



T.C.

AKDENİZ UNIVERSITY

THE INSTITUTE OF EDUCATIONAL SCIENCES

DEPARTMENT OF FOREIGN LANGUAGE EDUCATION

**MA
THESIS**

**PRE-SERVICE EFL TEACHERS'
TECHNOLOGICAL COMPETENCES**

Emrullah Ay

ENGLISH LANGUAGE TEACHING

MASTER'S PROGRAM

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DOĞRULUK BEYANI

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PRE-SERVICE EFL TEACHERS' TECHNOLOGICAL COMPETENCES

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ABSTRACT

The purpose of this study is to acquire insights into senior pre-service EFL teachers' technological competences based on the Ministry of National Education (MoNE). The current study also aims to find out senior pre-service EFL teachers' most desirable technological competences and gain precise knowledge about their perceptions of technology integration into education. Data of the study come from the Technological Competencies Scale (TCAS) given to 161 senior pre-service EFL teachers from various state and private universities. Data gained through TCAS were analyzed by applying the mixed method as both quantitative and qualitative data were investigated. After the data were gathered, the participants' average technology competency scores were acquired, and the most desirable technological competences were also analyzed. Results indicated that a high majority of the participants had adequate competency scores since only three of the participants lacked enough competency score to be categorized as adequate. Moreover, the results also showed that creating digital materials for language teaching (56.52 %) and using in-class technological tools for language teaching (smartboard, projector, laptop) (54.66) were the two most desirable technological competences, while computer literacy (27.33) was the least desirable competence. Furthermore, according to the participants' perceptions, they believed in the importance of improving technological skills and technology use in classes. On the other hand, several participants also noted that EFL teachers lacked enough technology competency levels, and courses related to technology use should be increased. The findings were discussed, and theoretical and pedagogical implications were offered.

Keywords: Teacher competences, technological competences, technology integration.

İNGİLİZCE ÖĞRETMEN ADAYLARININ TEKNOLOJİ YETERLİK SEVİYELERİ

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ÖZET

Bu çalışmanın amacı Milli Eğitim Bakanlığı teknoloji yeterlikleri kapsamında 4. Sınıf İngilizce öğretmenlerinin teknolojik yeterlikleri hakkında bilgi elde etmek, İngilizce öğretmen adaylarının görüşlerine göre en değer verilen teknolojik yeterliği ortaya çıkarmak ve İngilizce öğretmenlerinin teknolojik yeterlikleri hakkında görüşlerine ulaşmaktır. Birçok devlet ve özel üniversitelerden 161 4. sınıf İngilizce öğretmen adayına Teknoloji yeterlikleri ölçme anketi yöneltilmiştir. Teknoloji yeterlik ölçme anketi ile elde edilen veriler nicel ve nitel araştırma yöntemleri aynı anda kullanıldığı için karma yöntem ile analiz edilmiştir. Veriler toplandıktan sonra, her bir katılımcının ortalama teknolojik yeterlik değeri elde edilmiştir ve en değer verilen teknolojik yeterlikler analiz edilmiştir. Sonuçlar sadece üç katılımcı yeterli olarak sınıflandırılan yeterlik puanı alamazken, büyük çoğunluk yeterli teknoloji yeterlik puanına sahip olduğunu işaret ediyor. Dahası, sonuçlar bilgisayar kullanma yeterliği (27.33) en az değer verilen yeterlik olmasına karşın dil öğretimi için dijital materyal oluşturma (56.52 %) ve dil öğretimi için sınıf içi teknolojik aletleri (Akıllı tahta, projektör, dizüstü bilgisayar...) kullanma (54.66) iki en önemli yeterlik olduğunu göstermiştir. Ayrıca, katılımcıların görüşlerine göre, katılımcılar teknoloji kullanma becerilerini sürekli geliştirmeleri gerektiğine ve dil öğretiminde teknolojinin önemine inanıyorlar. Diğer yandan, katılımcılara göre, İngilizce öğretmenleri yeterli düzeyde teknoloji kullanma seviyesine sahip değiller ve üniversitelerdeki teknoloji kullanımı ile alakalı ders sayısı artırılmalı. Çalışmanın bulguları incelenip kuramsal ve eğitimsel öneriler yapılmıştır.

Anahtar Kelimeler: Öğretmen yeterlikleri, teknolojik yeterlikleri, teknoloji entegrasyonu

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ABBREVIATIONS

Abbreviations	Definitions
EFL	English as a Foreign Language
ELT	English Language Teaching
TCAS	Technology Competency Assessment Scale
ICT	Information Communication Technologies
MoNE	Ministry of National Education
CALL	Computer Assisted Language Learning
ELTEP	English Language Teacher Education Program

CHAPTER I

INTRODUCTION

1.1 Introduction

This chapter includes the background, problem statement, research questions, scope, significance, and limitations and assumptions of the study.

1.2 Background of the study

Technology has always been part of human life since people never lose the desire to improve their lifestyles and make their lives more comfortable to get by. To be able to satisfy their desire, they seek changes in their lives for the better, create new technologies, implement these technologies into their lives and benefit from them for different purposes. Since the search for creating a better world has never ended, developments in technology have also never come to an end. The word “technology” has had different meanings throughout the years; for instance, knives, fires, papers, inks, and computers have been some of the technological tools until today. On the other hand, smartphones, laptops, tablets, smartboards, 3D printers, Virtual Reality are called technological tools or Information Communication Technologies (ICT) these days. No matter how the word technology is called, it has always created a difference in life and improved human life.

Since the desire to integrate new technological tools into human lives has never waned, current technological tools have become inseparable parts of our lives

to such an extent that most people cannot imagine a life where these technological devices are not provided. Possessing technological devices and innovations are considered as a requirement for the present and the future in any field of professions. Moreover, technological competences and the ability to employ new technological innovations are seen as crucial criterion for the professions. As well as technology affects people's professional careers and workplaces, it is also a crucial part of social life. With the proliferation of the current technology, people can easily access various technological devices and instantly for different purposes, such as improving themselves in different fields, discharging their responsibilities online quickly, or spending their leisure time.

Considering technology plays an indicative role in professions and social life, it becomes an essential component of education as well. Benefiting from the current technological tools is considered as one of the most effective ways to create a more beneficial learning environment for learners. It is also considered as a significant way to make the learning process more meaningful since learners benefit from these tools and learn how to employ them in their daily lives. By considering the significance of ICT in education, it has started to be seen as an inevitable implementation to be applied in the new generation's education for around four decades around the world. Nearly all of the countries started to implement the current technologies in their curriculum and classrooms. After Apple IIe computer was introduced at the beginning of 1980s, technology integration into education has started to receive a broad range of interest and schools started to offer computer literacy courses at elementary and secondary schools (Moersch, 1995). To be able to keep up with the current educational innovations and improve the Turkish education system, the

Ministry of National Education also had several enterprises to implement ICT into the classrooms. The first major steps were taken in the 1985-1986 school year by implementing 1100 microcomputers to 121 secondary schools for computer education, and 2400 computers were also provided to the secondary and vocational school during the following years (Akkoyunlu & Orhan, 2001). Another important step was taken in 1999 with the “Project for Globalization in Education 2000”, which was supported by the World Bank. It aimed to keep up with the information age and benefit from instructional education in schools (Akkoyunlu & Orhan, 2001). After the “Project for Globalization in Education 2000”, there were many more enterprises in the Turkish education system such as building 2802 ICT classrooms in 1999, 3000 ICT classrooms in 2005, providing laptops for teachers’ projects and setting up “National Education Portal” project in 2005 (Gülbahar, 2008). The MoNE also conducted the FATİH project, which was about providing interactive boards for each school in 2010 to offer teachers abundant sources. Moreover, EBA, an online education portal, has been come into use to offer students and teachers various activities according to their interests in 2011. Since the beginning of computers and ICT implementation to the Turkish education system, the MoNE has provided in-service training programs to develop in-service teachers’ ICT skills in technology integration. New courses have been implemented in teacher education programs of universities such as Instructional Technologies, Computer I and Computer II (Akkoyunlu & Orhan, 2001; Çakıroğlu & Çakıroğlu, 2003).

The term technology implementation can be referred to as the utilization of available technological devices to develop the current standards. It has been the focus of most organizations to make their fields more effective and up to date and seen as

the vital component of a high standard organization. In fact, Cooper and Zmud (1990) claimed that more than half the capital expenditures of most organizations had been spent on Information and Communication Technologies. Like any other organizations, technology implementation “has been the focus of curriculum renewal projects and school funding debates” (Moersch, 1995, p.40). Since technology implementation was the inevitable component of education, each school has probably faced different barriers before and during the technology implementation, such as the lack of appropriate technological devices, the lack of appropriate classrooms or school managers’ negative attitudes towards technology implementation.

On the other hand, as the significance of technology implementation has been widely accepted as valid, a vast majority of the classrooms are equipped with appropriate technological tools. A vast majority of managers are aware of the need for current technological devices for a better learning environment. In this regard, the most prominent barriers to technology implementation are related to teachers’ features. Teachers’ self-efficacy levels, attitudes, and perspectives on technology integration play a crucial role and affect implementation quality.

As a significant component that teachers ought to possess in technology implementation into education, teachers' self-efficacy levels are one of the most prominent factors. According to Moersch (1995), “self-efficacy theory suggests that individuals with a low level of self-efficacy will often choose a level of innovation that they believe they can handle, which may or may not be the best or most effective option. Conversely, those individuals with high levels of self-efficacy are most inclined to accept change and choose the best option” (p. 41). In this regard, it can be stated that technology self-efficacy is teachers’ own belief that they have the ability

and capacity to employ the ICT tools in their classrooms. They should believe they have enough ICT knowledge and self-confidence to employ. Otherwise, they will probably keep themselves distanced from employing ICT tools.

As another significant feature that teachers ought to possess in technology implementation into education, teachers' attitudes toward technology use is another prominent factor while they adapt to technological changes and innovations in education. As it was defined by Breckler and Wiggins (1989), attitudes are the mental and neural state of readiness as the results of experiences. In this regard, teachers' positive attitudes play an indicative role while adapting to a new environment or a change, such as employing innovations and technologies in their classrooms. Teachers' positive attitudes towards employing ICT tools might also provide beneficial insights for the current and future technology integration. Having a positive attitude towards ICT gives results as teachers' positive feelings in employing technology in their classrooms. In this respect, if the teachers believe that ICT tools play an essential role in teaching and make the teaching process more interactive, more comfortable and beneficial, it will motivate them and increase the desire to utilize these tools in the teaching process.

Another critical point is teachers' perspectives on technology integration. Teachers' perspectives on technology integration into education can be defined as teachers' beliefs in the usefulness of the technology. As teachers act as active participants of technology integration, their perceptions play a crucial role in implementing ICT into education.

For the reasons mentioned above, teachers' technology self-efficacy, attitudes toward technology integration, and their stance towards technology integration are essential in technology implementation. In order to gain an in-depth understanding of teachers' competences and support the field with the knowledge of what can be done to improve these competences, numerous researches have been conducted about teachers' technology self-efficacy levels (Al-Awidi & Alghazo, 2012; Magliaro & Ezeife, 2007; Slutsky, 2016; Wang, Ertmer & Newby, 2004), attitudes towards technology use in classrooms (Başöz & Çubukçu, 2014; Birkollu, Yucesoy, Baglama & Kanbul, 2017; Christensen, 2002; Hismanoglu & Hismanoglu, 2011; Giles, 2019; Taghizahed & Yourdshahi, 2019; Teo, 2008; Yıldırım, 2000; Yüksel & Kavanoz, 2011) and teachers' perspectives on technology integration (Aydın, 2013; Ben & Kolikant, 2019; Çelik, 2013; Kuru Gönen, 2019; Ziad, 2016).

