to-face education is revived.

When it comes to the topic of emotions, the findings are classified under three themes for both face-to-face and online education as positive emotions, negative emotions, and irrelevant answers. It is clear that participants mostly have positive emotions for face-to-face education and negative emotions for online education. Also, as it is seen in the negative emotions section related to face-to-face education, some of them are caused by online education, as the participants miss the face-to-face teaching

environment. There are also other researchers revealing some EFL teachers experience confusion, worry, and anxiety because of not being ready for online teaching (Gao & Zhang, 2020). As Farrell (2021) reported EFL teachers expressed negative emotions such as exhaustion, which is also expressed by the participants of this current study as they felt tired when they consider their online teaching experience. Another interesting finding of emotions in this study is that the participants answered irrelevantly when they are asked about their emotions for face-to-face and online education. A great deal of answers was irrelevant, maybe because the in-service EFL teachers abstain from mixing their emotions with their works; in other words, they probably undergo a state of an 'emotional work' via which they try to 'evoke' or 'suppress' their emotions as Hochschild (1979, p. 561) explained. On the other hand, Taxer and Frenzel (2015) revealed that teachers usually show their positive emotions while hiding the negative ones.

As for the topic of difficulties of face-to-face and online education, the themes included varied incidents. Difficulties for both face-to-face and online education included infrastructure-related issues. The internet connection problems or the lack of internet connection was the most prominent difficulty for both of the teaching environments, considering infrastructure-related ones. Berkant et al. (2019) also mentioned infrastructure-related difficulties. Others also revealed that infrastructural problems such as bad or non-existent internet connection are evident during online education (Barış & Çankana, 2016; Fuentes Hernández & Flórez, 2020; Hassan et al., 2020; Mohamad Nasri et al., 2020). Continuing with the difficulties experienced during face-to-face education by the participants, there was the issue of classroom management and the problems related to the students' profiles. Also, crowded classrooms posed some difficulties for them. The difficulty of classroom management and crowded classes were also perceived by other EFL teachers (Sakui, 2007; Berkant et al., 2019). Other difficulties included effects of the environment on the students – such as extremely hot or cold temperature and noise having effects on learners as Sharif and Ferdous (2012) reports-, physical fatigue - also reported by other scholars because of excessive workload (Roohani & Dayeri, 2019) -, and for one participant it was the students not speaking Turkish. Researchers (Kırmızı et al., 2016) revealed that students not speaking Turkish was also a problem for classroom teachers of first graders. For online education, participants reported that the most outstanding difficulty was the lack of student attendance, similar to other's findings (Fidan, 2020; Noor et al., 2020; Kaplan & Gülden, 2021). Moreover, lack of interaction is another outstanding difficulty experienced by the participants during the online education process, which is also available in others' findings (Gao & Zhang, 2020; Zou et al., 2021; An et al., 2021; Cantürk & Cantürk, 2021). Also, the difficulty of not being able to monitor the

teaching progress, and difficulties related to the assessment of the students were experienced by the participants. Also, others revealed similar occasions where teachers face difficulties while assessing the students in an online environment (Aliyyah et al., 2020; Mohamad Nasri et al., 2020). Work and home life merging were regarded as a difficulty by some of the participants, while there is a participant reporting this issue vice versa. One participant also stated that it was a convenience to work from home. On the other hand, researchers revealed (Manzoor and Hamid, 2021) female academicians are negatively affected by working from home.

As for the conveniences of face-to-face and online education, the themes included varied incidents. The most outstanding convenience experienced by the participants during the face-to-face education process was the interaction component of a classroom atmosphere, followed by being able to monitor student progress and having more control over the classroom. On the flip side, participants stated that during online education they experienced the convenience of having to be able to use digital materials more often. This was the most outstanding convenience experience by the participants regarding their online education experiences. Van Der Spoel et al. (2020) also found out that teachers have become more professional because of the fact that they had to learn and utilize digital technologies while teaching online. The rest of the conveniences reported varied a lot. Some reported they find it easy to track the student progress individually during the process of online education, as they can proceed with the lesson according to their students learning speed. However, this was not so possible during face-to-face education as the participants report they had to proceed with their lessons with an 'average speed'. Similarly, researchers (Van Der Spoel et al., 2020) explain this issue as an unanticipated positive side of online education in that presence of the introverted students were increased during online education compared to a face-to-face education environment. Classroom management, which was a difficulty of face-to-face education for some, was regarded as a convenience during online education. Some participants stated that they have more control over the classroom while teaching online; on the contrary, Cook (2018) reported some teachers expressing loss of control during online education compared to face-to-face education. Likewise, Cantürk and Cantürk (2021) revealed that some teachers found it easy to manage an online class while others found it hard. On the contrary, Fidan (2020) revealed that teachers expressed negative ideas about classroom management during online education as they constantly had to check the monitor while at the same time trying to make the students focus on the class by controlling what is happening behind the cameras. The participants in this current study also stated that through the online education process the teachers' and the students' technological

knowledge is improved. Other researchers also found out the positive impact of emergency remote teaching on EFL teachers' ICT skills (Lamminpää, 2021). Moreover, flexibility was another convenience for some, which is also found in other studies (Barış & Çankaya, 2016; Cantürk & Cantürk, 2021). Interestingly, one of the participants regarded working from home as a convenience while, as mentioned earlier, some others regarded it as a difficulty. Also, one of the participants found online education more efficient. Furthermore, Paudel (2021) revealed that online education is perceived as beneficial by teachers and learners in Nepal.