With the implementation of technology into education, teachers are no longer seen as responsible for delivering the information. They are also seen as the responsible authority to benefit from various technological devices to deliver content to their learners in more effective ways. Furthermore, they are supposed to be the representative of how to utilize ICT tools inside and outside of the school for different purposes. Students should get familiar with the technological tools in their classes and how to implement and utilize these tools in their social and educational lives outside of their classes. If teachers lack self-efficacy, do not believe in the ICT's benefits, and feel uncomfortable with using ICT tools, it is highly possible that they will not be as effective as expected for implementing ICT into education regardless of classrooms that are equipped with the latest technological devices.

In this respect, a high majority of Turkish classrooms are equipped with ICT materials and devices (Gülbahar 2008), pre-service teachers are required to have necessary ICT knowledge, and skills and in-service teachers are offered to take in-service training programs. Nevertheless, teachers might still not be able to benefit from ICT as expected by the MoNE. Gülbahar (2008) clarifies this issue by stating, “regardless of the quantity of technology placed in classrooms, the key to how those tools are used is the instructor. The majority of instructors believe technology usage is important for teaching, however, lack confidence and understanding during integration process” (p. 32).

Implementing information and communication technology into classrooms is highly effective and creative for teaching English as a foreign language as well. Baydas and Göktas (2016) note that “ICT has become a focus of interest to education researchers because it makes learning entertaining and enhances the effectiveness and productivity of teaching” (p. 170). Employing ICT also offers EFL learners tremendous opportunities to improve themselves inside and outside of the classroom. Since EFL learners mostly have limited chances to practice English during their learning process, technological devices play a vital role for learners to support practising the English language, such as connecting learners with the outside world, offering them materials they are interested in, arranging their own learning pace, evaluating themselves with online tools, or allowing them to interact other learners from different backgrounds. As Alsied and Pathan (2013) clarified, integrating computer technology into the EFL domain has always been a focus for a long time. However, it started to be a part of teaching in the 1950s and became a significant part of the modern education system. As technology use is integrated into modern

education systems, teachers' readiness of utilizing technological devices such as personal computers, tablets, and mobile phones has become increasingly popular discussion in the field of English Language Teaching during the last years.

Although ICT provides various opportunities in teaching English which teachers may not ensure by themselves, it may not be beneficial if the teachers are insufficient in applying technology and guiding students to employ appropriate tools for their needs and wants. In this perspective, MoNE pays regard to several competences and expects EFL teachers to possess those competences as the responsible institution that assigns competent EFL teachers to the public schools. According to the MoNE, pre-service EFL teachers are required to gain enough competences related to professional knowledge, professional skills, attitudes, and values. Besides the abovementioned competences, MoNE also aims to annihilate the possibility of ineffective technology implementation and asks pre-service EFL teachers to possess enough competences related to technology use before they start their professional teaching careers and meet with the learners. The abovementioned competences are always available on the website of MoNE (<http://www.meb.gov.tr/>) and in the guideline books for teachers that can also be accessed via the website of MoNE. These competences are foreseen to make classes more interesting, creative, and productive for language learners. According to the MoNE (2017), English language teachers are required to;

- benefit from technological tools to make learning
- encourage students to access technological tools,
- follow the sources and software used in language teaching,

- ensure equal opportunities between students to have them benefit from technological tools by providing an appropriate environment in available opportunities,
- have students benefit from technological tools effectively which students need for their English learning process by evaluating them with a critical approach,
- employ different listening and watching methods and technics related to learners' progress level,
- provide environments for numerous activities by considering learners' interests and needs,
- employ auditory and visual materials that motivate students to write,
- guide the students to present and make their different style works widely known inside and outside of the class.

As mentioned above, English Language Teaching programs of the educational faculties in Turkish universities offer pre-service teachers a variety of courses to prepare them to benefit from technology at an adequate level to satisfy learners' needs. These technology-related courses are supposed to prepare each of the learners to become a sufficient and effective English language teacher. According to a few studies (Başal, 2015; Uzun, 2016), pre-service EFL teachers mentioned they are not able to gain enough competences as a result of their insufficient instructors or deficiencies in the curriculum. However, more research are required to generalize these findings and gain a clear understanding of whether pre-service EFL teachers graduate with required competences. It is essential to reveal the barriers and create

the most beneficial learning environment for the technological competency levels of pre-service EFL teachers as they must improve their abilities and competences to benefit from technology to be able to offer practical, creative, and productive learning environments.

1.3 Problem statement

EFL teachers must have professional knowledge, professional skills, attitudes, and values before they start their professions as expected by the MoNE. MoNE also expects EFL teachers to possess adequate technological competences to employ ICT tools in their classes. However, it is questionable whether pre-service EFL teachers graduate from their universities by gaining these competences or not. There are numerous research and theses about the pre-service EFL teachers' technology self-efficacy levels (Al-Awidi & Alghazo, 2012; Magliaro & Ezeife, 2007; Slutsky, 2016; Wang et al., 2004) attitudes towards technology use (Başöz & Çubukçu, 2014; Birkollu et al., 2017; Christensen, 2002; Hismanoglu & Hismanoglu, 2011; Giles, 2019; Taghizahed & Yourdshahi, 2019; Teo, 2008; Yıldırım, 2000; Yüksel & Kavanoz, 2011) and perspectives on technology integration (Aydın, 2013; Ben & Kolikant, 2019; Çelik, 2013; Kuru Gönen, 2019; Zyad, 2016). Nevertheless, a research that focuses on the competences that the MoNE expects pre-service EFL teachers to possess could not be found in the available literature. Additionally, there has not been any research that has compared the technology-related competences of pre-service EFL to the competences that the MoNE demands. In this regard, the purpose of the present study is to offer deep insights into whether pre-service EFL teachers acquire the competences that MoNE expects before they graduate from

undergraduate education. In other words, this study aims to identify whether Pre-service EFL teachers graduate with the required technology use competences which the MoNE seeks.

1.4 Research questions

The following research questions are asked in order to acquire a clear understanding of pre-service EFL teachers' perspectives, whether pre-service EFL teachers graduate from universities with the competences the Ministry of National Education seeks, and which competences are favoured by pre-service EFL teachers.

1. What are the pre-service EFL teachers' technology competency levels based on the Ministry of National Education's technological competences?
2. What are the most desirable technological competences which pre-service EFL teachers should possess according to pre-service EFL teachers?
3. What are pre-service EFL teachers' perspectives on technology integration into education?

1.5 Scope of the Study

Concerning the purposes of the present research, the scope of the study is narrowed down to the senior pre-service EFL teachers' technological competences defined by MoNE. Other teacher competences and pre-service teachers are not examined within this scope. The subjects of the study are senior pre-service EFL teachers who study in state and private universities. In the selection of this scope, two significant criteria have been considered; firstly, it is believed that senior pre-

service EFL teachers have had the majority of the courses they are supposed to have before graduation. Secondly, it is highly possible that a high number of senior pre-service EFL teachers will start their professional careers in the following year as opposed to other grades since they still have many hours of courses to attend and pass.

1.6 Significance of the Study

Available literature indicated that numerous research had been conducted to acquire insights into pre-service and in-service EFL teachers' self-efficacy levels, attitudes, and perspectives on technology use in order to find out the competency levels of pre-service EFL teachers. However, none of the research has focused on senior pre-service EFL teachers' competency levels based on the technological competences the MoNE seeks from EFL teachers.

By fulfilling its aims, this study can provide more data related to pre-service EFL teachers' technological competences and perspectives on the curriculum which universities offer. In this respect, this research can provide reliable knowledge to the curriculum designers and the instructors of the universities.

The present study can also provide relevant data about whether the competency levels of senior pre-service EFL teachers fulfil MoNE's expectation and to what extent pre-service EFL teachers are equipped with the technological competences of MoNE.

As there is a gap in the available literature in this context, this study can also provide essential knowledge about to what extend EFL teachers can employ technology in their classrooms as English language teachers.

1.7 Limitations and Assumptions

There have been some limitations in the present study, and provisions have been made against them. The present study was carried out during the COVID19 pandemic, and an online questionnaire has been developed; hence the number of the participants is limited to the pre-service EFL students whom the researcher could reach online with the help of the English Language Teaching (ELT) department chairs of state and private universities. Furthermore, the data is limited to the participants who were senior pre-service EFL teachers who enrolled in ELTEP programs during the 2019- 2020 education year.

Furthermore, data is limited to senior pre-service EFL teachers' self-reported answers. It was expected that the participants gave truthful responses as they volunteered to participate in the study.

CHAPTER II

LITERATURE REVIEW

2.1 Introduction

To have a deep understanding of senior pre-service EFL teachers' technological competences, technology self-efficacy, attitudes towards technology integration, different perspectives on technology use, ELT programs' contribution to the technology use, and possible challenges of technology integration are prominent while investigating pre-service EFL teachers' competences and perspectives related to technology implementation. Hence, in this chapter, the abovementioned topics will be discussed, and recent studies will be presented to have a clear understanding of the background of the current study.

2.2 Teacher competences

As any profession, being a teacher also requires some competences in order to convey their knowledge to learners in a most appropriate way related to the specific teaching field, professional skills, and attitudes and values towards the community teachers live in. Although there are slight differences between the required competences of different teaching fields, teachers are required to have similar competences in most countries. As in all over the world, teachers in Turkey are also supposed to possess several competences related to their fields, teaching skills, and attitudes and values towards the Turkish community. According to the Turkish Ministry of National Education (2017), teaching competences are taken into

consideration under three main categories as professional knowledge, professional skills, and attitudes and values. As professional knowledge, teachers are required to have an advanced and critical perspective on theoretical, methodological, and factual knowledge in the subject field. Furthermore, they are required to have a good knowledge of the curriculum and pedagogical content knowledge of the subject area. Moreover, as an individual and teacher, they conduct themselves according to the legislation related to their duties, rights, and responsibilities. In this respect, MoNE expects English language teachers to have deep theoretical and methodological knowledge about how to teach English to their learners and apply different methods in their teaching professions. The other category is related to teachers' professional skills and teachers are required to plan their education and teaching effectively. Besides, they are supposed to prepare teaching materials and build a safe and healthy learning environment. Moreover, they are expected to manage the teaching and learning process effectively. Lastly, they are supposed to use methods, techniques, and tools of assessment and evaluation that fit for purpose. Hence, English language teachers are required to possess the skills to create the most appropriate learning environment, plan and manage the teaching process, and have adequate skills to evaluate their learners' process in learning English. The last category is related to teachers' attitudes and values. In this perspective, according to MoNE, teachers are expected to nurture national, moral, and universal values, have an attitude that supports the development of students. Furthermore, they are supposed to establish an effective communication and cooperation with students, colleagues, families, and other educational stakeholders. Lastly, by carrying out self-appraisal, teachers are assumed to participate in personal and professional development activities. Thus,

English language teachers must also possess enough competences to observe the values and attitudes of students and guide their learners and their family for better learning by keeping strong communication ties.

Although the main competences are abovementioned, teachers are not only asked to possess the main competences. With the rapid development of technology, teachers are required to possess some of the 21st century skills and are supposed to adapt them into their classrooms. One of the 21st century skills is to employ the newest technological devices and adapt these devices into the teaching curriculum (Larson & Miller, 2011). According to MoNE (2017), to be able to keep up with today's technological development, today's English language teachers are required to;

- benefit from technological tools to make learning more efficient,
- encourage students to access technological tools,
- follow the sources and software used in language teaching,
- ensure equal opportunities between students to have them benefit from technological tools by providing an appropriate environment in available opportunities,
- have students benefit from technological tools effectively which students need for their English learning process by evaluating them with a critical approach.