The topic of perceptions of professional needs yielded interesting results. Most of the participants were asked to choose the language of the semi-structured interview between Turkish, which is their native language, and English, which is their branch. Most of them chose to continue in English directly or indirectly. Only one of them felt comfortable giving the interview in English. Furthermore, findings revealed that participants would love to attend seminars on education on technology in general for all of the situations asked, which were face-to-face, only online education, and hybrid education. Their choices of language during interviews somewhat contradict the quantitative findings of the current study which indicated the participants' highest knowledge domain of the framework was their perceived CK. Comparably, Tüm and Kunt (2013) found out that some pre-service EFL teachers had speaking anxiety; however, the findings of this current study are quite limited and further research is needed. Continuing with face-to-face education, participants felt the need to improve their pedagogical knowledge. This included classroom management and guiding the students. Also, Demir (2009) reported some teachers experiencing difficulties in classroom management because of such reasons as students' misbehaving. They also reported that they would have attended seminars on how to recover the students psychologically and how to compensate for the educational losses. This is mostly because of the adverse effects of emergency remote teaching. They also perceived the need to prepare their students for the next emergency situation. Furthermore, the code pedagogical content knowledge included general reports by the participants such as how to teach the language more effectively. Lastly, one participant perceived that they should receive education about personal development.

As for the perceptions of professional needs for online education, the most prominent perception was the education on technology in general, as mentioned above this code was available for all three educational scenarios, face-to-face, online, hybrid. They also perceived the need to improve their ability to adapt to the education they

provide for the online environment. Other researchers (Avcı & Güven, 2021) also reported that some teachers perceived the need to improve themselves in terms of digital tools, as well as the need to learn to adapt the learning styles they had been familiar with into online education. Moreover, half of the participants stated their former education on technology was not helpful during the online teaching process. Besides, the education they received during the university years didn't contribute much during teaching online. Also, Özel (2013) revealed that 112 EFL instructors teaching in the different universities in Turkey were not satisfied with the facilities provided to them in order to learn using technological tools used in teaching. Some of the participants implied the need for an online teaching practicum. However, Kosar (2021) revealed that pre-service EFL teachers who had taken distance teaching practicum didn't consider distance teaching practicum as a possible alternative to face-to-face teaching practicum. On the other hand, Ersin et al. (2020) revealed that e-practicum practices helped pre-service EFL teachers in overcoming their fears regarding teaching in an online environment. Furthermore, some of the participants would love to attend seminars on creating content and materials for online education. Also, Hassan et al. (2020) revealed that teachers perceived the need to receive training on digital tools and content creation.

As for the topic of perceptions of professional needs for hybrid education scenarios, some of the participants reported that they would like to improve their competencies in curriculum-related issues for hybrid education, and methodologies related to the process of hybrid education. Time management is another issue mentioned by one of the participants, which affected their work and home life balance. They expressed that they would like to improve their time management skills to find this balance. Another finding was that some of them would like to learn how to implement hybrid education from the scratch. Similarly, Yurdakal and Susar Kırmızı (2021) found out that some pre-service teachers from various branches in Turkey either didn't know about the hybrid education or they knew it only by its name, and they suggest that lesson on hybrid education should be added to a university program. Koşar (2016) suggests that educating the teachers on how to proceed with hybrid education would help them solve the challenges put forward by EFL teachers which included the necessity of education on technology and the worry of increased workload. The participants in this study perceived the need to improve their pedagogical and pedagogical content knowledge. They would like to get better at guiding and motivating their students in a hybrid education situation. Also, one of them perceived the need of having to be able to recover their students psychologically. Also, An et al. (2021) found out that K-12 teachers were concerned about their students' well-being.

5.3. Pedagogical Implications

Keeping in mind the quantitative and qualitative findings of this study, it is wise to consider providing education to the in-service and pre-service EFL teachers in terms of technology, and the technology as it is used in education. Considering the results of the TPACK-EFL survey for both face-to-face and online education and the qualitative findings, technological knowledge and technology-related components of the TPACK framework needs to be considered all over again. The pre-service and in-service education may be needed to be rearranged with more technologically enriched content. As for the comparison of the perceived TPACK results, participants got lesser scores. So, this means that it could be a necessity to reconsider the online teaching job all over again, as it requires a different set of teacher competencies and roles. The technology in general and as used in education is also gaining importance under the light of the qualitative findings, as the participants perceived the need to improve themselves in those areas for face-to-face, online, and hybrid education. Moreover, pre-service and in-service teachers' TPACK levels should always be kept at a constantly improving pace for both face-to-face and online education, as the 'T' in the TPACK is everchanging, especially in the 'new normal'.

On the other hand, comparisons between the perceived TPACK levels of the participants who graduated from the English Language Teaching Department and the participants who graduated from other departments such as English Language and Literature, American Culture and Literature, and Translation and Interpreting revealed that the in-service or pre-service EFL teachers not studied/studying in English Language Teaching Department should receive a different type of treatment during their educational process because of the decrease in their perceived TPACK scores for online education, which didn't much differ for face-to-face education. So, the participants who graduated from English Language Teaching Department could be thought to have adapted better to the online education environment. Thus, pre-service and in-service EFL teachers from the other related departments should be improved in this matter with a more meticulous attitude.

Also, keeping in mind that pursuing post-graduate studies had an impact on the participant perceived TPACK levels, it may be ideal to encourage the pre-service and in-service EFL teachers to pursue post-graduate levels studies, M.A and/or Ph.D. Policymakers and teacher educators should keep in mind this fact and provide necessary financial and motivational support for the pre-service and in-service EFL teachers.

As the qualitative findings suggest, policymakers and teacher educators must consider revising the EFL teacher education in terms of technology. As the participants revealed that they learned online teaching by doing, undergraduate programs must include online teaching practicums just-like face-to-face ones.

Another issue about the face-to-face and online education process is about the improvement of infrastructure of the education environments whether it is face-to-face or online. Lack or loss of internet connection is a big burden while teaching a language, as approved by the findings. Solving of this issue has nothing to do with the teacher education; instead, policymakers should accelerate the strengthening of the infrastructure, especially of the internet, for both schools and houses, as the 'new normal' requires the shareholders of the education, including both the teachers and the students, to be engaged on the internet more often.

As for the issue of the teacher emotions, policymakers and teacher educators should reconsider the importance of emotions, and their effects on the education provided by the teachers. Some of the participants cannot even think of their emotions along with their jobs. Moreover, the fact that participants mostly hold negative emotions for online education, and positive emotions for face-to-face education is another factor to keep in mind. Teacher education procedures must include teacher emotions in some ways because emotional exhaustion may cause teacher burnout (Fathi et al., 2021). On the other hand, researchers (Toraby & Modarresi, 2018) found a positive relationship between teacher emotions and the perceptions of students on their teachers' pedagogical success. All that being said, the future of the EFL must of course lie within improving the TPACK of the teachers as well as doing more research on teacher emotions and trying to optimize it so that the outcome of the education that EFL teachers provide gets better in general.

Pre-service and in-service EFL teachers should be educated in terms of classroom management and student profiles, as they faced difficulties in that regard. However, this difficulty is sometimes because of infrastructure-related issues. The number of students for each classroom should be reduced to optimum levels throughout the whole country for the sake of the quality of education provided in terms of language teaching. On the other hand, lack of student attendance to online classes posed difficulties for the in-service EFL teachers, and this cannot just be solved by treating those teachers with educational seminars. This issue can mostly be overcome by solving the infrastructure-related problems regarding the internet and required digital devices for the students. However, lack of interaction during online teaching was another difficulty, and this could be solved by improving online teacher competencies to some extent. By both improving the

infrastructure and the EFL teachers' ability to make the online teaching environment more interactive, this issue could be solved. Also, it is important to consider improving pre-service and in-service EFL teachers' competencies in creating digital content and materials, as the 'new normal' would require more of them, let alone they are needed during face-to-face education. As for hybrid education, pre-service and in-service EFL teachers should be informed on the curriculum required in a given situation, as knowing how to teach face-to-face part and how to teach online part would improve the quality of the hybrid education. Moreover, required methodologies for both parts of the hybrid education are another topic that pre-service and in-service ELF teachers should be aware of in the 'new normal. Lastly for hybrid education, the teachers should be guided in terms of how to manage their time as they may have to go to school and immediately go back home in order to teach the online part, which naturally devours a lot of time.

CHAPTER VI

6. CONCLUSION AND SUGGESTIONS

In the introduction part, the general background of the study is mentioned. The TPACK framework and significance of the study are clarified. Moreover, hypotheses and research questions are stated. The first chapter includes a detailed literature review regarding TPACK and online education. Studies regarding the TPACK framework with their participant information are demonstrated. The reason behind demonstrating background information about participants of these research papers is to put the emphasis on the significance of this study in terms of the exclusiveness of conveying the research on in-service EFL teachers by using the TPACK-EFL survey which is developed by Başer et al. (2016) by deploying it on pre-service EFL teachers.