2.3 Technology integration

Benefiting from Information and Communication Technology tools has gained popularity since the beginning of 1980s as the Apple IIe computers were introduced (Moersch 1995). Organizations started to invest in new technological

tools and desired to benefit them by integrating new technological tools into their working process. In this respect, the term “technology integration” can be defined as the appropriate use of current technologies to increase the quality of the standards. As technology integration has been a focus of most organizations to develop their standards and create a difference in their fields (Cooper & Zmud, 1990), it has also become an inseparable component of current education systems. Schools have focused on creating new curriculums and finding enough funds to support their schools with ICT tools (Moesch, 1995).

Technology integration into education has always been a popular discussion topic in education as it makes education more beneficial, adequate for learners’ interests, and helps learners gain 21st century skills. Thus, a variety of research (Aydın, 2013; Magliaro & Ezeife, 2007; Yıldırım, 2000) have been conducted to assess the readiness of pre-service teachers in integrating technology into the curriculum before they begin their professional teaching careers. Furthermore, there have been several researches (Slutsky, 2016; Yıldırım, 2000) that have aimed to assess the ability of in-service teachers’ technology integration into the curriculum as well. Researchers (Al-Awidi & Alghazo, 2012; Çelik, 2013; Wang et al., 2004) mostly have focused on the pre-service and in-service teachers’ self-efficacy levels, attitudes towards technology use and integration, and perceptions of technology integration in the educational environments since it is mostly acknowledged that having insights into participants’ self-efficacy levels, attitudes towards technology use and integration and perceptions of technology use will provide reliable information about their ability and desire to integrate ICT tools into education in their professional teaching careers.

2.4 Technology self-efficacy and technology integration

In order to integrate technology into the curriculum, teachers ought to possess some features. One of these features is teachers' self-efficacy levels, and it is described as "people's beliefs about their capabilities to exercise control over events that affect their lives" (Bandura, 1989, p. 1175). By considering Bandura's self-efficacy definition, it can be stated that technology self-efficacy is teachers' beliefs in their skills to integrate technology into their curriculum and self-confidence to adapt to new changes and innovations when it is necessary. Technology self-efficacy is a critical component of technology integration during the investigation of pre-service teachers' readiness to adopt ICT tools into their curriculum.

The technology self-efficacy level of pre-service teachers is also one of the most favorable topics. Many researchers have focused on participants' self-efficacy beliefs and levels to acquire insights into the technology integration competences of participants. Wang, Ertmer & Newby (2004), for instance, designed a research to investigate the effect of vicarious learning experiences that is observing others while they teach and goal setting on the self-efficacy of pre-service teachers for technology integration and four different groups were formed with 280 participants. The groups were formed as (a) no vicarious experiences and no goal setting (also defined as the control group), (b) no vicarious experiences but with goal setting, (c) vicarious experiences with no goal setting, and (d) vicarious learning experiences with goal setting and data were collected with a self-efficacy scale. The researchers confirmed that the groups that experienced vicarious learning with goal setting had the highest self-efficacy mean score for technology integration among four the groups and

vicarious learning with goal setting raised the ratings of self-efficacy of pre-service teachers for technology integration.

In another significant study investigating pre-service teachers' computer self-efficacy for technology integration, Magliaro and Ezeife (2007) aimed to gain insights into whether pre-service teachers were prepared to integrate computer technology into the curriculum by applying a mixed-method research design. After applying the research with 210 pre-service teachers, they found that pre-service teachers who had higher scores on software packages also had higher scores on self-efficacy and were more prepared to adapt computer technology into the curriculum.

By taking a different perspective on pre-service teachers' self-efficacy, another research was conducted by Al-Awidi and Alghazo (2012) to acquire a clear understanding of the effects of teaching experiences on pre-service teachers' self-efficacy beliefs in the United Arab Emirates University. Seventy-three participants who studied at the faculty of education participated in the study which was conducted using the mixed-method research design. After the researchers gained the results, they claimed that teaching experiences improved the technology integration self-efficacy beliefs of pre-service teachers into education. Moreover, mastery experiences were considered as the most common source of self-efficacy beliefs in integrating technology into the curriculum.

In a similar study, Slutsky (2016) conducted a research to clarify the self-efficacy in integrating technology and the factors affecting in-service teachers' self-efficacy. 143 in-service middle and high school teachers participated in the research,

and 21 of them were interviewed to acquire a clear understanding. Moreover, the results revealed that peer teachers, instructional technology facilitators, and academic coaches were the most common positive affecting side-based factors of technology self-efficacy. On the contrary, technical glitches and lack of time were the most chosen negative affecting side-based technology self-efficacy factors. The researchers also claimed that having personal smartphones, younger family members, and peer teachers outside of the school were the most effective personal factors affecting in-service teachers' technology self-efficacy.

As in most countries, several Turkish researchers (Birisci & Kul, 2019; Simsek & Yazar, 2019) have also focused on pre-service teachers' technology self-efficacy. One of these research was conducted by Birisci and Kul (2019) to determine the technology self-efficacy levels of pre-service teachers and investigate whether there was a correlation between pre-service teachers' techno pedagogical competency level and their technology self-efficacy. One hundred seventy-four pre-service teachers from social sciences, science, and health science departments have participated in the research which was carried through using two scales in a correlational research model. As the results of the study, researchers confirmed that pre-service teachers had high levels of technology self-efficacy, and there was a positive correlation between the technology self-efficacy levels of pre-service teachers and their techno pedagogical competency levels.

Within a slightly different scope, Simsek and Yazar (2019) also carried out a research with the aims of examining pre-service teachers' technological, pedagogical and content knowledge (TPACK) self-efficacy and finding out the variables affecting

their training to integrate technology. The data was gathered from 3553 pre-service teachers from 19 different departments of 18 state universities through a quantitative research design by utilizing a survey model. Findings revealed that pre-service teachers in Foreign Language departments have significantly high scores. However, the scores of pre-service teachers in Mathematics and the Turkish language are the lowest.

As it can be concluded from the research mentioned above, pre-service teachers' technology self-efficacy levels may differ for various reasons such as the applied technics while teaching technology integration, departments, prior knowledge of software packages, technological households, and instructors. From these results, it can be concluded that the curriculum of the departments, instructors, and technics they use have a crucial impact on pre-service teachers' technology self-efficacy levels. .

2.5 Attitudes and technology integration

In addition to the research on pre-service and in-service teachers' self-efficacy, pre-service and in-service teachers' attitudes towards technology integration into education is another prominent component of appropriate technology integration. Attitude is described as one's inclination for managing behaviours, feelings, and ideas towards psychological objects (Erdemir & Bakırcı, 2009). Within this scope, a negative attitude towards the learning goal has a damaging influence on the competences pre-service teachers are supposed to possess. On the other hand, as Simonson (1995) noted, positive attitudes towards the learning goal would trigger the

motivation, liking, success, and the learning process. In this respect, having a positive attitude towards technology integration is one of the significant indicators of effective technology implementation into the curriculum.

As mentioned above, attitudes towards technology integration is one of the prominent components of successful technology implementation in the classroom. Thus, numerous researches (Başöz & Çubukçu, 2014; Birkollu et al., 2017; Christensen, 2002; Hismanoglu & Hismanoglu, 2011; Teo, 2008; Yıldırım, 2000; Yüksel & Kavanoz, 2011;) have focused on attitude as well. One of these researches has been conducted by Yıldırım (2000) to examine educational computing lessons' effect on pre-service and in-service teachers' attitudes. 114 pre-service and in-service teachers who enrolled in the educational computing course participated in the research. The researcher applied both questionnaires and semi-interviews to understand the participants' attitude to change before and after they took the educational computing lesson. The researcher argued that there was a significant positive difference between pre and post-test results of the participants' attitude level towards computers after the educational computing lesson.

Another research investigating in-service teachers' attitudes sought to find out whether there was a significant relationship among in-service teachers' and students' attitudes and intensive educational technology integration training (Christensen, 2002). The research was conducted on 60 in-service teachers who took intensive educational technology integration training, the other educators who worked at two other similar public schools, and students of three schools by applying The Teachers' Attitudes Toward Computers Questionnaire. Results demonstrated that intensive educational technology integration training fostered teachers' attitude level

significantly and influenced students' attitudes positively towards information technologies.

In similar research, Teo (2008) investigated the pre-service teachers' attitudes towards computer use and the relationship between gender and attitudes towards the computer. The research was carried out on 139 pre-service teachers from different departments by utilizing the Computer Attitude Scale (Selwyn, 1997). According to the researcher's results, there is no significant relationship between the gender and age of the pre-service teachers and their attitudes towards the computer.

In the same context, Hismanoglu and Hismanoglu (2011) carried out a research on 175 pre-service EFL teachers from formal and distance higher education context by utilizing a questionnaire developed by the researchers to examine whether there was a significant difference between two different education contexts on participants attitudes towards ICT. The results revealed that overall attitudes of pre-service teachers who studied at formal higher education context were considerably higher than the attitudes of pre-service teachers who studied at a distance formal education context.

Another similar research was carried out by Yüksel and Kavanoz (2011) who aimed to find out the overall attitude scores of 200 pre-service EFL teachers and investigated the relationship between gender, university type, subject domain, and participants' attitude levels. As a considerable result, the researchers confirmed that although the participants had a positive attitude towards information technologies, they lacked the confidence to apply technology to its full potential. Moreover, results

also demonstrated that male participants' attitude scores were higher than female participants.

In a similar study concerning pre-service EFL teachers' attitude levels, Başöz and Çubukçu (2014) investigated pre-service EFL teachers' attitude towards CALL. The study was carried out on 112 pre-service EFL teachers through a questionnaire. As results of the research showed, the pre-service EFL teachers had positive attitudes towards Computer Assisted Language Learning as they believed CALL gave a more relaxed and stress-free atmosphere.

By utilizing a slightly different perspective, Birkollu et al. (2017) conducted a research to investigate pre-service EFL teachers' attitudes towards technology based on different variables regarding age, gender, department, and class level of participants. Data were collected from 132 pre-service teachers from different departments of the Faculty of education by applying a Technology Scale developed by Yavuz (2005) and revealed that overall attitude scores of the pre-service teachers towards technology were positive. Nevertheless, there were significant differences between pre-service teachers' attitude scores in favour of pre-service teachers who studied either at third grade or attended a course regarding technology competences.

In addition to the abovementioned research concerning attitudes towards technology integration into education, Giles (2019) investigated the influence of paired grouping on pre-service teachers. As instruments, the Attitude Toward Technology Scale and semi-structured interviews were applied. After 83 participants had participated in the survey and 24 participants had been interviewed, results supported that pre-service teachers' attitude towards technology integration and use

considerably increased by means of paired grouping when they completed the required educational technology course.

In another research, Taghizahed and Yourdshahi (2019) focused on in-service EFL teachers' attitudes towards technology integration, level of knowledge, difficulties in utilizing technology, and overall evaluation of technology use in schools. Ninety-five in-service teachers from different fields participated in the research consisting of three questionnaires and 11 open-ended questions. As a result of the research, the researchers claimed that the in-service teachers had a positive attitude towards technology integration into education due to the fact that their students are digital natives and familiar with technological tools. Moreover, participants also noted their students could be engaged and interested in lessons that were taught by utilizing information communication technologies. The participants also commented that technological tools improved their communication skills.