On the other hand, a detailed literature review on online education, teacher roles and competencies in online education and online education amidst the Covid-19 pandemic is demonstrated. The types of online courses are shown along with the current state of online education in terms of its advent after an emergency; the outbreak of Covid-19. Moreover, the change in teacher roles when shifting from face-to-face education towards online education is also amplified through demonstrating works by others. Finally, the current state of online education amidst Covid-19 is shared regarding its reflections on students, teachers, and teacher education.

To sum up, the review of literature on this study reveals the need to check teachers' perceived TPACK by asking them to think back on their practices in face-to-face education and online education after the outbreak of Covid-19. The change between these two variables is clearly demonstrated through reviews on teacher roles, competencies, and the strategies to use in online education environments. To reveal in-service EFL teachers' TPACK for face-to-face and online education, and the change between these two factors are tried to be revealed by conducting the TPACK-EFL survey by Başer et al (2016), by asking the participants to answer every single item twice; both for face-to-face and online education. On the other hand, semi-structured interviews are

done in order to reveal the participants' experiences, emotions, and perceptions of their professional needs for both face-to-face and online education.

In a nutshell, quantitative findings revealed that in-service EFL teachers' perceived overall TPACK levels for online education turned out to be lower than their perceived overall TPACK levels for face-to-face education. Even if they had high perceived overall TPACK levels for face-to-face education, and relatively high levels for online education, the change was there. On the other hand, qualitative findings revealed some of the experiences, emotions, and perceptions of the professional needs of the participants. The difference could also be realized regarding the qualitative findings. The participants had different experiences, and perceptions of professional needs for face-to-face and online education. They even felt differently for both teaching scenarios. After analysing the quantitative and qualitative data, the findings are discussed, and pedagogical implications are presented. Major findings are listed below.

- In-service EFL teachers working at state schools in Bingöl, Turkey possess high perceived overall TPACK for face-to-face education, and moderate to high for online education.
- Participants' perceived overall TPACK (total / TPACK-EFL) levels were significantly higher for face-to-face education than for online education. The trend was similar regarding their perceived CK, PK, PCK, TPK, TPACK.
- Male teachers' perceived overall TPACK levels were higher for both face-to-face and online education.
- The teaching experiences of the participants were not a significant factor determining their perceived overall TPACK for face-to-face education, but teachers with fewer years of teaching experience had higher perceived TK, PCK, TCK, TPK, and overall TPACK (total / TPACK-EFL) levels for online education.
- Participants' current workplaces didn't yield significant results regarding their perceived TPACK levels for face-to-face and online education.
- Participants' departments of graduation were not a significant determiner of perceived TPACK levels for face-to-face education; however, the participants who graduated from English Language Teaching Department had higher perceived overall TPACK levels than the participants who graduated from other departments, which mostly include English Language and Literature Department.

- Pursuing post-graduate education, whether M.A and/or Ph.D., is a significant determiner of perceived overall TPACK levels for face-to-face and online education.
- Some of the participants reported that they learned how to teach online by doing.
- Participants mostly reported positive emotions for face-to-face education and negative emotions for online education. However, a certain number of answers for the questions about their feelings and emotions for face-to-face and online education were irrelevant. Thus, it might be concluded that in-service EFL teachers working at state schools in Bingöl, Turkey may tend to keep their emotions from their work, or they can't just think of their emotions along with their jobs.
- Difficulties for face-to-face education reported by the participants included infrastructure-related issues and classroom management.
- Difficulties for online education reported by the participants included infrastructure-related problems, lack of student attendance, and lack of interaction.
- Working from home during the online education period is considered convenient by some of the participants while there were others reporting the vice versa.
- Some conveniences of face-to-face education, as reported by the participants, were the existence of interaction and being able to monitor students.
- One of the conveniences of online education reported by the participants included having to be able to use digital materials.
- Participants perceived the need to improve themselves in terms of technology for face-to-face, online, and hybrid education.
- Some participants reported that the former education they had received about technology and their undergraduate education was not so helpful during online education, and some of them implied the necessity of online teaching practicum.
- Some of the participants perceived the need to learn how to implement hybrid education.

Suggestions for further research include using the TPACK-EFL Survey by Başer et al. (2016) with another sample in order to validate the reliability items adapted from Likert-9

to Likert-5. This could also be done for gauging perceived TPACK levels for online education to see if it yields reliable results again. On the other hand, this adapted version of the instrument should also be used within a bigger sample with normal distribution in terms of demographics in order to find out more reliable results. Another suggestion is that new instruments should be developed to measure perceived TPACK levels of pre-service or in-service EFL teachers for online education. Moreover, a case study could be conducted on the relationship between in-service EFL teachers from Turkey and other countries regarding their perceived TPACK levels for face-to-face and for online education and their actual teaching practices. Furthermore, observations could be done to reveal the effects of pre-service and in-service EFL teachers' perceived TPACK levels for face-to-face and for online education on their actual teaching practices. Also, more studies need to be done in order to find out perceived TPACK levels of EFL teachers for online education and to find out how to improve them. Also, research is suggested to be done in order to reveal the relationship between in-service EFL teachers' perceived TPACK levels for face-to-face and for online education and their students' academic success and motivation levels. Another suggestion is that the topic of teacher emotions should be investigated in a more detailed way, with a broader scope. Being rather a new area of research, new instruments should be developed in order to scrutinize the issue of teacher emotions and find ways to improve teachers' emotional health. Also, the work and life balance of an online EFL teacher is another area that should be investigated in more detail as it would yield some interesting results.

PCK framework is brought upon the earth by Shulman (1986, 1987), and it is transformed into TPCK by adding technology component by Mishra and Koehler (2006). Later, Thompson and Mishra (2007) transformed it into TPACK, just like a 'Total PACKage' implying interconnectedness. So, the time has come to develop a new framework that defines teachers' competencies and required traits including both technical and emotional aspects of the teaching job, as the job itself is not just consisting of technical aspects and includes 'emotional labor' (Hargreaves, 1998a). TELPACK (EL stands for emotional labor) or TEAPACK (E stands for emotions, and A is for making it sound like a whole) could be the new name for this suggested framework which stands for Technological Emotional Pedagogical Content Knowledge.

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APPENDICES

Appendix 1. Online Adapted Version of TPACK-EFL Survey

TPACK-EFL Anketi

Bu anketteki maddeler, İngilizce öğretimine başarılı bir teknoloji entegrasyonu için gerekli olan yeterlilik algılarını içermektedir. Her bir maddeyi YÜZ YÜZE eğitimdeki ve Covid-19 salgınıyla hayatımıza giren ONLİNE eğitimdeki algılarınıza göre iki kez cevaplayınız. Çalışmamızın amacı bu iki durum arasındaki algısal benzerlik ve farklılıkları saptamaktır. Lütfen maddelere cevap verirken 1 (Hiç uygun değil), 2 (Çok az uygun), 3 (Biraz uygun), 4 (Oldukça uygun), 5 (Çok uygun) arasındaki derecelendirmede sizi yansıtan rakamı seçiniz. 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.

Gökhan ARPACI

Amasya Üniversitesi

* Gerekli

Kişisel Bilgiler

1. Lütfen cinsiyetinizi belirtiniz. *

Yalnızca bir şıkkı işaretleyin.

☐ Erkek

☐ Kadın

2. Öğretmenlik tecrübeniz ne kadardır? *

Yalnızca bir şıkkı işaretleyin.

☐ 0-1 yıl

☐ 2-5 yıl

☐ 6-10 yıl

☐ 11-15 yıl

☐ 16-20 yıl

☐ 21+

3. Şuanda hangi düzeyde eğitim vermekttesiniz? *

Yalnızca bir şıkkı işaretleyin.

- ☐ İlkokul
- ☐ Ortaokul
- ☐ Lise

4. Lisans derecenizi aldığınız bölümü seçiniz. *

Yalnızca bir şıkkı işaretleyin.

- ☐ İngilizce Öğretmenliği
- ☐ İngiliz Dili ve Edebiyatı
- ☐ Mütercim-Tercümanlık
- ☐ Dilbilim
- ☐ Amerikan Kültür ve Edebiyatı
- ☐ Diğer: _____

5. Mezuniyet düzeyini belirtiniz. *

Yalnızca bir şıkkı işaretleyin.

- ☐ Lisans
- ☐ Yüksek Lisans
- ☐ Doktora

TPACK-
EFL
Anketi

Lütfen maddelere cevap verirken 1 (Hiç uygun değil), 2 (Çok az uygun), 3 (Biraz uygun), 4 (Oldukça uygun), 5 (Çok uygun) arasındaki derecelendirmede sizi yansıtan rakamı seçiniz.

6. Temel teknoloji terimlerini (işletim sistemi, hard disk, kablosuz ağ, sanal bellek, vb.) doğru bir şekilde kullanabilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

7. Program kurmak ve internet bağlantısı kurmak gibi ayarları yapabilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

8. Bilgisayar çevre birimlerini (yazıcı, mikrofon, projeksiyon, vb.) kullanabilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

9. Olağan teknolojik sorunları (yazıcıdan çıktı alamama, internet bağlantısının kesilmesi, vb.) kendim çözebilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

10. Projektör, tepegöz ve akıllı tahta gibi dijital sınıf ekipmanlarını kullanabilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

11. Ofis uygulamalarını (Word, PowerPoint, vb.) ileri düzeyde kullanabilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

12. Metin, resim, ses, video ve animasyon gibi bilgi kaynaklarını kullanarak çoklu ortam (video, web sitesi, vb.) oluşturabilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