From these results, it can be stated that pre-service and in-service teachers' attitudes can be increased when they take a course related to technology use and integration and their familiarity with technological tools is fostered. It can also be concluded from the research that the high majority of the participants have had positive attitudes towards technology integration at the ends of the researches.

2.6 Perceptions of technology integration

Another popular discussion topic regarding technology integration into education is the perspectives of pre-service or in-service teachers since pre-service, and in-service teachers' perceptions of technology highlight the future integration of technology into education. Robbins (2016) defines perception as the procedure that

people systemize and elucidate their sensory impressions to gain a clear understanding of their environment. In this respect, having positive perceptions of the integration of technology affects the motivation of pre-service and in-service teachers to adapt technology into the curriculum. Nevertheless, having negative perceptions of the integration of technology also limits the use of technology integration since pre-service and in-service teachers' have doubts about the usefulness of technology integration.

Intending to get insights into pre-service and in-service teachers' perceptions of technology integration into curriculum, there have been numerous research (Aydın, 2013; Ben & Kolikant, 2019; Çelik, 2013; Zyad, 2016). For instance, Aydın (2013) conducted a research in Turkey with 157 in-service teachers who worked in elementary and secondary schools by applying a survey. Researchers sought to examine the perceptions of Turkish in-service teachers regarding computer utilization for teaching the English Language. Results of the research showed that participants had positive perceptions of technology integration. However, they possess limited knowledge about employing numerous software such as benefiting from graphics, spreadsheets, publishing software, and webpage authoring software.

In a similar study, Çelik (2013) carried out a research to clarify the instructors' perceptions of internet technologies from 11 universities in Turkey. 486 Foreign language instructors from 11 different universities responded to the questionnaire that the researcher applied. According to the study results, the researcher claimed that most of the participants were aware of how they could benefit from information communication tools and preferred to utilize ICT for structural knowledge of English more than its communicative aspects. On the other

hand, the researcher also argued that the participants were less confident in applying current ICT tools.

By taking a different perspective, Zyad (2016) aimed to clarify in-service teachers' perceptions of technology-related courses' approaches. Forty-six in-service teachers participated in the research, and results were sought to be found by a questionnaire. After the results were examined, the researcher expressed that the participants mentioned technology-related courses were not taught to be utilized in a pedagogical context; they were only taught to make teachers computer literate. Additionally, Zyad (2016) mentioned that almost all participants expressed that they did not have any demo lessons about employing ICT in a pedagogical context.

In another study, Ben and Kolikant (2019) investigated the in-service teachers' perceptions of technology integration to clarify whether in-service teachers have different opinions about integrating 21st century skills, including technology use. The research was conducted by interviewing 11 in-service teachers and five principals who are also teachers in Israel. As the results of the study, the researchers mentioned that teachers believed that schools were falling behind the technology, and technology affects schooling negatively since it has adverse effects on students such as behavioural and cognitive difficulties.

Intending to gain insights into pre-service teachers' and their students' technology perceptions after pre-service teachers' situated teaching practices, Kuru Gönen (2019) conducted a research with eight pre-service EFL teachers. After the qualitative data collected with focus group interviews and reflective diaries, the researcher pointed out that both the pre-service EFL teachers and their students

mentioned the positive effects of technology integration on students' motivation and how it created an enjoyable, motivating, and interactive educational environment. The researcher also claimed that when pre-service EFL teachers were instructed to benefit from technology to improve 21st century skills in their class, their anxiety decreased, and they improved their technological skills and knowledge to adapt them into their classrooms.

The abovementioned studies have clearly indicated that participants of the studies have positive perceptions of technology integration. However, most participants lack confidence in the technology integration training they get and believe schools fall behind technology integration. These studies have also shown having positive perceptions of technology integration increased the motivation of pre-service EFL teachers, in-service teachers, and their learners toward technology integration.

2.7 English Language Teacher Education Programs' contribution to technology integration

The English Language Teacher Education Program (ELTEP) was last restructured in the 2018 academic year by the Higher Education Council (YÖK). Within this latest structure, new courses were introduced, and the new system was launched in Turkish ELTEP. The courses that pre-service EFL teachers are supposed to take and pass to start their professions can be listed under four main categories as field courses, field related courses, historical and general knowledge courses, and pedagogical courses (YÖK, 2018).

Field courses are supposed to support pre-service EFL teachers with the knowledge of English language education, and these courses can be named as Linguistics I and II, Language Acquisition, Testing and Evaluation, Syntax, English Literature I and II, Computer I and II, Scientific Research Methods, Short Story Analysis and Teaching, Poetry Analysis, Novel Analysis and Teaching, Pragmatics, Discourse Analysis. On the other hand, the field related courses are supposed to enrich the pre-service EFL teachers' knowledge about linguistics and competences. These courses are listed as Contextual Grammar I-II, Advanced Reading and Writing I-II, Listening and Pronunciation I-II, Oral Communication Skills I-II, Effective Communication Skills, Vocabulary Acquisition, Translation (English-Turkish), Translation (Turkish-English), Oral Expression and Public Speaking, Second Foreign Language I-II-III.

Additionally, historical and general knowledge courses aim to develop Turkish language competences and historical knowledge and citizenship awareness and these courses are named as Atatürk's Principles and History of Revolutions I-II-III, History of Turkish Revolution, Turkish I: Writing Expression, Turkish II: Speaking Expression, History of Turkish Education, Community Service Applications, Turkish Educational System and School Management. Besides these categories and courses, there are also pedagogical courses whose goal is to increase pedagogical awareness and skills of pre-service EFL teachers. These courses are listed as School Experience, Elective II (CALL), Introduction to Educational Sciences, Psychology of Education, Approaches to ELT I-II, Instruction Principles and Methods, Language Teaching Methodology I-II, Teaching Technologies and

Planning Materials, Teaching English to Young Learners I-II, Teaching Language Skills I-II, Classroom Management, Language Teaching Materials Adaptation and Development, Guidance, Special Education.

With the technological developments and the need to adopt ICT into technology, the Higher Education Council (YÖK) has redesigned the teacher education programs at Education Faculties in Turkish universities and included new courses regarding technology integration into education (YÖK, 1997). Although several courses were designed to improve technological competences of pre-service EFL teachers in Turkey, the results of the courses and competences that pre-service EFL teachers gain need to be analyzed. In this regard, there have been a variety of research (Aşık, Köse, Yangın Ekşi, Seferoğlu, Pereira, & Ekiert, 2019; Başal, 2015; Uzun, 2016) recently to figure out whether the outcomes of these programs were satisfactory. One of these studies which intended to figure out the outcomes of the ELTEP was carried out by Başal (2015). The researcher conducted a literature review synthesis that is about how to train pre-service teachers to integrate technology into the curriculum. Then the researcher investigated the synthesis and designed document analysis. Başal (2015) suggested that one of the interferences drawn from the literature was the deficiencies in the curriculum in ELT programs and the other one was the insufficient teacher trainers which should have been role models of integrating technology into education rather than just teaching technology. As the last interference from the synthesis, Başal (2015) suggested that attitudes of teacher trainers and pre-service teachers represent another important criterion of

technology integration as it was seen as one of the barriers of pre-service teachers' technology integration competences.

By taking a different perspective than the abovementioned study, Uzun (2016) conducted another research on 74 pre-service EFL teachers to investigate the usefulness of several teacher training programs in Turkey. The researcher employed the mixed method by utilizing both the questionnaire and the interview data collection tools. Uzun (2016) argued that when participants were posed the questions, they mentioned that they were uncomfortable in implementing ICT into the curriculum because of the technology integration training they got and the conditions of their country. The participants were also seen as insufficient according to the results of the research.

Another similar study was carried out to find out the quality of language teacher education by comparing three different countries as Turkey, Portugal, and Poland by Aşık et al. (2019). The study focused on pre-service teachers' and teacher trainers' perspectives to gain clear insights into how well teacher education programs prepare pre-service teachers for future technology integration into the curriculum. The researchers (Aşık et al., 2019) utilized the mixed method by applying both ICT scale and semi-structured interviews on 150 pre-service teachers and nine teacher trainers to acquire precise results. As stated by the results, all three countries' education programs possess similar features, except Turkish pre-service teachers consider their teacher trainers as role models to a lower degree than the other two countries. Another significant result pointed out that almost all teacher trainers lacked any technology training, and only four of them utilized a variety of ICT tools

in their lessons. The researchers also indicated that teacher trainers stressed that no support was acquired from the institutional level to integrate ICT into their lessons and some of them integrated ICT as a personal decision.

As maintained by the results of the studies above, Turkish pre-service EFL teachers are uncomfortable with the technology integration training they get. According to the participants, technology integration programs and instructors seem insufficient by Turkish pre-service teachers and the instructors are not seen as role models in implementing ICT tools. However, these findings are not sufficient to generalize the finding for all of the Turkish universities. Thus, further research are required to possess a definite judgment.

2.8 Possible challenges in technology integration

Another popular research topic regarding technology integration into education is pre-service teachers' opinions about possible challenges during the process of technology integration into the curriculum. By investigating pre-service learners' opinions about possible challenges in implementing technology into the curriculum, the hindering factors behind the current study's results can be perceived more clearly. In this regard, Martinovic and Zhang (2012) carried out a research intending to investigate the challenges and complexities of future technology integration. The data was collected from 87 pre-service teachers by applying surveys and focus group meetings for two years. The researchers found out that most pre-service teachers considered ICT applications an essential part of the teacher education program. However, 16% of them considered ICT applications as

unnecessary. Another significant result gained from the research was that pre-service teachers mostly employ laptops, computers, and smartboards. As for the challenges that teacher education programs might face in the future, inadequate modelling of the pedagogical use, limited access to the technological tools, misconceptions of common ICT use, lack of self-efficacy beliefs of pre-service teachers, and pre-service teachers' partially fulfilled expectations were the leading challenges according to the researchers' claims.

Another research was conducted to investigate pre-service teachers' technology use according to standard and proficiency indicators by Murley, Jukes and Stobaugh (2013). The research measured the performance of 375 pre-service teachers from fall 2009 to Spring 2010 and 325 pre-service teachers from spring 2010 to fall 2010 by investigating pre-service teachers' Teacher Work Sample scores which were created as instruments to measure pre-service teachers' ability to adapt K-12 student learning. The researchers argued that secondary education and k-12 had the lowest pre-service teachers meeting the technology standards. Elementary and middle grades educations pinpointed the lowest level of change.

Another similar study was conducted to investigate how effective 86 pre-service teachers are in technology integration. Merç (2015) utilized a questionnaire and semi-structured interviews to gather data from the participants. As maintained by the results, the researcher indicated that the participants considered ICT tools as beneficial tools in English language classes. However, classrooms were insufficient in terms of the technological equipment they possessed. The researcher also pointed out that pre-service EFL teachers failed to utilize technological tools available to them at a satisfactory level.

With similar aims, Batane and Ngwako (2017) conducted a research to investigate whether pre-service teachers utilize technological tools in their teaching practices. The research also aimed to find out pre-service teachers' hindering factors of not using ICT tools in their teaching practices. Data were collected from 52 participants by employing a qualitative approach as interviews, document analysis, and observations. The researchers indicated that only 10% of the participants utilized technology in their teaching practices and students pinpointed that the teaching environment was lack of technological tools. Also, they were unaware that they were supposed to employ technological tools as a criterion of the evaluation.