13. İşbirliği yapılabilecek sanal ortamları (wiki, edmodo, 3B sanal ortamlar, vb.) amaçlarım doğrultusunda kullanabilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

14. Amacıma uygun olabilecek programları ve dijital araçları kullanmayı öğrenebilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

15. Duygu ve düşüncelerimi İngilizce konuşarak ifade edebilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

16. Duygu ve düşüncelerimi İngilizce yazarak ifade edebilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

17. İngilizce yazılmış bir metni telaffuz kurallarına uyarak okuyabilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

18. İngilizce yazılmış bir metinde ifade edileni anlayabilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

19. Ana dili İngilizce olan birini rahatlıkla anlayabilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

20. Öğrenme ortamına uygun öğretim yöntem ve teknikleri kullanabilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

21. Öğrencilerin gelişim düzeylerine uygun öğrenme ortamları hazırlayabilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

22. Öğrencilerin öğrenmelerini bedensel, zihinsel, duygusal, sosyal ve kültürel farklılıklarına uygun bir şekilde destekleyebilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

23. Öğrencilerin öğrenmelerini desteklemek amacıyla okul paydaşları (öğrenci, veli, öğretmenler, vb.) ile işbirliği yapabilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

24. Mesleki gelişimim ile ilgili çalışmalarımın edindiğim deneyimi öğretim sürecine yansıtabilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

25. Öğrencilerin kendi başlarına öğrenmelerini desteklemek amacıyla ders dışında da öğrenmeye güdüleyebilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

26. Ders esnasında sınıf yönetimine hâkim olabilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

27. Öğrencilerin öğrenme süreçlerini değerlendirebilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

28. Öğrencilerin İngilizce dil becerilerini geliştirmelerini, uygun pedagojik yöntem ve teknikler kullanarak destekleyebilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

29. Öğrencilerin dil becerilerini geliştirecek nitelikte müfredata uygun etkinlikler hazırlayabilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

30. Öğrencilerin İngilizce dil seviyelerine göre var olan ders planını uyarlayabilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

31. Farklı konularla ilgili bilgi ve düşüncelerimi çoklu ortamlardan (video, slayt gösterisi, vb.) yararlanarak İngilizce ifade edebilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

32. Çok uluslu toplulukların yer aldığı ortamlara uzaktan katkıda bulunabilmek için bilişim teknolojilerinden (Web konferans yazılımı, vb.) yararlanabilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

33. Yabancı uyruklu kişilerle sanal ortamlar (second life, wiki, vb.) aracılığı ile ortak çalışma yürütebilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

34. Öğrencilerin bireysel öğrenme ihtiyaçlarına öğretim teknolojilerini kullanarak yanıt verebilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

35. Öğrencilerin yasal, etik, telif hakkına saygılı ve güvenli bir şekilde bilişim teknolojilerini kullanabilmeleri için onlara rehberlik edebilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

36. Öğretim teknolojilerini (sanal tartışma ortamları gibi) kullanarak öğrencilerin üst düzey düşünme becerilerini geliştirmelerini destekleyebilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

37. Derslerimde öğretim teknolojilerini kullanırken sınıf yönetimine hâkim olabilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

38. Hangi kazanımları bilişim teknolojilerinden yararlanarak vereceğime karar verebilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

39. Bilişim teknolojilerini kullanarak öğrencilerin öğrenimlerini destekleyecek materyal geliştirebilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

40. Öğrencilerin öğrenimlerini desteklemek amacıyla video, web sitesi gibi çoklu ortamlardan yararlanabilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

41. Öğrencilerin İngilizce öğrenmelerini desteklemek için sanal işbirliği ortamlarından (wiki, 3B sanal ortamlar, vb.) yararlanabilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

42. Öğrencilerin Bilişim teknolojilerini kullanarak (eğitim yazılımları vb.) kendi başlarına dil becerilerini geliştirmelerini destekleyebilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

43. Web 2.0 araçlarını (animasyon, dijital hikâye araçları, vb.) öğrencilerin dil becerilerini geliştirmek için kullanabilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

44. İngilizce öğretim sürecini sürekli iyileştirmek için dijital araç ve kaynaklardan yararlanarak mesleki gelişimimi destekleyebilirim. *

Her satırda yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5
Yüz yüze eğitim	☐	☐	☐	☐	☐
Online eğitim	☐	☐	☐	☐	☐

45. Çalışmamıza internet tabanlı platformlar aracılığıyla yapacağımız görüşmelerle katkıda bulunmak istiyorsanız lütfen telefon numaranızı veya e-posta adresinizi ekleyin (isteğe bağlı).