Considering fast developments in daily lives, becoming a teacher requires some competences related to current teaching methods, learning environment, technology integration, and students' characteristics. These competences are also clearly emphasized by MoNE, and teachers are expected to possess these competences before they graduate from universities. Technological competences can be considered as one of the most crucial parts of these competences since the new generation has grown up with technological devices. Thus, MoNE has carried numerous projects for teachers to benefit from and integrate technology into classrooms (Akkoyunlu & Orhan, 2001; Çakıroğlu & Çakıroğlu, 2003). There have been numerous studies (Başöz & Çubukçu, 2014; Çelik, 2013; Yıldırım, 2000; Wang et al., 2004; Ziad, 2016) related to pre-service teachers' technology self-efficacy, attitudes and perspectives to have insights into pre-service teachers' technology use in their professional teaching career. Some researchers focused on pre-service teachers' self-efficacy levels as they believe there is a positive relationship between their self-efficacy levels and level of technology use (Al-Awidi & Alghazo, 2012;

Magliaro & Ezeife, 2007; Slutsky, 2016; Wang et al., 2004). Moreover; some of the researchers considered pre-service teachers' attitudes as the most essential feature of their future technology use and conducted numerous studies to gain insights into the level of pre-service teachers' attitudes (Başöz & Çubukçu, 2014; Birkollu et al., 2017; Christensen, 2002; Hismanoglu & Hismanoglu, 2011; Giles, 2019; Taghizahed & Yourdshahi, 2019; Teo, 2008; Yıldırım, 2000; Yüksel & Kavanoz, 2011). Furthermore, there were also some studies conducted to have a clear understanding of pre-service teachers' perspectives related to technology use (Aydın, 2013; Ben & Kolikant, 2019; Çelik, 2013; Ziad, 2016).

Although there have been numerous studies broadening our clear understanding of pre-service teachers' self-efficacy levels, attitudes towards technology use, and perspectives on technology integration, none of the research has focused on the technological competences which MoNE expects teachers to possess. Additionally, none of the research has compared pre-service teachers' competency level with the competences, which MoNE expects teachers to possess. In this regard, the present study aims to fill this gap and shed light on this issue by aiming to acquire the technological competency levels of senior pre-service EFL teachers.

CHAPTER III

METHODOLOGY

3.1 Research design

The present study was conducted to gather numerical data from an existing large group, analyze the data by generalizing the findings and analyze and interpret the participants' views on technology integration into education. In order to achieve the aims of the current research, it was essential to utilize both quantitative and qualitative research models as mixed methods research considering Johnson, Onwuegbuzie & Turner (2007) noted, "Mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration" (p. 123). Additionally, Bryman (2007) argues that mixed method design is not just comparing findings of qualitative and quantitative to each other, it is forging an overall understanding from both components.

The main aim of the study was to investigate the technology competency levels of pre-service EFL teachers as defined by MoNE and to what extent they fulfil MoNE's expectations of them. In this regard, collecting quantitative data was considered appropriate as Leedy and Ormrod (2001) noted, "Quantitative researchers seek explanations and predictions that will generate to other persons and places. The intent is to establish, confirm, or validate relationships and to develop generalizations

that contribute to theory” (p. 102). Furthermore, the descriptive research design was utilized in this study to gather data from the participants for the descriptive study is defined as a method used to describe already existing data and offer an appropriate portrayal of a specific group or situation (Burns & Grove 1987).

The present study also aimed to have clear data about senior pre-service EFL teachers’ perspectives on technology integration into education. Moreover, qualitative data was gathered to analyze, obtain, and interpret the participants’ perceptions of integrating technology into education. In this respect, content analysis was also considered appropriate as Downe-Wamboldt (1992) defines content analysis as “a research method that provides a systematic and objective means to make valid inferences from verbal, visual, or written data in order to describe and quantify specific phenomena” (p. 314).

The mixed method was considered the most beneficial method for the present study, as both qualitative and quantitative data were analyzed. Additionally, findings have been integrated with each other to forge an overall understanding of senior pre-service EFL teachers’ technology competency levels.

3.2 Participants

The population of the current study is Turkish senior pre-service EFL teachers as the individuals supposed to pass their courses to graduate and will start their professional careers as foreign language teachers in state or private schools. The sample of the study is 161 senior pre-service EFL teachers from 18 state and two private universities in Turkey. One hundred seventy students volunteered and responded to the online questionnaire, including a few sophomores and junior pre-

service EFL teachers. Thus, responses of the sophomore and junior pre-service EFL teachers were not taken into consideration since they were still supposed to attend and pass a number of graduate courses. Furthermore, one participant's responses were not taken into consideration since the same number was repeated in every response of the participant. After eliminating these participants to acquire reliable results, the total number of the participants was 161 from 18 state and two private universities. The distribution of the participants and their universities are illustrated in Table 3.1.

Table 3.1. The University Names and the Numbers of the Participants

University	Number of Participants
Akdeniz University	63
Marmara University	19
Pamukkale University	18
Erciyes University	14
İstanbul Sabahattin Zaim University	8
Middle East Technical University	7
TED University	6
Düzce University	6
Bolu Abant İzzet University	4
Çanakkale Onsekiz Mart University	3
Süleyman Demirel University	2
9 Eylül University	2
Hacı Bektaş Veli Nevşehir University	2
Tokat Gaziosmanpaşa University	1
Sakarya University	1
Hacettepe University	1
Gazi University	1
İstanbul University	1
Çukurova University	1
Bursa Uludağ University	1

As shown in Table 3.1, the vast majority of the participants were from Akdeniz University, as it is 39.13 percent of the whole participants. The current research includes the name of the university, grade, gender, whether the participants have taken any courses related to technology use in language classes, and their opinions about the most desirable technological competence of EFL teachers universities. Demographic information, such as age and financial situation, were not taken into consideration. It is considered inappropriate to focus on participants' genders and whether they have taken any courses related to technology use in language classes for the vast majority of the participants were female and took courses related to technology. Thus, the participants' gender and whether they have taken any courses related to technology use in language classes were not taken as variables as well.

3.3 Instruments

With the purpose of obtaining a large number of data from the participants, a questionnaire (see Appendix 1) on technology competences was developed since no such questionnaire was available. Using a questionnaire to gather data from a large group of participants is objective (Harris & Brown 2010). In the process of creating the questionnaire, technology competences of the Turkish Ministry of National Education were examined thoroughly since the present study aimed to gather data about the pre-service EFL teachers' technology competences based on technology competences defined by MoNE. Considering the technology competences, an item pool was prepared, and 86 items were put into the item pool. Later, 35 items were chosen for they were evaluated as the most appropriate items for the present study.

After this initial phase, five factors were identified to form the questionnaire with five different categories and the items of the questionnaire were put under these five categories regarding MoNE's technology competences. Then, each item of the questionnaire was stated in English, considering that the participants would be senior pre-service EFL teachers with a good enough English command. Finally, expert opinion was obtained, and alterations were made. The questionnaire consisted of three different parts: demographic information, items under five factors to question participants' competency levels, and a question about participants' perceptions of technology integration into education. The demographic information part consisted of participants' university names, genders, data about whether they have taken technology related courses before, and opinions about the most desirable technological competence of EFL teachers universities. The second part consisted of 35 items under five factors to acquire participants' technology competency levels. Responses were gathered by applying a 5 point Likert-scale that ranged from strongly agree (5) to strongly disagree (1). The last part of the questionnaire consisted of one item about participants' perceptions of technology integration into education. Moreover, the parts of the questionnaire were combined, and the questionnaire was finalized. After finalizing the questionnaire, an expert opinion from another expert was sought. The expert underlined that the questionnaire was adequate and appropriate in terms of organization, content, and language use.

As the last step of preparing the scale, factor analysis was conducted by utilizing a statistic program. In this respect, Table 3.2 illustrates the KMO and Bartlett's Test of Sphericity results.

Table 3.2. KMO and Bartlett's Test of Sphericity Results

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,911
Bartlett's Test of Sphericity	Approx. Chi-Square	2752,468
	df	325
	Sig.	,000

As seen in Table 3.2, Kaiser Meyer Olkin (KMO) value was .911 which is a significant value considering the value should be closer to 1 and Bartlett's test of sphericity tests value was ,000 which is also an appropriate value considering the fact that the value ought to be less than 0,05. Thus, factor analysis yielded a good enough value. After eliminating nine of the items as they were relevant for more than one factor, five factors were kept in the questionnaire. The total variance explained values based on the EFA is illustrated in Table 3.3.

Table 3.3.Total Variance Explained Values based on the EFA

Total Variance Explained							
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings ^a
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	11,503	44,244	44,244	11,503	44,244	44,244	8,029
2	1,957	7,528	51,772	1,957	7,528	51,772	3,393
3	1,579	6,074	57,846	1,579	6,074	57,846	8,781
4	1,504	5,785	63,631	1,504	5,785	63,631	5,519
5	1,151	4,427	68,058	1,151	4,427	68,058	5,201

As illustrated in Table 3.3, the cumulative percentage of five factors is 68,058, and these five factors explain 68,058 of total variances. After nine items were eliminated as they were relevant for more than one factor, the second part of the

scale consisted of 26 items in five different factors. These items and factors are illustrated in Table 3.4.

Table 3.4. Technology Competences Assessment Scale Items and Factors Part I

Pattern Matrix^a					
	Factors				
	1	2	3	4	5
I believe I can encourage my students to use technological tools effectively for language learning.	,795				
I believe I can guide my students to use current technologies for out-of-class activities.	,791				
I believe I can use the smartboards and related software in my English classes.	,759				
I believe I can guide my students to use recent technologies for in-class activities.	,693				
I believe I can guide my students to present their works by using technological tools in the class.	,668				
I believe I can act as a role model for my students in using technologies for educational purposes.	,602				
I believe I can guide my students to present their works by using technological tools out of the class.	,577				
I believe I can provide appropriate learning environments for learners' needs by using educational technology.	,367				
I follow web-based platforms about how to use educational technology in EFL.		,891			
I follow groups in social media related to technology use in language teaching.		,760			
I read academic publications on technology use in teaching.		,701			
I believe I can choose appropriate educational technology to enhance students' speaking skills.			,905		
I believe I can employ appropriate educational technology to enhance students' speaking skills.			,829		

Table 3.4. Technology Competences Assessment Scale Items and Factors Part 2

I believe I can employ appropriate educational technology to enhance students' writing skills.	-,729
I believe I can select appropriate educational technology to enhance students' writing skills.	-,714
I believe I can employ appropriate educational technology to enhance students' reading skills.	-,667
I believe I can evaluate the appropriateness of the technological tools concerning my students' interests.	-,648
I believe I can select appropriate educational technology to enhance students' listening skills.	-,607
I believe I can evaluate the appropriateness of the technological tools concerning my students' language levels.	-,556
I believe I can offer equal opportunities for all of my students in using technology in my classes.	,919
I believe I can encourage my students to use the recent technologies equally in my classes.	,846
I believe I can organize technology-endowed language learning environments for all my students	,766
I believe I am qualified enough to use recent technologies for my English courses.	,840
I believe I can make use of current technologies in my EFL courses.	,724
I believe I can provide appropriate learning environments for learners' language levels by using educational technology.	,466
I believe I can provide appropriate learning environments for learners' interests by using educational technology.	,345

With experts' opinions, the finalized Technology Competences Assessment Scale (TCAS) was prepared on an online survey website. The final form of the scale consists of three parts. The first part consisted of four items and was prepared to obtain data about participants' university name, grade, gender, whether they had any

courses related to technology use in language classes, and their opinions about EFL teachers' most desirable technological competence. The second part of the TCAS consisted of 26 items and was designed to gain insights into participants' technological competences related to the required technological competences of the MoNE. The last part of the TCAS was designed to gather participants' perceptions related to the technological competences of EFL teachers (see Appendix 1).

3.4 Data gathering process

The research was conducted in the summer of 2020. As an unexpected condition occurred because of the COVID19 pandemic, preparing an online scale and sharing it with participants via link were found appropriate. In this regard, the researcher shared the online scale with 66 different English Language Teaching (ELT) department chairs of state and private universities via email by clearly stating the aim of the research and asked them to forward the scale to their senior pre-service EFL teachers. 20 universities supported the research and forwarded TCAS to their senior pre-service EFL teachers (see Appendix 2).

3.5 Data analysis

The 26 items of TCAS were applied to derive a technological competency score representing participants' competency levels. Responses were assessed by applying a 5 point Likert-scale which ranged from strongly agree (5) to strongly disagree (1). The scores from 26 items were uploaded to a statistical program and totaled in order to have one average technology competency score for each participant. The data acquired from the senior pre-service EFL teachers were

analyzed considering the first research question. The average scores of the participants' competency levels were put into two categories as adequate and inadequate. If the participant's score was three or more than three, it was considered adequate in implementing technology into their curriculum. These participants were considered to fulfil MoNE's expectation regarding technology integration. On the other hand, if the participant's score was less than three, it was considered inadequate in implementing technology into their curriculum. These participants were considered to fail to fulfil MoNE's expectation regarding technology integration. To gain a clear understanding of the participants' technological competences based on the technological competences which the MoNE expects the senior pre-service EFL teachers internalize, frequency tables, percentages tables, and bar charts have been formed.

Moreover, another question was posed to participants considering their opinions about EFL teachers' most desirable technological competence in the demographic information section. After the data was acquired, frequency tables, percentages tables, bar charts were used to obtain insights into the most desirable technological competences which the pre-service EFL teachers should possess according to participants' views.

In order to answer the last research question that aimed to gather information about pre-service EFL teachers' perceptions regarding technology integration into education, another question was posed to participants as the last part of the questionnaire. After the data were obtained, qualitative data were analyzed by utilizing content analysis and inductive coding. Firstly the responses were transcribed as raw data into a word document, and then the key messages were transcribed as the

preliminary codes from each data. Then, the preliminary codes were put into two categories as positive perspectives and negative perspectives. Lastly, the transcribed preliminary codes were investigated and separated into seven different categories as the final codes including four positive and three negative perspectives. A sample of the process of qualitative coding is illustrated in Table 4.6.

Table 4.6 The Sample of Qualitative Coding

Raw Data	Preliminary Codes	Final Code
it is essential to integrate technology since we, teachers, are digital immigrants and our students will be digital natives. we have to keep up with them if we are planning to be great teachers! thank you for trying to draw attention to this concern.	The new generation of learners The reasons to use technology Being a great teacher	The importance of technology implementation

CHAPTER IV

FINDINGS

4.1: Introduction

In this chapter, findings of the study will be presented in line with the research questions.

4.2: The pre-service EFL teachers' technology competency levels

The first research question aimed to find out the pre-service EFL teachers' technological competency levels and gain clear insights into whether their levels are adequate based on MoNE's technological competences. In order to analyze the related data, the responses of the participants were put into a statistic program and each participant's average technology competency score was calculated. Additionally, overall mean, median and range were also calculated from each participant's average technology competency score and illustrated in Table 4.1. The findings concerning the participants' technological competency level is illustrated in Table 4.1.

Table 4.1. Participants' Average Technology Competency Score

technology_competency_levels		
N	Valid	161
	Missing	0
Mean		4,1221
Median		4,0769
Std. Deviation		,51554
Range		2,38
Minimum		2,62
Maximum		5,00

As illustrated in Table 4.1, the participants' mean technology competency level is 4.1221, which is considered adequate in implementing technology into their curriculum, and the mean of the participants' average technology competency levels fulfils MoNE's expectation regarding technology integration. One of the participants had a 2.62 average score which is the minimum score of the research. On the other hand, five of the participants had maximum scores from the research. Thus, the range between the highest score and the lowest score is 2.38.

As well as the technology competency mean scores of the sample group, the participants' technology competency frequency scores can be seen in Table 4.2.

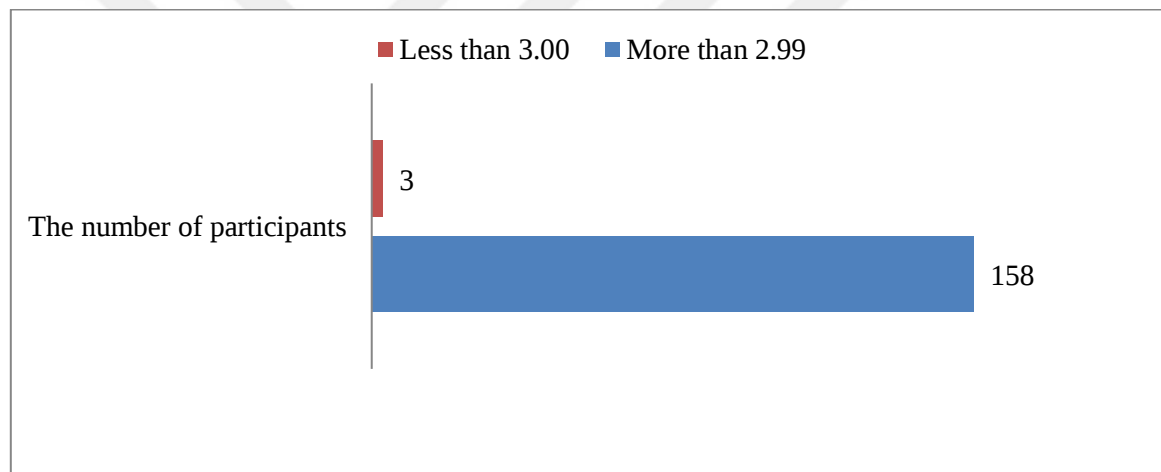


Figure 4.2. Participants' Technology Competency Frequency Table

As seen in Table 4.2, three participants' technology competency scores are less than 3.00, and these participants were considered inadequate in implementing technology into their curriculum. Besides, these participants failed to fulfil MoNE's expectations regarding technology integration as they scored 2.62 (MP 89), 2.69 (MP 101), and 2.77 (FP 161). On the other hand, five participants' technology competency scores were 5.00, and these participants had the maximum score in TCAS. Including the five participants who had the highest TCAS score, 158

participants' scores were ranged between 3.00 and 5.00 and were considered adequate in implementing technology into their curriculum. Moreover, the findings revealed that these 158 participants fulfilled MoNE's expectations regarding technology integration. The analysis of each participant's TCAS scores is given in appendix 3.

4.3 The desirable technological competences which pre-service EFL teachers should possess

The second research question aimed to find out the most desirable technological competences of pre-service EFL teachers. One question was posed to participants about the most desirable technological competences, and they were asked the rate their opinion on the statement. After the researcher gathered the data, the responses of the sample group were analyzed. Moreover, a percentage table and frequency table were prepared to illustrate the findings visually regarding the participants' responses. The percentages and frequencies of the related findings are illustrated in Table 4.3.

Table 4.3. The Most Desirable Technological Competences Based on Participants' Views

Competences	Number of participants	Percentage
Creating digital materials for language teaching	94	56.52 %
Using in-class technological tools for language teaching (smartboard, projector, laptop, etc.)	88	54.66 %
Using out-of-class technological tools for language learning (online classroom, online video conference, smartphone, etc.)	66	40.99 %
Guiding language learners to benefit from appropriate technological tools	64	39.75 %
Evaluating online sources for language teaching	51	31.68 %
Computer literacy	44	27.33 %

As illustrated in Table 4.3, most of the participants believe that creating digital materials for language teaching (56.52 %) and using in-class technological tools for language teaching (smartboard, projector, laptop) (54.66%) are the two most desirable technological competences. Moreover, according to the results, using out-of-class technological tools for language learning (online classroom, online video conference, smartphone) (40.99) and guiding language learners to benefit from appropriate technological tools (39.75) are also emphasized. On the other hand,

evaluating online sources and computer literacy are the least desirable competences according to the pre-service EFL teachers.

4.4 The pre-service EFL teachers' perspectives on technology integration into education

The third research question aimed to gain insights into pre-service EFL teachers' perspectives on technology integration into education. As the participants responded to questions voluntarily, most of the participants did not respond to the open-ended question related to research question 3. Moreover, nine of them noted they did not have any comments about technology integration into education. After the data were analyzed by employing content analysis and inductive coding as it was mentioned in data analysis, the final version of qualitative coding is illustrated in Table 4.5.

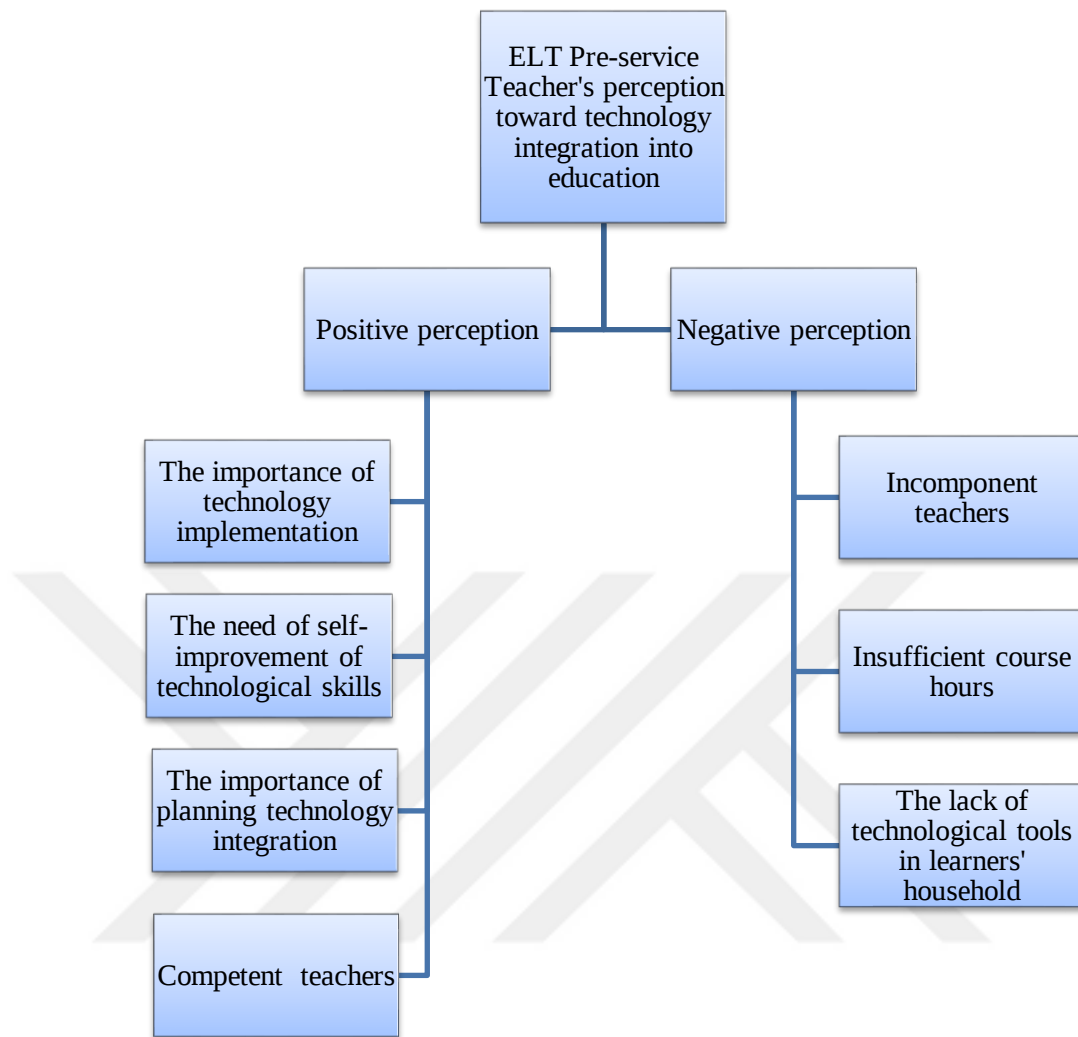


Figure 4.5 The Final Version of Qualitative Coding

The final codes consisted of mutual key words of different participants' perspectives on technology integration into the curriculum. Furthermore, the final codes of the current qualitative coding are illustrated in two categories as positive perceptions and negative perceptions in Table 4.5. Positive perceptions were listed as the importance of technology implementation, the need for self-improvement of technological skills, the importance of planning technology integration, and competent teachers. On the other hand, negative perceptions were listed as

incompetent teachers, insufficient course hours, and the lack of technological tools in learners' household.