Appendix 2. Semi-structured Interview Questions

Görüşme Soruları

- 1- Yüz yüze eğitim tecrübenizi üç duygu ile özetleyebilir misiniz?
- 2- Online eğitim tecrübenizi hangi üç duygu ile ifade edebilirsiniz?
- 3- Salgın dönemine kadar teknoloji konusunda aldığınız hizmet öncesi ve hizmet içi eğitimlerin, online eğitim sürecinde size katkı sağladığını düşünüyor musunuz?
 - a) Evet ise nasıl katkılar sağladı?
 - b) Hayır ise nasıl bir eğitim sürecinden geçmiş olmak isterdiniz?
- 4- Yüz yüze eğitimin sürecinde karşılaştığınız güçlük ve kolaylıklar nelerdir?
- 5- Online eğitim sürecinde karşılaştığınız güçlük ve kolaylıklar nelerdir?
- 6- Mesleki tecrübeniz online eğitimde karşılaştığınız güçlükleri çözmenizde size nasıl bir katkı sağladı?
- 7- “Artık yüz yüze eğitim yok, bundan sonra bütün eğitim süreçleri online olacak.” denilseydi, bundan sonra mesleki gelişim seminerlerine katılır mıydınız? Katılsaydınız bu seminerlerin başlıkları nasıl olurdu?
- 8- “Salgın bitti, eğitim tamamen yüz yüze devam edecek.” denilseydi, bundan sonra mesleki gelişim seminerlerine katılır mıydınız? Katılsaydınız bu seminerlerin başlıkları nasıl olurdu?
- 9- “Salgın bitti, eğitim yüz yüze ve online olarak karma devam edecek.” denilseydi, bundan sonra mesleki gelişim seminerlerine katılır mıydınız? Katılsaydınız bu seminerlerin başlıkları nasıl olurdu?
- 10- Lisans eğitiminizi yeni bitirdiğinizi ve ilk mesleki tecrübenizin bir online sınıfta olacağını düşünün. Aldığınız lisans eğitiminde “keşke kendimi daha iyi geliştirseydim” diyeceğiniz noktalar neler olurdu?

Appendix 3. Permissions to Use the Research Instruments

Amasya Üni Gelen Evrak Tarih ve Sayısı: 24.02.2021-6599



T.C.
BİNGÖL VALİLİĞİ
İl Millî Eğitim Müdürlüğü

Sayı : E-48605746-44-20869667
Konu : Anket Uygulaması Gökten ARPACI

18/02/2021

AMASYA ÜNİVERSİTESİ REKTÖRLÜĞÜNE
(Öğrenci İşleri Daire Başkanlığı)

İlgi : a) Amasya Üniversitesi Rektörlüğü, Öğrenci İşleri Daire Başkanlığının 03/02/2021 tarihli ve E-47526769-302.08.01-3488 sayılı yazısı.
b) Bingöl Valiliği, İl Millî Eğitim Müdürlüğü'nün 12/02/2021 tarihli ve E-48605746-44- 20615986 sayılı Valilik Onayı.

Üniversiteniz Sosyal Bilimleri Enstitüsü Yabancı Diller Eğitimi Ana Bilim Dalı İngiliz Dili Eğitimi Tezli Yüksek Lisans Programı öğrencisi Gökhan ARPACI'nın Dr. Öğr. Üyesi Ayfer SU BERGİL'in danışmanlığında yürütmüş olduğu "Yüz Yüze ve Çevrimiçi Eğitimde Teknolojik Pedagojik Alan Bilgisi Üzerine Bir Araştırma" konulu tez çalışmasına ait anketlerin 01.02.2021-31.05.2021 tarihleri arasında Müdürlüğümüze bağlı merkezdeki ilkokul, ortaokul, lise ve dengi okullarda görev yapan İngilizce öğretmenlerine uygulanması ilgi (b) Valilik Onayı ile uygun görülmüş olup; sözkonusu Onay ile İl Millî Eğitim Müdürlüğü tarafından mühürlenmiş uygulanacak anket formlarının birer örneği kapalı zarf içerisinde ilişikte gönderilmiştir.

Bilimsel veri toplamak amacıyla ekte gönderilen anket çalışmasının tamamlanmasından itibaren en geç 30 gün içerisinde, CD'ye kayıtlı olarak bir örneğinin ilişikte gönderilen (Ek-1) form ile birlikte Valiliğimize (İl Millî Eğitim Müdürlüğüne) gönderilmesi hususunda;

Bilgilerinizi ve gereğini rica ederim.