According to the data gathered from 30 pre-service EFL teachers, the participants noted that teachers should develop their technological skills constantly to keep up with the current technology as there are always new technological developments. Some of the participants' (66F, 110F, 123F, 50M, 154F) views in terms of the need of self-improvement of technological skills are exemplified as follows.

As teachers, we must constantly renew ourselves. We should be trained to use technology effectively in teaching. However, having technology is not enough, it is important to use it correctly and effectively. We should know, practice and develop lifelong learning skills (66F).

I think teacher are educated in terms of using technology in their class. Because everything is changing day by day. Students are very intelligent and they are following technological developments. So, we should catch them and know about some certain technological qualifications (110F).

I think all teachers should be capable of using all kinds of technological teaching materials. We live in this modern world and always should cope with new technologies and so on (123F).

They should update themselves according to new changes in technology (50M).

We can all try to learn and get better at using technology. It'll make things easier (154F).

Moreover, the participants also mentioned that being competent at benefiting from technology was an essential part of being a teacher, and technology is the future. Some of the participants' (36NA, 132M, 112M, 155F) views are excerpted to elucidate their perspectives on the importance of technology integration.

it is essential to integrate technology since we, teachers, are digital immigrants and our students will be digital natives. we have to keep up with them if we are planning to be great teachers! thank you for trying to draw attention to this concern (36NA).

To me, the key factor in teaching-learning process is being aware of what a teacher can and what a teacher should do in the process. If a teacher is aware of this, he/she will make use of any assistant material including technological advances. Thank you (132M).

It helps to enhance our skills (112M).

That is the future of learning (155F).

Furthermore, some of the participants (21F, 73M, 159F) believe that EFL teachers are incompetent to integrate technology into their classes, and as time goes, they will fail to keep up with technology. The participants' views are specified to highlight their perspectives related to incompetent teachers.

The use of technology in EFL context is a new era and a challenge for all the teachers in Turkey. English teachers in Turkey are not enough competent to integrate technology in their classes (21F).

I'm writing these lines according to my previous job which was computer technician. I don't want to overgeneralize; however, most teachers I attended their lectures in EFL were not competent to use technological devices. Also, as I observed my classmates who will be the teachers of near future. I could say they were definitely better than any EFL teachers working at university and state schools (73M).

Sometimes, their knowledge is not enough, especially for old generations. Mainly because the technology forced to them and they don't understand the technology or the currents trends like we do. However, with new generation I am hopeful that they are more skilled, yet I don't think they will use it efficiently because technology offers variety of opitons to choose from yet I don't think teachers are aware of all of them or willing to use them because after all, you need to learn about it in order to use it efficiently. So, I believe in some aspects, some of them ignorant about current aspects because it takes time to learn and not all of them willing to learn (159F).

On the other hand, some of the participants (78F, 141F) also noted that teachers should first focus on planning, sources and their purposes while employing technology in their classes. The view of a participant is excerpted.

As teachers, we shouldn't forget our teaching purpose while using technology (78F).

In addition, some of the participants (15F, 100F) believe that the number of courses related to educational technology is not enough and should be increased in training programs. The participants' views in terms of insufficient course hours are exemplified as follows.

I think that the number of courses that will provide English teacher candidates with technological competencies should be increased in the teacher training programs (15F).

I believe that we should have taken classes on technology (100F).

One of the participants (26M) noted that EFL teachers' competency levels are higher than other teachers. Related perspective is excerpted to elucidate the participant's view.

Actually the technological competence of EFL teachers is far beyond the other teachers except the ICT teachers. We can understand it from the social interaction sites and the other studies done to see the technological competencies of the teachers. They can use the technology and the tools efficiently (26M).

Lastly, it was also noted that students are not able to benefit from technological tools equally as not all of them are able to purchase current technological devices. Related view is stated below.

Even if we want students to educate equally by using technology. Each student has different lifestyle, interests and income (e.g. money). Recent technologies need a great deal of money to be bought. Not all of the students we face during our lifetime can afford to buy recent technologies (133M).

CHAPTER VI

DISCUSSION, CONCLUSION AND SUGGESTIONS

5.1 Introduction

This study aimed to gain a clear understanding of pre-service EFL teachers' technological competencies according to technological competences that MoNE expects teachers to possess. In this regard, the current study was carried out by adopting a quantitative and descriptive research design, and Technology Competences Assessment Scale was employed in order to obtain relevant data.

Another purpose of the current study is to find out what the most desirable technological competence is according to pre-service EFL teachers. In this regard, the researcher analyzed the data and stated above.

Lastly the last purpose of the study is to gain insights into pre-service EFL teachers' perspectives on technology integration into education. Concerning this aim, qualitative research design, content analysis and inductive coding have been utilized.

In this chapter, the results obtained through the study were summed up, discussed, and interpreted in relation to relevant literature. The results of the study are discussed in relation to relevant literature and recommendations are stated for further studies.

5.2 Discussion

According to the study results, the vast majority of the participants, except two, had adequate technology competency scores in technology integration, and these participants are considered as adequately compatible with the competences expected by the MoNE. It can be concluded from this finding that pre-service EFL teachers feel themselves competent to use and adapt the recent ICT tools in their classrooms. Additionally, this finding revealed that Turkish universities prepare pre-service EFL teachers sufficient to employ technology in their professional careers. Moreover, it can be stated that a high majority of pre-service EFL teachers fulfil the MoNE's expectation regarding technological competences by possessing adequate skills to integrate technology into their curriculum. Participants' adequate scores may result from their technology training courses' contents, for some universities offer elective technology use courses to their learners besides other obligatory technology related courses. Furthermore, the age range can also affect the study results as people of these ages enjoy spending their time with ICT tools and have probably grown up using several ICT tools. Additionally, instructors might have played a vital role in this result by teaching how to benefit from ICT tools to the participants effectively. Besides, personal background knowledge of ICT tools can significantly affect this result since most learners are required to employ ICT tools in their learning processes.

Concerning these findings, it can be interpreted that graduate courses related to technology integration positively impacted pre-service EFL teachers' competences regarding technology implementation. This finding is in line with Christensen's study (2002) as Christensen noted educational technology integration trainings

influenced participants' attitudes positively toward ICT. Besides, it can also be stated that a vast majority of the participants have positive attitudes towards technology use as their overall scores are adequate in technology integration. In this regard, these findings also coincide with the findings of Birkollu et al. (2017), Yüksel and Kavanoz (2011), as they also noted pre-service EFL teachers had positive attitudes towards technology use.

Another aim of the current study was to gain a clear understanding of pre-service EFL teachers' perceptions about which technological competence was the most desirable for them. According to the data gained, more than half of the participants believed that creating digital materials for language teaching and using in-class technological tools for language teaching (smartboard, projector, laptop) were crucial to possess in implementing technology into their curriculum. It can be interpreted that most of the participants are focused on using technological tools for in-class teaching more than out-of-class teaching. The participants also emphasized the importance of using digital materials as teaching materials. Moreover, the results revealed that the participants consider using out-of-class technological tools for language learning (online classroom, online video conference, smartphone) and guiding language learners to benefit from appropriate technological tools essential although these two competences are not the most desirable two technological competences for them. It can be interpreted that guiding students for out-of-class learning are seen as significant, but it is not the primary goal of pre-service EFL teachers. Furthermore, according to the results, it can be clearly stated that evaluating online sources and computer literacy are not considered as crucial as other competences as they are chosen as the least desirable competences by pre-service

EFL teachers. Regarding this result, it can be concluded that the participants are aware of the decrease in computer use in education since new smartboards are widely used in Turkish education, and they believe computer literacy is the least significant competence among other competences.

In this perspective, this research's findings are in conflict with the findings of Teo (2008) and Başöz and Çubukçu (2014) considering the fact that both Teo and Başöz and Çubukçu claimed that pre-service EFL teachers' had positive attitudes or perspectives on computer use.

In addition, the last aim of the research was to gain clear knowledge about participants' perceptions regarding the technological competences of EFL teachers. According to the findings, the participants noted that teachers ought to improve their skills related to technology use to catch up with current technological tools and benefit from them. It can be stated that pre-service EFL students are aware of the self-development of technological skills as rapid change frequently occurs in technology. The pre-service EFL teachers believe that employing technology in their classes is an essential part of current and future teaching. It can be interpreted that the pre-service EFL teachers are also aware of the needs of the new generations, and they aim to offer them an educational environment that is mainly equipped with technological tools. On the other hand, some of the participants also mentioned that pre-service EFL teachers and in-service EFL teachers lack enough technology competences and they will not be successful in employing technology in the future. Nevertheless, according to the findings of the first research question, the vast majority of the senior pre-service EFL teachers had adequate technology competency scores in integrating technology into education. Furthermore, some of the

participants noted that the first things teachers ought to consider are their purposes and sources while teaching rather than technology use. Moreover, some participants find the number of undergraduate courses related to technology use insufficient as they believe it should be increased. The participants also believe that the competency levels of EFL teachers are higher than other teachers. Finally, it was also mentioned that not all of the students are equal, as they are not able to afford the same technological devices.

Some of the participants of the study consider technology related courses inadequate as the number of courses was not enough. This finding is in line with the finding of Ziad (2016) who found that his participants considered technology related-courses to be inadequate.

In addition, as the participants mentioned that the competency levels of their instructors were not enough to benefit from technological tools. The instructors can't keep up with the current technology. This finding coincides with the finding of Ben and Kolikant (2019) as it was noted that the participants believed their teachers couldn't keep up with current technology and they fall behind the technological innovations.

Another significant finding of the current research pointed out that participants considered technology integration essential for English teaching. Teachers should update their technological skills to benefit from technological tools for their teachings as technology changes. This finding coincides with the findings of Martinovic and Zhang (2012) and Merç (2015) as the participants in their studies

noted that technology is an essential part of the teacher education program and English teaching.

5.2 Conclusion

Although there have been numerous studies carried in order to reveal pre-service EFL teachers' self-efficacy levels, attitudes, and perceptions of technology integration, there has not been any research on the competency levels of pre-service EFL teachers regarding MoNE technology competences in the available literature. In this regard, this research fills this gap by questioning pre-service EFL teachers' technological competences that align with the EFL teachers' competences defined by MoNE.

The study results showed that a vast majority of the participants had adequate technology competency score and fulfilled the expectation of the MoNE regarding technology implementation into education. This finding might support the material designers, policymakers, and book writers in creating technology-related materials and curriculum for EFL teachers.

According to the study results, creating digital materials for language teaching and using in-class technological tools for language teaching (smartboard, projector, laptop) are the two most desirable technology competences. However, evaluating online sources and computer literacy are the two least desirable technology competences. In this perspective, universities' technology-related courses could be enriched in terms of evaluation of different sources and computer literacy.

The participants stated that teachers should constantly improve their technological skills to catch up with the current technology and be competent at integrating technology into education was an essential part of being a teacher. Some of the participants claimed that teachers are not competent enough to benefit from technological tools, and the number of classes in regard to technology use should be increased. On the other hand, the participants also stated that teacher should first focus on planning, sources and their purposes when they used technological tools and each student was not equipped with technological tools equally. The abovementioned perspectives of the participants can contribute to the relevant literature and shed light on the issue of improving the technological competences of EFL teachers.

5.4 Recommendations for Future Research

This study was conducted to gain insights into numerous state and private universities pre-service EFL teachers' technology competences based on the technological competences of MoNE, the most desirable technological competences according to pre-service EFL teachers and pre-service EFL teachers' perspectives in regard to EFL teachers' technological competences. In this perspective, researchers can expand this research by focusing on the hindering factors behind the competency levels of pre-service EFL teachers. Additionally, researchers can investigate whether there are significant correlations between pre-service EFL teachers' competency levels and university types, gender, background technology education.

5.5 Theoretical and Practical Implications

In regard to the findings of the present study, several theoretical and practical implications were posed:

Material designers and instructors can provide an enriched technological environment for teachers to employ in their classes considering the current study found out that the vast majority of the senior pre-service EFL teachers were adequate in implementing technology into the curriculum.

Policymakers and book writers can consider teachers well trained in terms of benefiting from the technology and suggest using new materials in the curriculum considering the current study showed the high technology integration competency level of participants.

Instructors can focus more on the evaluation of the online sources for language teaching in their curriculum as the current study revealed that the participants had the least interest in evaluating online sources for language teaching.

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APPENDIX 1. TECHNOLOGY COMPETENCES ASSESSMENT SCALE

PRE-SERVICE EFL TEACHERS' TECHNOLOGICAL COMPETENCES

Dear English language teacher candidates,
Thank you very much for your support and time by taking this survey. This survey aims to acquire insights about pre-service EFL teachers' technological competences. Your participation in this survey is voluntary and you can withdraw from the survey at any point. Your responses to this survey will be completely confidential and used only for research purposes. The information you provide will be interpreted anonymously.
Sincerely,

Emrullah AY
emrullahemay@gmail.com

1. I agree to participate in the research study. I understand the purpose and nature of this study and I am participating voluntarily. I understand that I can withdraw from the study at any time, without any penalty or consequences. *

☐ Yes

☐ No

2. University name: *

T

3. Grade *

☐ 4

☐ 3

☐ 2

☐ 1

4. Gender *

☐ Female

☐ Male

☐ I prefer not to answer

5. Have you ever taken any course on the use of technology in language classes during your education? *

☐ Yes

☐ No

6. According to your opinion, what is/are the most desirable technological competencies of EFL teachers? *

☐ Computer literacy

☐ Creating digital materials for language teaching

☐ Evaluating online sources for language teaching

☐ Guiding language learners to benefit from appropriate technological tools

☐ Using in-class technological tools for language teaching (smartboard, projector, laptop, etc.)

☐ Using out-of-class technological tools for language learning (online classroom, online video conference, smartphone, etc.)

☐ Other

Please rate your level of agreement to the below statements by considering yourself working English language teacher. There is no right or wrong answer. Just choose the options that reflect your agreement. Strongly Disagree (1), Disagree (2), Undecided (3), Agree (4), Strongly Agree (5).

7. I believe I am qualified enough to use recent technologies for my English courses. *

1

2

3

4

5

8. I believe I can make use of current technologies in my EFL courses. *

1

2

3

4

5

9. I believe I can use the smartboards and related software in my English classes. *

1

2

3

4

5

10. I believe I can encourage my students to use technological tools effectively for language learning. *

1	2	3	4	5
---	---	---	---	---

11. I believe I can act as a role model for my students in using technologies for educational purposes. *

1	2	3	4	5
---	---	---	---	---

12. I believe I can guide my students to use recent technologies for in-class activities. *

1	2	3	4	5
---	---	---	---	---

13. I believe I can guide my students to use current technologies for out-of-class activities. *

1	2	3	4	5
---	---	---	---	---

14. I believe I can offer equal opportunities for all of my students in using technology in my classes. *

1	2	3	4	5
---	---	---	---	---

15. I believe I can organize technology-endowed language learning environments for all my students *

1	2	3	4	5
---	---	---	---	---

16. I believe I can encourage my students to use the recent technologies equally in my classes. *

1	2	3	4	5
---	---	---	---	---

17. I believe I can evaluate the appropriateness of the technological tools concerning my students' interests. *

1	2	3	4	5
---	---	---	---	---

18. I believe I can evaluate the appropriateness of the technological tools concerning my students' language levels. *

1	2	3	4	5
---	---	---	---	---

19. I believe I can select appropriate educational technology to enhance students' listening skills. *

1	2	3	4	5
---	---	---	---	---

20. I believe I can employ appropriate educational technology to enhance students' reading skills. *

1	2	3	4	5
---	---	---	---	---

21. I believe I can choose appropriate educational technology to enhance students' speaking skills. *

1	2	3	4	5
---	---	---	---	---

22. I believe I can employ appropriate educational technology to enhance students' speaking skills. *

1	2	3	4	5
---	---	---	---	---

23. I believe I can select appropriate educational technology to enhance students' writing skills. *

1	2	3	4	5
---	---	---	---	---

24. I believe I can employ appropriate educational technology to enhance students' writing skills. *

1	2	3	4	5
---	---	---	---	---

25. I believe I can provide appropriate learning environments for learners' interests by using educational technology. *

1	2	3	4	5
---	---	---	---	---

26. I believe I can provide appropriate learning environments for learners' needs by using educational technology. *

1	2	3	4	5
---	---	---	---	---

27. I believe I can provide appropriate learning environments for learners' language levels by using educational technology. *

1	2	3	4	5
---	---	---	---	---

28. I believe I can guide my students to present their works by using technological tools in the class. *

1	2	3	4	5
---	---	---	---	---

29. I believe I can guide my students to present their works by using technological tools out of the class. *

1	2	3	4	5
---	---	---	---	---

30. I read academic publications on technology use in teaching. *

1	2	3	4	5
---	---	---	---	---

31. I follow web-based platforms about how to use educational technology in EFL. *

1	2	3	4	5
---	---	---	---	---

32. I follow groups in social media related to technology use in language teaching. *

1	2	3	4	5
---	---	---	---	---

33. Do you have any comments about technological competencies of EFL teachers?


--

APPENDIX 2. THE SAMPLE OF THE EMAIL



APPENDIX 3. PARTICIPANTS' TECHNOLOGY COMPETENCY SCORES

Participant 1	3,77
Participant 2	3,54
Participant 3	4,27
Participant 4	4,77
Participant 5	3,81
Participant 6	3,96
Participant 7	4,81
Participant 8	4,50
Participant 9	4,81
Participant 10	4,00
Participant 11	3,62
Participant 12	4,38
Participant 13	4,31
Participant 14	4,81
Participant 15	3,62
Participant 16	3,85
Participant 17	4,69
Participant 18	3,54
Participant 19	4,12
Participant 20	4,77
Participant 21	3,65
Participant 22	3,96
Participant 23	3,35
Participant 24	4,00
Participant 25	3,77
Participant 26	4,88
Participant 27	3,65
Participant 28	4,42
Participant 29	3,77
Participant 30	4,54
Participant 31	4,73
Participant 32	3,73
Participant 33	4,38

Participant 34	3,88
Participant 35	4,15
Participant 36	4,69
Participant 37	4,35
Participant 38	4,54
Participant 39	4,85
Participant 40	4,08
Participant 41	3,88
Participant 42	3,46
Participant 43	3,96
Participant 44	3,50
Participant 45	3,50
Participant 46	3,92
Participant 47	4,04
Participant 48	4,62
Participant 49	4,92
Participant 50	4,65
Participant 51	4,08
Participant 52	3,27
Participant 53	3,69
Participant 54	3,62
Participant 55	4,08
Participant 56	4,62
Participant 57	4,12
Participant 58	4,42
Participant 59	3,96
Participant 60	3,42
Participant 61	5,00
Participant 62	3,50
Participant 63	4,23
Participant 64	4,62
Participant 65	3,81
Participant 66	3,88
Participant 67	4,38
Participant 68	5,00

Participant 69	4,92
Participant 70	3,69
Participant 71	4,00
Participant 72	4,62
Participant 73	3,88
Participant 74	4,19
Participant 75	3,69
Participant 76	3,65
Participant 77	4,15
Participant 78	4,50
Participant 79	4,96
Participant 80	4,42
Participant 81	4,65
Participant 82	3,85
Participant 83	3,96
Participant 84	4,50
Participant 85	4,00
Participant 86	4,42
Participant 87	4,00
Participant 88	3,54
Participant 89	2,62
Participant 90	3,85
Participant 91	4,96
Participant 92	4,19
Participant 93	4,08
Participant 94	3,35
Participant 95	3,92
Participant 96	3,96
Participant 97	4,69
Participant 98	5,00
Participant 99	4,00
Participant 100	3,27
Participant 101	2,69
Participant 102	4,77
Participant 103	5,00

Participant 104	4,69
Participant 105	4,85
Participant 106	4,73
Participant 107	4,04
Participant 108	3,92
Participant 109	4,08
Participant 110	3,77
Participant 111	4,19
Participant 112	4,27
Participant 113	3,46
Participant 114	4,50
Participant 115	4,85
Participant 116	3,69
Participant 117	4,23
Participant 118	3,00
Participant 119	4,08
Participant 120	3,54
Participant 121	4,00
Participant 122	4,50
Participant 123	4,92
Participant 124	3,96
Participant 125	4,00
Participant 126	4,58
Participant 127	4,38
Participant 128	3,88
Participant 129	3,77
Participant 130	4,54
Participant 131	4,62
Participant 132	4,65
Participant 133	4,08
Participant 134	3,92
Participant 135	4,12
Participant 136	3,23
Participant 137	3,81
Participant 138	4,92

Participant 139	3,88
Participant 140	3,92
Participant 141	4,54
Participant 142	4,62
Participant 143	4,31
Participant 144	3,62
Participant 145	4,73
Participant 146	3,96
Participant 147	4,54
Participant 148	3,50
Participant 149	4,46
Participant 150	3,81
Participant 151	3,62
Participant 152	3,04
Participant 153	4,00
Participant 154	3,38
Participant 155	4,58
Participant 156	3,81
Participant 157	3,73
Participant 158	4,19
Participant 159	5,00
Participant 160	4,46
Participant 161	2,77

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**PRE-SERVICE EFL
TEACHERS'
TECHNOLOGICAL
COMPETENCY LEVELS**

Ay,
Emrullah

Yüksek Lisans Tezi, Yabancı Diller Eğitimi Ana Bilim Dalı

Tez Danışmanı: Doç.Dr. Mustafa Caner

03.2021,
95 sayfa



Pre-service EFL teachers technological competency levels

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