Fatih KAYA
Vali a.
Vali Yardımcısı

EKLER:
1-Valilik Onayı (1 adet)
2-Araştırma Değerlendirme Formu (1 adet)
3-Anket Formu
4-Taahhütname Tutanağı

Güvenli Elektronik imza:
Aslı: 19.02.2021

Müslim AKGÜNDOĞDU
M.H.K.I

Bu belge güvenli elektronik imza ile imzalanmıştır.
Adres : Karşıyaka Mah.Hükmî Tekin Blv.No:2/1-BİNGÖL
Belge Doğrulama Adresi : <https://www.turkiye.gov.tr/meb-ebys>
Bilgi için: Mutalip BALUKEN
Unvan : Memur
İnternet Adresi : <http://bingol.meb.gov.tr>
Faks: 4262191399

Telefon No : 0 (426) 219 13 22
E-Posta: bingolmem@meb.gov.tr
Kep Adresi : meb@hs01.kep.tr

Bu evrak güvenli elektronik imza ile imzalanmıştır. <https://evraksorgu.meb.gov.tr> adresinden 9c0d-8e4e-3318-bef7-9fa0 kodu ile teyit edilebilir



Appendix 4. Permission Letter to Use TPACK-EFL Survey



Gökhan Arpacı <gokhanarpaci@gmail.com>

Alıcı: deryabaser

28 Kas 2020 Cmt 00:49



Sayın Derya Hocam,

Ben Amasya Üniversitesi İngiliz Dili Eğitimi Anabilim Dalı yüksek lisans öğrencisi Gökhan Arpacı. Yüksek lisans tezim için, İngilizce öğretmenlerinin TPACK seviyelerinin yüz yüze ve çevrimiçi eğitim süreçlerindeki farklılaşmayı incelemeye karar verdim. Sizin geliştirdiğiniz TPACK-EFL ölçeğini izniniz dahilinde tez çalışmamda kullanmak isterim.

Saygılarımla,

Gökhan Arpacı
Amasya Üniversitesi



Gökhan Arpacı <gokhanarpaci@gmail.com>

Alıcı: ayfer

30 Kas 2020 Pzt 15:56





DERYA BAŞER <deryabaser@ibu.edu.tr>

Alıcı: ben

30 Kas 2020 Pzt 16:44



Merhaba sanırım Hocanıza ilettim ama,

TPACK-EFL ölçeğini aşağıdaki çalışmaya atıfta bulunarak kullanabilirsiniz. Ölçek Türkçe geliştirildiği için Tr versiyonunu da ekliyorum maile.

Başer, D., Kopcha, T. J., & Özden, M. Y. (2016). Developing a technological pedagogical content knowledge TPACK assessment for preservice teachers learning to teach English as a foreign language. *Computer Assisted Language Learning*, 29(4), 749-764., Doi: 10.1080/09588221.2015.1047456

İyi çalışmalar,

Dr. Derya Başer



Appendix 5. Approval of Ethical Committee

	AMASYA ÜNİVERSİTESİ
	SOSYAL BİLİMLER ETİK KURUL DEĞERLENDİRME FORMU

Ek-1

Araştırmanın Başlığı : An Investigation on Technological Pedagogical Content Knowledge in Face-to-Face and Online Education (Yüz Yüze ve Çevrimiçi Eğitimde Teknolojik Pedagojik Alan Bilgisi Üzerine Bir Araştırma)	
Başvuru Formunun Etik Kurula geldiği tarih	14.12.2020
Başvuru Formunun Etik Kurulda incelendiği tarih	25.12.2020
Karar tarihi	25.12.2020

SONUÇ

1.	☒ Kabul
2.	☐ Düzeltme gereklidir: Etik sorun olabilecek sorular/maddeler, süreçler ya da unsurlar bulunmaktadır. Açıklama:
3.	☐ Red Gerekçe, Görüş, Tavsiye ve Açıklamalar:

Başvuru dosyasının incelenmesinde hazır bulunan ve araştırmayla doğrudan veya dolaylı olarak ilişkisi bulunmayan Etik Kurul başkan ve üyelerinin ad,soyad ve imzaları.

(Başkan)
Doç. Dr. Songül KEÇECİ KURT

(Üye)
Doç. Dr. Kemal BAYTEMİR

(Üye-Bşk Yardımcısı)
Dr. Öğr. Üyesi Burcu
KARAŞAR

(Üye)
Dr. Öğr. Üyesi Kırşat EFE

(Üye)
Dr. Öğr. Üyesi Davut
AĞBAL

CURRICULUM VITAE

PERSONAL INFORMATION

Name and Surname : Gökhan ARPACI

Place of Birth:

Date of Birth:

EDUCATIONAL BACKGROUND

Undergraduate Education: Inonu University / Faculty of Education / English Language Teaching (2014-2018)

Graduate Education: Amasya University / Institute of Social Sciences / English Language Teaching (2020-...)

Foreign Languages: English

SCIENTIFIC ACTIVITIES

Publications

Arpacı, G. & Su Bergil, A. (2020). Students' expectations of their English teachers' use of foreign and native language at schools. *Journal of Language Education and Research*, 6(2), 560-582. <https://doi.org/10.31464/jlere.759149>

WORK EXPERIENCE

Bingöl 100. Yıl Secondary School - English Language Teacher (2019-...)

CONTACT INFORMATION

E-mail address: