

A CASE STUDY ON THE DEVELOPMENT OF
TURKISH PRE-SERVICE EFL TEACHERS' DIGITAL COMPETENCE



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A Case Study on the Development of
Turkish Pre-Service EFL Teachers' Digital Competence

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DECLARATION OF ORIGINALITY

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- this is a true copy of the thesis approved by my advisor and thesis committee at Boğaziçi University, including final revisions required by them.

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ABSTRACT

A Case Study on the Development of Turkish Pre-Service EFL Teachers' Digital Competence

The present qualitative case study aims to explore the impact of a technology-enhanced language teaching course on pre-service EFL (English as a Foreign Language) teachers' digital competence development from the perspective of the Digital Competence Framework for Educators (DigCompEdu). The participants were six pre-service EFL teachers at a state university in Turkey. The data collected during the course was enriched with data collected during participants' teaching practicum to fill the gap in the literature. The research questions aimed to explore (1) the participants' perceived digital competence before and after the study, the DigCompEdu areas where the participants made the most and least progress during the course, (2) whether and how the participants' digital competence developed in practice, (3) whether and how the participants planned to benefit from their digital competence training in the future, (4) whether and how the participants could transfer their digital competence to teaching practicum and their reflections on using technology in macro teachings. Data were gathered through surveys, interviews, reflection papers, and performance tasks. The findings revealed that the participants' perceived competence increased after the study, and they planned to reflect their competence to their future teachings. It was also found that the development of digital competence is a complex process affected by several factors, and the participants could not transfer their digital competence to their performance tasks during coursework and practicum in the same way.

ÖZET

Türk İngilizce Öğretmen Adaylarının

Dijital Becerilerinin Gelişimi Üzerine Bir Vaka Çalışması

Bu nitel vaka çalışmasının amacı teknoloji destekli dil öğretimi adlı dersin yabancı dil öğretmen adaylarının dijital yeterlilik gelişimi üzerindeki etkisini Eğitimciler için Dijital Yeterlilik çerçevesi perspektifinden incelemektir. Katılımcılar, Türkiye’deki bir devlet okulundan altı yabancı dil öğretmen adayıdır. Dersten toplanan veriler katılımcıların öğretmenlik uygulamalarından toplanan verilerle zenginleştirilmiştir. Araştırma soruları, (1) katılımcıların çalışmadan önceki ve sonraki dijital yeterlilik algıları, katılımcıların çalışma boyunca Eğitimciler için Dijital Yeterlilik çerçevesinin alanlarının hangilerinde en çok ve en az geliştiklerini, (2) katılımcıların dijital yeterliliklerinin pratikte gelişip gelişmediği ve nasıl geliştiğini, (3) katılımcıların sağlanan dijital yeterlilik eğitiminden ilerideki meslek hayatlarında yararlanmayı planlayıp planlamadıkları ve nasıl yararlanmayı hedeflediklerini, (4) katılımcıların dijital yeterliliklerini öğretmenlik uygulaması derslerine aktarıp aktaramadıklarını ve staj derslerinde teknoloji kullanımlarına yönelik yansımalarını irdelenmiştir. Çalışmadaki başlıca veriler anketler, yansıtıcı kompozisyonlar, performans görevleri ve mülakatlardan oluşmaktadır. Bulgular çalışmadan sonra katılımcıların dijital yeterlilik algılarının olumlu yönde arttığını ve edindikleri yeterliliklerini gelecekteki derslerine yansıtmayı planladıklarını ortaya koymuştur. Ayrıca bulgular dijital yeterlilik gelişiminin çeşitli faktörlerden etkilenen karmaşık bir süreç olduğunu ve katılımcıların dersten öğrendiklerini hem ders hem staj süresindeki performans görevlerine aynı şekilde aktaramadıklarını göstermiştir.

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DEDICATION

I would like to dedicate this thesis to my mother and my stepfather. I am thankful for their endless support and unconditional love. This thesis is also dedicated to my late father. He could not be there for me to celebrate my achievements, but I know that he would be proud of me.



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ABBREVIATIONS

CALL: Computer-Assisted Language Learning

CEFR: Common European Framework of Reference

CLT: Communicative Language Teaching

CoHE: Council of Higher Education

EFL: English as a Foreign Language

ELT: English Language Teaching

FLTE: Foreign Language Teacher Education

ICT: Information and Communications Technology

TBLT: Task-Based Language Teaching

CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter provides a summary of this research study, which investigates the development of digital competence of pre-service EFL teachers in Turkey. In this section, the current terminology related to educators' digital competence is presented to the reader. Then, the aim and significance of the study and research questions are presented. Finally, the reader is provided with the definitions of the frequently used concepts in the current study.

Technology integration in education has been considered significant in increasing communication, collaboration, and interaction among learners irrespective of their location and allowing lifelong learning by offering flexibility to learners regarding where and where to learn (Lawrence & Tar, 2018). With the increasing importance of technology use in education, in comparison to the past, today's pre-service teachers are expected to be better equipped to use technology in their classrooms (Park & Son, 2020). In line with this expectation, teacher training institutions in many countries, including Turkey, began to include components related to technological competence in their programs to improve pre-service teachers' competences in using technology (Yüksel & Kavanoz, 2011). Despite the changes in the teacher education programs, previous research indicates that pre-service EFL teachers graduate from teacher education programs without feeling ready to integrate technology into their teaching seamlessly (Mei, 2019; Fathi & Ebadi, 2020).

The need to educate digitally competent teachers has been highlighted during the COVID-19 pandemic, as it has caused teaching and learning to be carried out online worldwide. The pandemic, along with the ever-increasing digitalization of the world, teachers need to use various digital technologies as part of their professional practices (Hämäläinen et al., 2021). Regarding this need, student teachers' experiences on how they acquire digital competence should be investigated during teacher education to better prepare pre-service EFL teachers for the realities of teaching in an ever-changing world (McGarr & McDonagh, 2019). Considering the importance of teacher education programs on the development of pre-service teachers' competences in digital technologies, this research study focuses on Turkish pre-service EFL teachers' digital competence development through the lens of the DigCompEdu framework, based on the data gathered from a self-reported survey, reflection papers, individual interviews, and performance tasks. The initial study was supported by a follow-up study that aims to explore whether and how pre-service EFL teachers can reflect their digital competence on their lesson plans during teaching practicum.

1.2 Clarification of the terminology

The increasingly pervasive use of technology in society is changing how we work, study, interact with others, reach information, or spend our free time, along with many other changes (Ala-Mutka, 2011). With the common use of digital technologies in all areas of our lives, it has become a necessity to acquire new competences and skills (McGarr & McDonagh, 2019). Although mostly referred to as 21st-century skills, there is no consensus on what these skills involve, except that digital competence has been frequently accepted as an indispensable part of them

(Ala-Mutka, 2011). The lack of agreement regarding the components of these new competences might stem from the abundance of the terms used to describe the skills and knowledge needed for the effective use of digital technologies (McGarr & McDonagh, 2019).

Various concepts, such as ICT literacy, digital competence, internet literacy, digital literacy, media literacy, can stand as examples of this complex realm of definitions (Ala-Mutka, 2011). According to Ala-Mutka (2011), in choosing one concept over another, the discipline around which the topic is discussed and whether general competences or specific skills are paid more attention to matters. As a result of the rapid changes in digital technologies, the terms used to describe digital competences have become fluid (Tømte, Enochsson, Buskqvist, & Kårstein, 2015), and they are prone to change over time (Ilomäki et al., 2016). Besides, the definitions of these terms might overlap as they are not precisely separated from one another, but each term has some particular characteristics (Hatlevik & Christophersen, 2013; Reisoğlu & Çebi, 2020). The most frequently encountered concepts in the literature are described and discussed briefly in this section to be more precise throughout this paper.

ICT Literacy, also known and used as computer literacy in different contexts, generally focuses on the ability to use computer programs and equipment as well as being aware of the affordances and challenges of technologies (Ala-Mutka, 2011). Internet literacy is more restricted in scope as it aims to capture internet-based skills, such as using browsers to find relevant information (Van Deursen, 2010). As for media literacy, it is related to one's awareness and knowledge about how to select, use, comprehend, evaluate, and produce media content (Brandtweiner, Donat, & Kerschbaum, 2010). Although digital literacy is still not a well-defined and clear

concept (Coldwell-Neilson, 2017; Akayoglu, Satar, Dikilitas, Cirit, & Korkmazgil, 2020), it is argued that learning how to use basic tools is not enough to be digitally literate; one also needs to acquire emotional, cognitive, and sociological skills to use digital technologies efficiently (Eshet-Alkali & Amichai-Hamburger, 2004).

Given the various components of digital competence and the rapidly changing nature of technology, it is highly unlikely to have a single definition of this concept (Ilomäki et al., 2016; Falloon, 2020). Ferrari (2012) defines this term in such a way that the fundamental elements are summarized:

Digital competence is the set of knowledge, skills, attitudes, abilities, strategies, and awareness that are required when using ICT and digital media to perform tasks; solve problems; communicate; manage information; collaborate; create and share content; and build knowledge effectively, efficiently, appropriately, critically, creatively, autonomously, flexibly, ethically, reflectively for work, leisure, participation, learning, and socializing. (Ferrari, 2012, p. 30)

This definition points out general aspects of digital competence and what is expected of digitally competent citizens who can reflect their competence in different areas of life in the digital era. Likewise, Ilomäki et al. (2016) address four main characteristics of a digitally competent individual: having basic technical skills, utilizing technology meaningfully and appropriately for daily activities, being aware of ethical concerns and limitations of digital technologies, and being motivated to be an active participant of the digital society. Both Ferrari (2012) and Ilomäki et al. (2016) approach digital competence as a complex concept that cannot be reduced to having basic technical knowledge and skills.

The definitions above indicate the scope of digital competence, but they do not illustrate teacher-specific competences, which is the primary concern of this study. Teacher-specific digital competences (Krumsvik, 2008; 2011; Johannesen, Øgrim, & Giæver, 2014; Instefjord & Munthe, 2016) were described and discussed

in detail in many studies using the terms, such as pedagogical digital competence (From 2017; Guillén-Gámez, Lugones, & Mayorga-Fernández, 2019) and professional digital competence (Ottestad, Kelentrić, & Guðmundsdóttir, 2014; Kelentrić, Helland, & Arstorp, 2017). These studies distinguish teachers' digital competence from other professions (Røkenes & Krumsvik, 2014). Additionally, they agree that how well teachers can use digital technologies to enrich teaching and learning experiences is a crucial indicator of their level of competence.

Digital literacy and digital competence are dominantly used to explain the skills in using digital technologies (McGarr & McDonagh, 2021), and they are frequently referred to as synonyms (Krumsvik, 2008; Calvani, Fini, Ranieri, & Picci, 2012; Ilomäki, Paavola, Lakkala, & Kantosalo, 2016; Pettersson, 2018). As stated by Spante, Hashemi, Lundin, and Algers (2018), the use of digital literacy or digital competence depends both on differences resulting from geography and linguistic choice. While digital competence is mainly used in Europe and South America, digital literacy is frequently used in the UK, Asia, and the US. Furthermore, these terms differ in the disciplines in which they are used. For instance, digital literacy is widely used in health and arts, and digital competence is commonly used in the fields of economics and teacher education (Spante et al., 2018). Besides, there has been a shift from the prevalent earlier perception of digital competence as technical skills to more multifaceted approaches that concentrate on the diverse aspects of this term (McGarr & McDonagh, 2021). It takes more than using digital technology to be digitally competent practitioners. It also includes being knowledgeable about cyber-ethics and reflecting this knowledge in practice (McGarr & McDonagh, 2021).

In short, digital competence is a broad term that comprises skills, knowledge, and attitudes that are necessary for meaningful, critical, and reflective

use of digital technologies (Instefjord, 2014). Ilomäki et al. (2016) emphasize that rather than evaluating people based on what they know about a topic, the focus has shifted to their competencies related to their actual performance in recent years (Ilomäki et al., 2016). In the light of the review of the terminology, the term “digital competence” has been adopted in this study since it has been used to measure not only what pre-service teachers know about digital technologies but also what they can do with this knowledge.

1.3 Statement of the problem

Having enough digital competence is important for pre-service teachers, as they need to use digital technologies with sound pedagogic-didactic judgements to improve learning and teaching experiences (Krumsvik, 2011). Altun (2015) argues that integrating technology into language teaching increases learners’ motivation and encourages them to achieve learning objectives. In the same vein, Uzun (2016) underlines that the implementation of technology in foreign language classes has a special role, as it motivates language learners to be more engaged in learning the target language. Therefore, technology plays a significant part in foreign language classrooms in enhancing the quality of language teaching (Guillén-Gámez et al., 2019). Since teachers are the key actors of change, attention should be directed towards developing pre-and-in-service teachers’ CALL competence for effective incorporation of technology in language education (Sert & Li, 2017).

Based on the previous studies, it can be said that pre-service teachers’ level of digital competence is lower than what is expected of them (Guillén-Gámez et al., 2018; Tondeur, van Braak, Siddiq, & Scherer, 2016; Ng., 2012). There seems to be a gap between pre-service teachers’ personal use of digital technologies and their

professional and pedagogical use (Gill et al., 2015; McGarr & McDonagh, 2019).

Earlier studies regarding the pre-service teachers' utilization of digital technologies have indicated that they do not feel prepared and confident enough to implement technology in their classes (Kay, 2006; Tondeur et al., 2012; Uzun, 2016; Instefjord & Munthe, 2016; Fathi & Ebadi, 2020).

According to McGarr and McDonagh (2021), pre-service teachers generally express positive opinions about integrating technology into education, but this does not always mean that they are truly aware of the potential of educational technology. Their positive attitudes towards technology-enhanced classes might stem from their desire to be a part of the digital society in which the role of technology in education is increasing day by day (McGarr & McDonagh, 2021). As noted by Røkenes and Krumsvik (2016), pre-service EFL teachers need to be equipped with sufficient pedagogical and theoretical rationale behind technology-enriched language teaching. In this way, they can be more critical towards the utilization of technology in teaching by analyzing how and why digital technologies should be integrated into language classrooms. Otherwise, they might implement technology in their teaching just for using it without realizing whether and how technology integration makes a difference in English language teaching.

The significance of educating pre-service teachers who can utilize technology with a strong pedagogical understanding in teacher education programs has been discussed in the literature (Sang, Valcke, Braak, & Tondeur, 2010; Agyei & Voogt, 2011; Tondeur et al., 2012; McGarr and Gavalton, 2018; Guillén-Gámez et al., 2019; Kuru Gönen, 2019; McGarr & McDonagh, 2021). With the COVID-19 pandemic and “emergency remote teaching” (Bozkurt & Sharma, 2020), the importance attributed to the pre-service teachers' digital competence has increased

inevitably. There are several studies in the literature focusing on the development of Technological Pedagogical Content Knowledge (TPACK) of English teacher candidates (e.g., Kurt, Akyel, Koçoğlu, & Mishra, 2014). However, there is still not enough research on the development of digital competence of pre-service EFL teachers in teacher education or how this competence is maintained during teaching practicum (McGarr & McDonagh, 2019). This very study aims to address this need to inform educators and teacher education institutions about the impact of technology-enhanced English teaching courses on pre-service EFL teachers' development of digital competence and provide implications for more effective training in this field.

1.4 Aim of the study

This study aims to explore whether and how pre-service EFL teachers' digital competence develops after taking the course ENGT416 (Technology-Enhanced Language Teaching) through the lens of the DigCompEdu framework. The study will shed light on the areas of digital competence in which pre-service EFL teachers developed the most and least to inform the teacher training programs about their curriculum design. A further goal of this research is to reveal whether and how pre-service EFL teachers plan to use what they have learned from their digital competence training in their English classrooms in the future. In this way, the study will show whether pre-service EFL teachers feel confident and competent enough to put their digital competence into practice in their professional lives.

Another purpose of this research study is to investigate whether pre-service EFL teachers can apply their digital competence in their macro teachings during their teaching practicum after taking a technology-enhanced language teaching course. It

is intended to demonstrate how well pre-service EFL teachers transfer their digital competences into authentic teaching contexts with real students.

Finally, this research study aims to reveal the reflections and challenges of pre-service EFL teachers on the implementation of digital technologies during their practicum teaching. In this manner, this study will contribute to the literature significantly by informing educators and policymakers about the effectiveness of subject-specific educational technology courses on pre-service EFL teachers' digital competence development during teacher education.

1.5 Significance of the study

The expectation for teachers to keep up with the latest developments in technology and integrate technology into their teaching is increasing (OECD, 2010). However, previous studies underscored that pre-service EFL teachers fail to use technology in their own classrooms as they were taught in educational technology courses (Fathi & Ebadi, 2020). One of the reasons for this problematic transition from teacher education to real classrooms might be due to the education teacher candidates receive in teacher training programs regarding technology-integrated education (Li, 2017). Despite its significance, whether and how pre-service teachers develop their digital competence during their teacher education is an area that has not been adequately researched yet in the literature (McGarr & McDonagh, 2019). According to Sert and Li (2017), despite the increased number of research studies on language teachers' CALL-related skills and knowledge in the last years, there is no model or theory that researchers agree to apply in teacher education programs to develop pre-service language teachers' digital competences.

McGarr and McDonagh (2021) highlight the need for studies focusing on different dimensions of digital competence, and how this competence can be assessed in teacher education programs. Regarding the assessment of pre-service teachers' digital competence, the dominance of self-reported questionnaires in the literature has been underlined by some researchers (e.g., Engen et al., 2014; Sert & Li, 2017). Although they are useful in revealing pre-service teachers' evaluations of their competences, they are entirely based on participants' self-perceptions. However, how individuals perceive their own digital competence does not necessarily match their actual level of competence (Engen et al., 2014; Røkenes & Krumsvik, 2016). Therefore, in this study, in addition to the self-reported survey, pre-service teachers' lesson plans, hands-on tasks and assignments, reflection papers, and interviews were analyzed to have a better understanding of the digital competence levels of the participants.

Despite the crucial role of field practice in the development of digital competence during teacher education, limited attention has been paid to the impact of teaching practicum experience on pre-service teachers' digital competence in the literature so far (McGarr & McDonagh, 2019). Therefore, further research is needed to explore whether and how pre-service EFL teachers continue to utilize technology after taking educational technology courses (Fathi & Ebadi, 2020). In other words, it is necessary to focus on the relationship between teacher training programs and field practice in terms of their joint role in developing the digital competence of teacher candidates (Instefjord & Munthe, 2017). Such studies would reveal to what extent pre-service teachers can use technology in practice, which requires them to apply the theoretical knowledge they obtain from an educational technology course (Tondeur et al., 2019).

In the Turkish context, the studies on pre-service EFL teachers' digital competence were mostly carried out from the perspective of the TPACK framework (e.g., Kurt et al., 2014; Öz, 2015; Ersanli, 2016). However, to the researcher's best knowledge, no previous study has evaluated the digital competence development of pre-service EFL teachers using both self-reports and performance-based measures through the lens of the DigCompEdu framework. Hence, this study aims to fill the abovementioned gap in the literature and contribute to the studies regarding the pre-service EFL teachers' digital competence development during coursework and teaching practicum from the perspective of the DigCompEdu.

1.6 Research questions

The following research questions were addressed in the present study to investigate service EFL teachers' digital competence development and further practices of digital technologies during teacher education:

1. How do pre-service EFL teachers assess their digital competence at the beginning and end of a technology-enhanced language teaching course through the lens of the DigCompEdu framework?
 - 1(a). In which areas of DigCompEdu do the pre-service EFL teachers think they developed the most and least during their digital competence training?
2. How, if at all, do pre-service EFL teachers' digital competence develop after taking a technology-enhanced language teaching course?
3. How, if at all, do pre-service EFL teachers plan to use their digital competence that they gained from a technology-enhanced language teaching course in their English classes in the future?

4. How, if at all, is pre-service EFL teachers' development in digital competence reflected in their macro teaching lesson planning materials and reflections upon their macro teachings during teaching practicum?

4 (a). What are the opportunities and challenges of using digital technologies in macro teachings for pre-service EFL teachers?



CHAPTER 2

LITERATURE REVIEW

This chapter aims to provide an overview of the previous research studies on the digital competence development of pre-service teachers and, particularly, pre-service EFL teachers in Turkey and around the world. It also outlines the necessary information about foreign language teacher education in the world, computer-assisted language learning, and foreign language teacher education in the world, including Turkey. Then, prominent digital competence frameworks in the literature are also explained to the reader to clarify why the DigCompEdu framework is adopted in this study. Finally, the framework was also presented in detail.

2.1 Foreign language teacher education in the world

As a consequence of the growing importance of learning English, the need for qualified English teachers around the world, and more effective approaches to their training and professional growth, have become more evident (Richards, 2008). Foreign language teacher education (hereafter FLTE) programs are carried out at universities in many countries in the world to meet this need (Öztürk & Aydın, 2019). The aim of these programs is “to provide opportunities for the novice to acquire the skills and competencies of effective teachers and to discover the working rules that effective teachers use” (Richards, 1990, p. 15). In general, these programs equip pre-service teachers with knowledge about the language they will teach in the future and provide them with pedagogical knowledge about how to teach it as an expert (Richards, 2008; Mirici & Ölmez-Çağlar, 2017). In other words, pre-service teachers take courses that help them improve their linguistic, communicative,

intercultural, and general knowledge about the field, in addition to the courses that enhance their skills regarding language teaching (Mirici & Ölmez-Çağlar, 2017).

Day (1993) states that four main components constitute the basis of language teaching training curricula: content knowledge, pedagogic knowledge, pedagogic content knowledge, and support knowledge. Content knowledge involves knowledge about the English language, including semantics, syntax, phonology, morphology, and English literacy and culture. While pedagogic knowledge consists of teaching strategies, pedagogic content knowledge focuses on teaching English skills in a way that learners can comprehend. The final component, support knowledge, includes knowledge about disciplines that enrich language teaching practice, such as sociolinguistics, linguistics, psycholinguistics, and research methods (Day, 1993). As part of their training, pre-service teachers take courses on lesson planning, assessment, curriculum design (Smith & Lev-Ari, 2005), and classroom management. They obtain both pedagogical and theoretical knowledge related to the field through these courses.

As for the practical aspect of language teacher training, since pre-service English teachers find the opportunity to apply their knowledge in these areas in a real classroom, teaching practicum is an important step in teacher candidates' training and professional development (Farrell, 2008). Under the supervision of their mentor teachers at practicum schools and supervisors from their department, prospective teachers have the chance to teach in a real classroom to be better prepared for the dynamics and challenges of actual classrooms (Huling, 1998). Put differently, pre-service EFL teachers can put their theoretical knowledge into practice through field experience to bridge the gap between theory and practice (Allen & Wright, 2014).

To conclude, although teacher education programs differ according to the educational policies of countries, universities are generally responsible for carrying out FLTE programs in the world. Typically, these FLTE programs offer courses that help pre-service EFL teachers gain both content and pedagogical knowledge. As the last stage of the training, pre-service teachers experience practice teaching to apply their content and pedagogical knowledge into practice to be more prepared for their profession.

2.1.1 Computer-assisted language learning and FLTE

Dudeny and Hockly (2012) state that using technology to teach English has started with the more restricted perception of technology integration in L2 classrooms and continued with broader use of technology in English Language Teaching (hereafter ELT). This drastic change can be understood better when we look closely at the history of computer-assisted language learning (hereafter CALL), which is defined as “the search for and study of applications of the computer in language teaching and learning” (Levy, 1997, p. 1). Two taxonomies explain the historical stages of CALL, which consist of three stages. Although there are some disagreements between them, the taxonomies follow a similar order. This section presents further information about the development of CALL over time.

In the earliest stage of CALL, which is referred to as behavioristic (Warschauer, 1996) and restricted (Bax, 2003), technology use was limited to drill-based exercises and simple feedback on accuracy rather than focusing on communication. The following stage, which is defined as communicative (Warschauer, 1996) and open (Bax, 2003), gave learners more control over their language production and computers in comparison to the previous stage where

learners are often receivers of language input. In addition to the increased interaction, the technological developments in this era improved the feedback practices as well. According to Warschauer (1996), the last stage is integrative, as the key affordance of technology integration is to enhance four language skills in a meaningful context where language users interact with each other via computers. On the other hand, Bax (2003) defines the last stage as integrated, emphasizing the concept of normalization. Unlike Warschauer (1996), Bax (2003) argues that in order for CALL to be at this stage, technology should become so ordinary that it would be almost invisible to us. Furthermore, he highlights that technology will become an inseparable part of language teaching at this stage, and one will not have to consider CALL as a distinct concept. In other words, looking from a general perspective, he argues that we are still in the second stage of his taxonomy, which is far from the primary goal of CALL.

In short, as can be seen from the brief history of CALL above, the integration of technology in language classes has taken place in different ways, and it is prone to change in the future too. What can be inferred from the ever-changing nature of technology and its incorporation into classrooms is that teachers need to be aware of the affordances of CALL and make the best use of the available technologies of the digital era to facilitate learners' English learning process.

The impact of CALL in English teaching has received attention in the literature with the advancement of digital technologies. The implementation of technology in English classes have been found helpful for vocabulary learning (Franciosi, Yagi, Tomoshige, & Ye, 2016), reading comprehension (Liu, Tsai, & Huang, 2015), cohesion in writing (Chang, Liao, & Chan, 2021), pronunciation instruction (Fouz-González, 2017), speaking skills (Hwang et al., 2016) and for other

linguistic domains of English as well. Although the earlier studies demonstrated learners' linguistic gains through CALL, it is crucial to emphasize that the success of any technology incorporation in English classes is closely related to how well teachers use educational technologies for language teaching (Hubbard, 2008; Torsani, 2016).

Kuru Gönen (2019) claims that technology might be a part of teachers' lives within and outside the classroom, but this does not mean that they can implement technology seamlessly while teaching languages. For successful use of technology in education, it is not adequate for language teachers to have the necessary skills and knowledge about how to utilize digital technologies. To ensure that teachers can use technology in accordance with their pedagogical aims, they need to be supported by teacher trainers, colleagues, or collaborative professional groups (Kuru Gönen, 2019). Before their transition to professional teaching careers, teacher education programs can help pre-service teachers gain the required knowledge and hands-on experience regarding technology integration in teaching practices (Hong, 2010). In-service teachers can be more prepared to incorporate digital technologies into their classes after graduating from education faculties, owing to their familiarity with educational technology in teacher training. In brief, teacher education is a significant step towards training teachers who can use available technologies to achieve their pedagogical goals more effectively.

The main goal of CALL teacher education is to make pre-service English teachers familiar with technological tools that they can use in language instruction and improve their ability to connect their knowledge with respect to language teaching with technology-related knowledge (Torsani, 2016). Simply put, CALL teacher education is more complex than teaching how to use a piece of software, and

it is closely related to language teaching pedagogy and language acquisition theory (Torsani, 2016). Regarding how CALL training is offered in teacher education programs, Hubbard (2008) lists four approaches adopted in language teacher education programs to develop both pre-and in-service language teachers' technological competence: a) a general course that aims to introduce a wide range of CALL alternatives, b) a more specific and intensive course that focuses on a certain area, c) an integrated approach that includes the integration of technology into the curriculum rather than separate courses, d) online courses in which pre-service teachers learn how to teach using technology through technology. Based on the literature review, Hubbard (2008) also reports standard processes used in CALL teacher education as follows: demonstration, project-based learning, situated learning, reflective learning, self-directed learning, portfolio-based learning, mentor-based learning, and communities of practice. As Kuru Gönen (2019) argues, although several approaches and processes can be applied in language teacher education, teacher education programs do not provide educators enough guidance about what method or approach to adopt for seamless technology use during training.

As discussed above, the role of CALL in language learning and language teacher education is growing with the advancement of technology. However, previous research has indicated that language teacher education programs fail to provide sufficient training to pre-service teachers in terms of technology-enhanced language teaching (Hubbard, 2008; Merç, 2015; 2015; Uzun, 2016; Guillén-Gámez et al., 2019). According to Hubbard (2008), why pre-service language teachers leave teacher education programs without acquiring necessary knowledge and skills related to effective technology use in teaching might be explained by the following reasons: “inertia, ignorance, insufficient time, insufficient infrastructure, insufficient

standards, lack of established methodology, and lack of experienced, knowledgeable educators” (p. 177-178).

To conclude, prior research has revealed the benefits of CALL for language learners and the crucial role of teacher education plays in increasing pre-service teachers’ competence in technology integration to improve the quality of language teaching. As Arnold and Ducate (2015) claim, CALL teacher education is beneficial for pre-service language teachers, but it has its own limitations that should not be neglected. To this end, further research on the effectiveness of CALL teacher education programs in preparing pre-service language teachers for their professional life is needed.

2.1.1.2 FLTE in Turkey

Foreign language teaching does not only include the instruction of English. However, in Turkey, the main focus of language education is on English (Nergis, 2011), and it is the only language subject required for all students to learn in formal education (Kırkgöz, 2017). As a result of the increasing importance of English as a foreign language, teacher education programs, institutions, and curricula in Turkey have undergone many changes to be parallel with the language teaching system of Europe (Kırkgöz, 2017). The need to train qualified English teachers has become even more remarkable with the current changes in Turkey, such as the introduction of English instruction in schools from the second grade and a greater focus on providing learners with an intensive English education in the preparatory units of universities (Öztürk & Aydın, 2019).

As in many countries in the world, universities in Turkey are responsible for executing FLTE programs. (Öztürk & Aydın, 2019). Students who want to obtain a

foreign language education diploma in Turkey are required to enroll in four-year English education programs at education faculties of universities. Students must take the national university entrance exam administered by Student Selection and Placement Centre (ÖSYM in Turkey) to be admitted to these programs. This exam is composed of two separate sessions. In the first session, students' general knowledge is tested with multiple-choice questions in the following subjects: Turkish language, Social Sciences, Mathematics, and Science. In the second session, teacher candidates take another multiple-choice exam in English consisting of 80 questions on grammar and vocabulary knowledge as well as reading comprehension. Since this exam does not assess students' proficiency in main English skills, such as writing, speaking, and listening, specific courses that aim to enhance students' proficiency in these skills are offered in the first year of the teacher education programs (Öztürk & Aydın, 2019).

According to the latest FLTE program, prospective teachers are required to complete courses consisting of 48% content knowledge, 18% general knowledge, and 34% pedagogical knowledge (Yükseköğretim kurulu [YÖK], 2018). This program allows pre-service EFL teachers to improve their content knowledge through courses, such as English literature and linguistics, in the second year of their education. In the following year, more pedagogy-focused courses are offered so that pre-service EFL teachers can learn how to design lesson plans to teach different English skills (YÖK, 2018). As part of pedagogical knowledge, senior pre-service EFL teachers need to take teaching practicum courses in order to graduate from the program. In the seventh semester, pre-service teachers take the course Teaching Practice I, which mainly requires them to observe classrooms and write reflections based on their classroom observation. In the final semester, student teachers take the course Teaching Practice II, during which they prepare lesson plans and deliver them

in their practicum schools (Orhan & Kuyumcu Vardar, 2019). Teaching practice in Turkey has the following four components: pre-service teachers, their peers, mentor teachers from practicum schools, and supervisors from universities. While supervisors provide feedback on the theoretical aspects of teaching practice, mentor teachers mainly evaluate macro teachings from a pedagogical perspective. The success of any teaching practicum experience depends on the coordination and communication of these parties (Orhan & Kuyumcu Vardar, 2019).

Regarding technology integration in FLTE, which is the focus of this study, the program includes two technology-related courses described in Table 1.

Table 1. Technology-Based Courses in the Teacher Education Curriculum

Course	Semester	Course Syllabus
Information Technologies	1	Safe and responsible internet use, basic concepts of hardware and software, current operating systems, presentation, calculation, and graphic programs
Instructional Technologies	3	Theoretical approaches to instructional technologies, instructional technologies as tools and materials, design of teaching materials, evaluation of teaching materials

Note: Adapted from: YÖK (2018). İngilizce Öğretmenliği Lisans Programı. Ankara

As can be seen from the course descriptions above, these courses focus on basic technical skills and general educational technologies rather than on subject-specific technology use in education. Since the Council of Higher Education (CoHE) does not supervise teacher training institutions systematically, depending on the various factors at universities, such as economic issues and academic staff, the application of the FLTE programs differs vastly. (Öztürk & Aydın, 2019). As a result, while some teacher education institutions add technology-enhanced elective courses to their programs, others might include only the compulsory courses in the curriculum. To

sum up, it seems that FLTE institutions might differ in terms of the number of educational technology courses in their programs.

FLTE in Turkey has been widely studied in the literature focusing on various aspects of the education program, such as teaching practicum (Sarıçoban, 2010; Coskun, 2013), pre-service EFL teachers' (Seferoglu, 2006; Hismanoglu, 2012) and teacher educators' (Aşık et al., 2020) and both teacher educator and pre-service teachers' opinions about the teaching program (Coskun & Daloglu, 2010; Karabuğa, 2016; Türken, 2017) as well as the comparison of Turkish FLTE to other countries (Altmisdort, 2016).

The studies in the literature shed light on the weaknesses of FLTE in the Turkish context. To illustrate, the problems related to the insufficient time dedicated to teaching practicum (Coskun & Daloglu, 2010; Karakaş, 2012), ill-communication between practicum schools and education faculties (Alptekin & Tatar, 2011), inadequate integration of technology in programs (Altan, 2006; Uzun, 2016; Altmisdort, 2016), heavy focus on theory rather than practice (Coskun & Daloglu, 2010; Altmisdort, 2016; Öztürk & Aydın, 2019), the gap between theory and practice (Seferoglu, 2006), mentor teachers' lack of awareness regarding their roles in teaching practicum (Gürsoy & Damar, 2011), and limited opportunities provided for action research (Soruc & Cepik, 2013) have been voiced to contribute to the improvement of FLTE in Turkey.

In conclusion, the quality of teacher education determines the quality of pre-service EFL teachers who are future practitioners in classrooms. Despite the radical changes, FLTE in Turkey still falls behind more developed countries in terms of preparing pre-service EFL teachers for real teaching contexts (Ulum, 2015). Therefore, to enhance the quality of teacher education programs in Turkey, research

dedicated to teacher education and pre-service English teachers' experience in teacher training is needed to improve the quality of teacher education programs in Turkey.

2.2 Frameworks of educators' digital competence

Digital competence is a concept that involves many components. Several frameworks aim to describe this term to assist teacher educators in identifying its essential elements so that this competence can be enhanced in teacher education (McGarr & McDonagh, 2021). These models focus on different aspects of digital competence, but what they have in common is that they expanded the scope of the concept by explaining the necessary skills, knowledge, and attitudes of digitally competent practitioners (McGarr & McDonagh, 2021). This section presents the prominent frameworks on teachers' digital competence in the literature.

Almerich, Orellana, Suárez-Rodríguez, and Díaz-García (2016) point out that technological and pedagogical competences are the two major subsets of digital competence frameworks of teachers. They argue that teachers need to be both technologically and pedagogically competent enough to implement technology into their daily teaching routine. Furthermore, they emphasize that teachers first need to develop their technological competence before they can pedagogically apply technological resources into an educational setting. Johannesen et al. (2014) suggest a wider perspective for teachers' digital competence, which consists of three sub-dimensions: teaching of ICT, teaching with ICT, and teaching about ICT. While teaching of ICT focuses on technical skills, such as using word processors and being aware of copyright and privacy issues, teaching with ICT refers to the pedagogical aspect of using technology to increase the effectiveness of teaching and learning in

different subject areas. The last component, teaching about ICT, is about the development of technology and its relation to society and culture. In the same vein, according to Instefjord and Munthe (2016) and Zhao, Pugh, Sheldon, and Byers (2002), *technology proficiency* is distinguished from *pedagogical compatibility*. Besides, they consider social awareness a critical aspect of teachers' digital competence. This dimension includes how well teachers are aware of the school culture and how successful they are in communicating with administrators to solve technical problems that cannot be controlled on their own.

Ottestad et al. (2014) proposed a model consisting of three dimensions to outline teachers' professional digital competence, which are namely generic, didactic, and professional oriented digital competence. Generic digital competence includes field-independent digital skills and knowledge needed to be gained by teachers, pre-service teachers, and teacher educators. As for didactic digital competence, it signifies teachers' subject-specific digital competences that distinguish them from other branch teachers. The third dimension captures teachers' professional digital competence that involves lesson planning, assessment as well as communication with parents and other stakeholders.

Mishra and Koehler's (2006) TPACK framework emphasizes teachers' competence in using technologies in relation to subject areas (McGarr & McDonagh, 2019). TPACK framework has seven components: content knowledge (CK), pedagogical knowledge (PK), pedagogical content knowledge (PCK), technology knowledge (TK), technological content knowledge (TCK), technological pedagogical knowledge (TPK), technological pedagogical content knowledge (TPACK). As specified by Schmidt et al. (2009), the concept of TPACK refers to instructing any content by using appropriate technologies in line with pedagogical

methods. The TPACK framework is valuable in describing the knowledge and skills that must be acquired by teachers for the effective incorporation of technology into subject teaching (Öz, 2015). What can be inferred from the TPACK framework is that not only technical skills and knowledge but also pedagogical and content knowledge should be obtained to be competent in using technology for education.

Krumsvik (2008, 2014) offers another digital competence model for educators with four main components: basic ICT skills, didactic ICT competence, learning strategies, and digital bildung. The last component is the “intersection between the first three components” (Krumsvik, 2008, p. 284). Similar to the frameworks mentioned above, this framework also emphasizes the distinction between technical skills and pedagogical use of technology for teaching and learning. While the third component is related to teachers’ awareness of how to use technology to apply various learning strategies, the last component focuses on having a critical stance towards the use of technology in a digital age and being aware of ethical issues regarding technological practices (Krumsvik, 2008). The model is developmental in that teachers’ self-awareness and level of competence increase as educators progress from basic digital skills to digital bildung, which is the highest level of digital competence a teacher can achieve in this model (McGarr & McDonagh, 2019).

The United Nations Educational, Scientific and Cultural Organization [UNESCO] ICT Competency Framework for Teachers (UNESCO, 2011, 2018) is another hierarchical framework that describes teachers’ digital competence development through three stages which are successively a) technology literacy, b) knowledge deepening, and c) knowledge creation. Teachers’ competence in each stage is presented through six areas, which are as follows: understanding ICT in

education, curriculum and assessment, pedagogy, ICT, organization and administration, and teacher professional learning. The first stage of the framework is linked to basic technical skills. The next stage highlights the ability to use these skills in practice to solve problems encountered in real life. In addition, the second stage is at which teachers develop their digital competence to provide learners with a collaborative learning environment that is student-led. The last stage is related to teachers' competence in preparing technology-enhanced teaching materials and using technology to enhance students' creative thinking and creation of knowledge. This framework, similar to the abovementioned frameworks, differentiates the technological and pedagogical aspects of technology use in teaching. More importantly, this framework underscores teachers' role in transforming their classes into student-centered settings where learners can engage with digitally enhanced learning tasks that require collaboration, critical thinking, and problem-solving.

International Society for Technology in Education [ISTE] Standards for Educators (2017) shed light on the role of technology in helping teachers go beyond the traditional methods to increase learner empowerment. The standards are listed under seven categories: Learner, Leader, Citizen, Collaborator, Designer, Facilitator, and Analyst. To begin with, the first standard, Learner, refers to educators striving for continuous professional development using technology. The theme of Leader highlights educators' role in modeling the innovative uses of technology to enhance teaching and learning. According to the third standard, Citizen, teachers expand their students' awareness of digital citizenship, internet safety, and ethical concerns. The next standard, Collaborator, focuses on educators' use of technology to collaborate and exchange ideas with students and colleagues. While the standard of Designer underlines teachers' creation of authentic and student-centered activities to support

individualized learning, the Facilitator highlights using technology to facilitate students' learning. The final standard, Analyst, puts emphasis on the use of digital data to assess learners' performance to help them reach their educational goals. These standards provide a general perspective for educators to understand what is expected of them as digitally competent teachers. However, there are no sample activities or proficiency statements that can guide teachers working in an educational setting.

Professional Digital Competence Framework for Teachers (Kelentrić et al., 2017) echoes some of the components of digital competence raised in the earlier frameworks, such as leadership, collaboration and communication, ethical awareness, possessing basic digital skills, and pedagogical and subject-related knowledge. Besides, this national framework stresses the role schools play in preparing students to be active members of the digital world and narrowing the gap between those who have access to digital resources and others. Furthermore, under the theme of change and development, this framework suggests that digital competence development is a lifelong journey. Therefore, teachers must stay up to date by following the current research in the field of educational technology.

In the light of the literature review on the frameworks of teachers' digital competence, McGarr and McDonagh (2019) proposed the PEAT model consisting of four parts. They aimed to synthesize the earlier studies on digital competence in teacher education. In line with the previous frameworks, technical and pedagogical skills are included in this model, too. They also put a heavier emphasis on the ethical aspect of technology incorporation. In addition to these dimensions, they consider teachers' positive attitude and willingness to use new technologies as an indicator of

teachers' digital competence. This model is useful in outlining the essential components of teachers' digital competence.

To conclude, the aforementioned frameworks enable educators to have a common language that explains what to expect from pre-and in-service teachers to qualify as digitally competent educators (McGarr & McDonagh, 2021). Although these frameworks describe the general knowledge and skills educators need to obtain to enhance their digital competence, they did not explain the essential characteristics of digital competence acquisition (García-Martín & García-Sánchez, 2017).

2.2.1 Digital Competence Framework for Educators (DigCompEdu)

Redecker (2017) underlines that students in this era are exposed to technology even before schooling. As they have been surrounded by technology since birth, living in a digital world is natural to them. However, this should not imply that students are born with the skills required for using technology responsibly and efficiently.

National and European policies have recognized the importance of providing people with these essential skills. The European Digital Competence Framework (DigComp), which was proposed in 2017, details what makes an individual digitally competent. In the light of this framework, European citizens can evaluate their digital competences and take necessary actions to improve their competences (Redecker, 2017).

The DigComp framework can be a good starting point for people to comprehend the components of digital competence and assess themselves accordingly. Notwithstanding, this framework looks at digital competence from a general perspective, and therefore it falls short of describing the necessary digital competences for educators to gain. On the other hand, the European Framework for

the Digital Competence of Educators (DigCompEdu) largely focuses on pedagogical and methodological aspects of educators' digital competence, rather than technical skills captured by the DigComp (Ghomi & Redecker, 2019). According to Lucas, Bem-Haja, Siddiq, Moreira, and Redecker (2021), teachers' main challenge is not learning how to use digital technologies. Instead, they argue that teachers struggle with understanding how to incorporate technology for teaching and learning. Hence, by focusing on teachers' pedagogical competence, DigCompEdu addresses the need in teacher education.

Redecker (2017) emphasizes that the ubiquity of technology causes teachers to have a broad range of competences to meet the ever-changing demands of the world. To support the teaching and learning processes, teachers need to be aware of digital technologies and how to integrate them into their lessons most effectively. By doing so, they will stand as role models for their students by showing the significance of being a digitally competent individual who can be an active participant in the digital world. Put differently, teachers need not only to equip themselves with digital competences, but also to help their students become digitally competent citizens and future employees of the digital era. As a result of this necessity, to encourage teachers' professional development and provide guidance to teacher training programs, many European countries continue to develop new frameworks, update the earlier frameworks, and create self-assessment tools.

The European Commission's Joint Research Centre (JRC) developed the DigCompEdu framework based on previous literature and with the collaboration of educational scholars and practitioners. The DigCompEdu recognizes the previously developed models and frameworks proposed to assess teachers' digital competences and serves as a synthesis of previous works at the national and international level

(Ghomi & Redecker, 2018; Cabero-Almenara, Romero-Tena, & Palacios-Rodríguez, 2020). What differentiates the DigCompEdu framework from the others is that it offers a common language for all educators working at different levels of education to self-assess and enhance their pedagogical digital competence. Besides, the framework stands as a point of reference for all educational stakeholders at the national and local levels to review their existing frameworks or develop updated versions (Redecker, 2017).

The DigCompEdu framework identifies and explains the key digital competences specific to educators, and it addresses all teachers regardless of their branches. However, this does not mean that contextual or subject-related factors are disregarded. Instead, this framework encourages all educators, including early childhood teachers and adult education teachers, to benefit from it by making necessary adaptations considering the level of their target students. Similarly, the framework applies to all educational contexts (e.g., formal, informal, vocational, special education) as long as it is modified according to the specific needs and purposes of the teaching setting (Redecker, 2017).

In addition to providing educators a common frame that summarizes the fundamental aspects of pedagogical digital competence, the DigCompEdu framework allows teachers to assess their digital competence on their own by using a check-in self-reflection tool. The self-assessment instrument is freely available online and accessible in different languages (Ghomi & Redecker, 2019). Using this instrument, educators can take ownership of their digital competence development and monitor their progress in the long run, which supports teachers' self-reflection and self-monitoring practices. In other words, without needing explicit guidance and

assistance from others, teachers can assess their digital competences to be more competent practitioners.

In the DigCompEdu framework, 22 educator-specific competences are identified and categorized under six areas that reflect different aspects of educators' digital competence. The six areas are as follows: *Professional Engagement*, *Digital Resources*, *Teaching and Learning*, *Assessment*, *Empowering Learners* and *Facilitating Learners' Digital Competence*. According to Redecker (2017), areas 2 to 5 constitute the core of the framework. These areas explain the pedagogical aspect of digital competence that is significant for developing creative, effective, and inclusive teaching techniques. As for the first and sixth areas, they complement the other areas by extending the concept of educators' digital competence from teaching and learning experiences to professional communications and active citizenship in a digital environment. The following section provides further details of the six areas of the DigCompEdu.

2.2.1.1 Competence areas of the DigCompEdu framework

Area 1, namely Professional Development, consists of four sub-competences: Organizational communication, Professional collaboration, Reflective practice, and Digital continuous professional development. This area expresses educators' competence in using digital technologies to communicate and collaborate with learners, parents, colleagues, and other stakeholders to contribute to the overall development of their institutions and their professional careers. To illustrate, a proficient teacher in this area will effectively use digital technologies to enhance structured communication and reflect on the current communication strategies to

improve organizational communication and collaboration within and outside the institution (Redecker, 2017).

Area 2, Digital Resources, comprises three sub-competences: Selecting digital resources, Creating and modifying digital resources, and Managing, protecting, and sharing digital resources. There are numerous digital resources that educators can implement in teaching. Choosing digital resources that suit their lesson objectives and goals, methodology, and target students are crucial components of this area. Other key competences in this area are the ability to modify the existing digital resources and the ability to create new digital materials to cater to the needs of the educational context in line with the pedagogical approach adopted and learning objectives. Besides, this area highlights the importance of knowing how to use digital resources responsibly. When creating, modifying, or sharing digital resources, teachers need to apply copyright rules and attribute open educational materials correctly. Also, they must be aware of how to share digital resources with others and protect sensitive digital content, such as students' grades (Redecker, 2017).

Area 3, Teaching and Learning, one of the core areas of the framework, has four sub-competences: Teaching, Guidance, Collaborative learning, and Self-regulated learning. Redecker (2017) argues that the extent to which digital technologies are organized and implemented in the different stages of education is the key indicator of an educator's field-specific digital competence regardless of the pedagogic approach applied. This area focuses on the implementation of digital technologies for the teaching session. The sub-competence of Teaching, which is the essential competence in this area, involves designing and planning the use of digital resources and implementing them into lessons to provide learners with a better learning experience. The other sub-competences in this area support and complement

this core competence. Sub-competences of Guidance and Self-regulated learning reflect the idea that the main advantage of using digital technologies in education is turning classes from teacher-centered to student-centered. Rather than being the sole source of knowledge, digitally competent teachers need to act as facilitators to allow their students to be more responsible and independent learners in time. Competent teachers in this area can apply digital collaborative learning activities, encourage and monitor self-regulated learning, and provide guidance to learners within and outside the teaching context (Redecker, 2017).

With its sub-competences, i.e., Assessment strategies, Analyzing evidence, and Feedback and planning, the fourth area of Assessment, underlines that integrating digital technologies into teaching is not enough for teachers to be considered competent. They also need to be knowledgeable about utilizing digital technologies to improve established assessment strategies. Having this knowledge, educators can use various assessment strategies for different purposes, such as summative and formative assessment, and find new methods of assessment depending on the need. To be proficient in this area, teachers must monitor students' performance and progress based on the data gathered using digital technologies and make the data available to learners. Besides, they must be able to give timely feedback to students based on the analysis of the digital evidence gathered from the assessment tools (Redecker, 2017).

Area 5, Empowering Learners, explains that digital technologies used in education derive their power from promoting learner-centeredness. As stated with the sub-competence of Actively engaging learners, incorporating digital technologies into education can increase students' active engagement with the subject. For instance, learners can think critically and creatively, solve problems, and produce an

output using technology. The sub-competence area of Differentiation and personalization underscores that educators can prepare different learning activities tailored to learners' diverse needs, proficiency levels, and preferences thanks to digital technologies. In this way, learners will be given a chance to learn a subject matter at their own pace and level, allowing them to reach their learning goals in a non-linear way. In addition, with the sub-competence of Accessibility and inclusion, this area draws educators' attention to the challenges that might stem from context-related factors (e.g., difficulties in accessing digital technologies) and learner-related factors (e.g., physical disabilities). A proficient teacher in this area would benefit from digital resources to engage learners actively, offer wide-ranging learning paths tailored to learners' different needs, and include every student in the classroom, considering the ones with special needs and limited access to digital resources (Redecker, 2017).

The last area of DigCompEdu, Facilitating Learners' Digital Competence, switches the emphasis from teachers' own digital competence development to learners' competences. It is highlighted in this area that educators should pass on their digital knowledge to their students and help them become digitally proficient individuals. The sub-competences of this area, Information and media literacy, Digital communication and collaboration, Digital content creation, Responsible use, and Digital problem solving, are parallel with the DigComp framework, which aims to describe European citizens' necessary digital competences. Despite being quite similar in terms of the content, the sub-competences in DigCompEdu have been given titles highlighting the pedagogical focus of this framework. A teacher's competency in this area lies in designing learning activities through which learners are encouraged to question the reliability of resources while searching for

information, communicate and collaborate safely, pay attention to copyright rules (i.e., provide appropriate references while creating content using digital resources), and solve possible technical problems (Redecker, 2017).

Even though the DigCompEdu framework has six areas of digital competence, only the four core areas related to their pedagogical competence were examined in this study. As the participants of this study were pre-service EFL teachers, it would not be possible to assess their digital competence in the area of Professional Engagement, which mainly focuses on organizational communication and professional collaboration. Furthermore, Area 6 (Facilitating Learners' Digital Competence) was also excluded in this study because the present study aims to analyze pre-service EFL teachers' digital competence development rather than how they could help their students enhance their digital competence. Table 2 summarizes the digital competence areas and sub-competences of DigCompEdu focused on in this study.

Table 2. Overview of the DigCompEdu Competence Areas Included in the Study

Competence areas of DigCompEdu	Sub-competences
Digital Resources	Selecting digital resources Creating and modifying digital resources Managing, protecting, and sharing digital resources
Teaching and Learning	Teaching Guidance Collaborative learning Self-regulated learning
Assessment	Assessment strategies Analyzing evidence Feedback and planning
Empowering Learners	Accessibility and inclusion Differentiation and personalization Actively engaging learners

2.2.1.2 Progressing through levels of proficiency in DigCompEdu

The DigCompEdu framework adopts a progression model consisting of different levels of proficiency used to describe educators' digital competence and the development of their competence levels over time. Redecker (2017) explains that teachers can notice their strong and weak areas of digital competence with the help of the DigCompEdu. To enable teachers to understand their levels of digital competence better, the Common European Framework of Reference for Language (CEFR), with its six proficiency levels, ranging from A1 to C2, is used to describe each competence in the framework.

Redecker (2017) claims that the established link between the DigCompEdu framework and the CEFR taxonomy brings along many advantages. Firstly, due to the widespread recognition of the CEFR, seeing their digital competence levels with these levels will help teachers easily comprehend how proficient they are in each area. Since the CEFR is well known and commonly used, describing digital competence with these levels connects the DigCompEdu framework to other frameworks proposed in Europe. Also, educators can specify their digital educator-specific competence levels with the CEFR levels in their resume, as they do for their language skills.

Another advantage of using the CEFR levels in the framework is that they allow educators to perceive their digital competence from an area-specific perspective. In other words, similar to the four basic language skills, teachers can understand that their digital competence might change in different areas. Besides, they can detect their strengths and weaknesses in each area and direct their attention to their weaknesses to improve their practices. Lastly, the CEFR proficiency levels help educators understand that digital competence development is based on progress

and moving from A2 to B1 and B2 to C1 requires a greater “cognitive leap” while the levels within the same letter are closely connected (Redecker, 2017, p. 28).

Even though the aim is to demonstrate the typical progression of educators’ digital competence with differentiated stages, the integration of CEFR levels to DigCompEdu might seem intimidating to teachers. Instead of evaluating teachers’ digital competence according to their shortcomings, the framework is designed to encourage lifelong learning and professional development. Therefore, all the competences are described through six stages to inform teachers about their current levels, previous achievements, and further steps in the journey of developing their pedagogical digital competence. Rather than focusing on deficiencies, the explanations of each competence are written in a way that teachers’ small achievements are celebrated. By seeing their gradual progression, teachers can be more motivated to continue to develop their digital competences, which will boost their confidence and competence eventually (Redecker, 2017).

Following the idea of supporting educators’ professional development, each CEFR level is matched with motivating role names and descriptions. The educators’ roles are as follows: *Newcomer (A1)*, *Explorer (A2)*, *Integrator (B1)*, *Expert (B2)*, *Leader (C1)*, and *Pioneer (C2)*. These labels aim to encourage teachers to take a positive approach towards developing their digital competence by taking actions to progress towards higher stages in the taxonomy. Redecker (2017) highlights that Bloom’s revised taxonomy (Anderson, Krathwoh, & Bloom, 2001) underlies the progression model and its stages. This taxonomy, which illustrates the cognitive processes that individuals go through in their learning journey, consists of six stages: Remembering, Understanding, Applying, Analyzing, Evaluating, Creating. Similar to the first two stages of Bloom’s revised taxonomy, Newcomers (A1) and Explorers

(A2), who stand at the first two stages of DigCompEdu, educators' digital practices are at a basic level. In the subsequent two stages, Integrator (B1) and Expert (B2), teachers can go beyond developing basic digital skills by putting their digital skills into practice, varying their digital repertoire, and reflecting on their performance. Finally, Leaders (C1) and Pioneers (C2) share their digital knowledge with others, approach current digital practices with a critical eye, and come up with innovative ideas (Redecker, 2017).

These stages, along with their labels, show what each competence level highlights. To illustrate, educators at the Integrator (B1) stage focus on implementing a variety of digital technologies in their teaching context to improve their digital practices. For Experts (B2), the main concern is to be confident enough to identify the advantages and disadvantages of different digital tools and methods and solve problems creatively. Furthermore, these stages might help educators figure out how to contribute to their professional community. For instance, while an Expert (B2) can plan the implementation of digital tools most properly, a Pioneer (C2) might try to carry the existing digital technologies one step further. Also, the proficiency levels used to describe all competences follow a cumulative pattern in that the descriptions of each higher level incorporate the descriptors of the lower levels (Redecker, 2017). A detailed explanation regarding the proficiency levels and labels of DigCompEdu is explained in the following section.

2.2.1.3 Proficiency levels of the DigCompEdu framework

Redecker (2017) states that teachers at the Newcomer (A1) stage know that technology is significant for enhancing their teaching and professional development, but their technical knowledge is highly limited. They need to be guided and

encouraged to integrate digital technologies into their lessons and increase their knowledge of digital tools and resources. Teachers at the next stage, Explorer (A2), are aware that technology has a lot to offer to enhance their pedagogical and professional practices. Therefore, they are interested in expanding their knowledge and repertoire. Although these teachers have been using digital technologies related to some areas of digital competence, they do not follow a “comprehensive or consistent approach” (Redecker, 2017, p. 30). Similar to the first stage, they still are in need of encouragement and inspiration from their colleagues.

As for teachers at the Integrator (B1) stage, they mostly integrate digital technologies into different stages of their lessons for various purposes. In addition to the teaching realm, they use digital technologies innovatively to improve themselves in different areas of their professional development. Although they want to use various digital tools in their teaching practices, they continue to work towards understanding when and where to use digital tools for seamless integration. These teachers need more time to work on these issues before moving to the next stage. Regarding Experts (B2), they focus on selecting digital technologies that fit the particular learning situation best. In other words, they critically take the affordances and limitations of several digital strategies into account. Their increased confidence and creativity in using different digital technologies can be observed in their professional communications and practices as well. Furthermore, they are open-minded about learning new strategies and trying out emergent technologies, knowing that there is still much to explore.

What differentiates Leaders (C1) from other teachers at the previous stages is that the approach they adopt for professional and educational practices while using digital technologies is consistent and comprehensive. In comparison to Experts (B2),

Leaders have a broader repertoire of digital strategies that they use when deciding what strategy is more suitable for the situation at hand. Besides, by interacting with their colleagues, they follow the recent developments and search for new ways to improve their current teaching practices. Another characteristic of this level is that they share their expertise with others and inspire them for further development. When it comes to Pioneers (C2), who constitute the last level of the taxonomy, they are already the leaders of the existing digital and pedagogical practices. What makes them Pioneers is that they deal with the limitations of the established methods to discover innovative pedagogical approaches. Since Pioneers broaden our view of digital pedagogy with their unique perspectives and work with complex digital technologies, they are very few in number. Due to their expertise, they are the leaders of educational innovations and are considered role models by novice teachers (Redecker, 2017).

As emphasized by Benali, Kaddouri, and Azzimani (2018), only a few teachers manage to become Pioneers (C2). In other words, reaching the C2 level is not a must for educators. Instead, they highlight that it is more important for teachers to try to develop their digital competences constantly and at least master the competences at the B2 level. Similarly, Redecker (2007) stresses the importance of Experts (B2) by saying that they are the “backbone of any educational organization” (p.30). In short, DigCompEdu does not refer to the C2 level as the final point that each teacher should reach one day. Instead, the idea behind the DigCompEdu framework is to encourage educators to notice their existing digital competences and build on their current level to reach higher stages by taking necessary actions taking their strengths and weaknesses into account.

2.2.1.4 Significance of the DigCompEdu framework for the study

DigCompEdu was chosen as the framework on which the study was built for several reasons. First of all, it is a comprehensive framework that was created as a result of the collaborative work of both experts and practitioners studying in the field of education. Secondly, it is conceptually based on the literature review and previous frameworks, models, and instruments. It proposes a common point of reference that can be used in different educational contexts by synthesizing the previous work on educators' digital competence. Also, it has been reported as the most valuable and sufficient framework to be used to assess teachers' digital competences (Cabero-Almenara et al., 2020).

Ghomi and Redecker (2019) state that the DigCompEdu framework is in agreement with the well-known TPACK framework (Mishra & Koehler, 2006). Both frameworks agree that the effective integration of content, technological, and pedagogical knowledge is required for teachers to implement digital technologies in their teachings. They further argue that what is lacking in TPACK is that how to establish a connection between these three areas is not explained explicitly. On the other hand, the DigCompEdu framework provides teachers with different pedagogical and professional areas of digital competence to guide and assist them in using digital technologies effectively. Since the DigCompEdu describes how teachers can develop their technological competence by linking their subject area knowledge and pedagogical strategies, it narrows the gap between these areas (Ghomi & Redecker, 2019).

2.3 Pre-service teachers' digital competence

2.3.1 Studies on digital competence of pre-service teachers and teacher education

Since the ability to utilize digital technologies effectively has become a crucial part of professional competency, it is critical for a pre-service teacher to acquire digital competence both as a student during their teacher education process and in their practice (Instefjord & Munthe, 2016). Defining digital competence as teachers' ability to use digital technologies with good "pedagogic-didactic judgement" and to be aware of what they imply for learning strategies and digital consciousness of learners, Krumsvik (2011) underlines the significance of having enough digital competence for pre-service teachers (p. 44-45). Digital competence for educators has two crucial facets: to be competent in using digital technologies both in personal lives and educational practices in the classroom and to be able to support their students' use of digital technologies meaningfully (Lund & Eriksen, 2016).

Despite the importance of the digital competence of teacher candidates in enhancing their future teaching practices, pre-service teachers' views on technology use in education and their digital competence levels differ considerably (McGarr & McDonagh, 2021). Previous studies have demonstrated pre-service teachers' positive attitudes towards utilizing digital technologies in educational contexts (So, Choi, Lim, & Xiong, 2012; Sadaf, Newby, & Ertmer, 2012; Koc, 2013; Aslan & Zhu, 2016; Gudmundsdottir & Hatlevik, 2018; Scherer, Tondeur, Siddiq, & Baran, 2018; McGarr & Gavalton, 2018; McGarr & McDonagh, 2021; Park & Son, 2020). To illustrate, in their recent research study, McGarr and McDonagh (2021) investigated Irish pre-service teachers' digital competence levels and their attitudes towards technology use in education. The survey responses of 221 pre-service teachers from different teacher training programs show that the participants of the study were

actively using digital technologies as well as social media. However, apart from their activity on social media and related digital skills in using such technologies, the pre-service teachers' self-reports revealed that they feel less competent regarding different digital technologies. Besides, they indicated their positive ideas towards integrating technology into education to enhance the effectiveness of their teaching. Similarly, in his study, Teo (2011) emphasizes that the more pre-service teachers feel positive about using technology, the more likely they are to use digital technologies in the future.

Pre-service teachers' attitudes towards using educational technology have a determining role in their integration of digital technologies into their teaching (Scherer et al., 2018). However, having a positive attitude towards technology does not necessarily mean that pre-service teachers are competent enough to use technology in a teaching context (Egbert, Paulus, & Nakamichi, 2002). Even though the pre-service teachers have positive attitudes towards digital technologies and are born into a digital world (Engen et al., 2014), their use of technology is mostly limited with a range of digital tools (So et al., 2012; McGarr & McDonagh, 2021). Therefore, their digital competence is not adequate for them to be ready to use digital technologies in their teaching (Kay, 2006; Lei, 2009; Tondeur et al., 2012; Røkenes & Krumsvik, 2014; Valtonen et al., 2015; Aslan & Zhu, 2016; Instefjord & Munthe, 2017; Tondeur et al., 2016; Tondeur, Pareja Roblin, van Braak, Voogt, & Prestridge, 2017; Gudmundsdottir & Hatlevik, 2018). These findings indicate the gap between various uses of technology. Pre-service teachers' familiarity with smartphones or social media platforms and their ability to use digital technologies in their social life does not lead to a similar competency and confidence in using educational technologies (Gill et al., 2015; McGarr & McDonagh, 2021). Furthermore, Engen et

al. (2014) argue that there appears to be a difference between pre-service teachers' actual and perceived digital competence because of the distinction between individual and educational use of technologies. These findings point out that teacher education programs have an important impact on pre-service teachers' professional digital competence development.

In Hatlevik's (2017) longitudinal study in which 110 pre-service teachers were followed both during their teacher education and upon graduation, the participants reported that their confidence in their professional career is closely related to how they foresee their competence as future teachers during their teaching education. In accordance with this finding, Gudmundsdottir and Hatlevik (2018) claim that teacher education programs have a significant effect on how competent pre-service teachers will feel in their professional life as in-service teachers. In the same vein, pre-service teachers' future use of digital technologies for teaching is affected by their experiences with technology during their teacher training (Agyei & Voogt, 2011). In line with this perspective, many studies in the literature have underlined that teacher education programs need to develop pre-service teachers' digital competence for their further technology-enhanced instructional practices (Kirschner & Davis, 2003; Valcke, Rots, Verbeke, & van Braak, 2007; Polly, Mims, Shepherd, & Inan, 2010; Krumsvik, 2014; Tondeur et al., 2017; Hatlevik, 2017; Gudmundsdottir & Hatlevik, 2018).

In order for teachers to use a variety of digital tools confidently in their future classrooms, they need to be familiar with digital technologies, which necessitates teacher education programs to enhance pre-service teachers' digital competences (Gudmundsdottir & Hatlevik, 2018). However, previous research has highlighted that pre-service teachers are not given enough opportunities to learn how to use

digital technologies for instructional purposes during their initial teacher training (Chien, Chang, Yeh, & Chang, 2012). Likewise, Gudmundsdottir and Hatlevik's (2018) study conducted in Norway with 356 newly qualified teachers revealed that teacher training they received was not enough for almost half of the respondents to be digitally competent. Dissatisfaction with teacher education programs directs researchers' attention to exploring how teacher training institutions can help pre-service teachers improve their digital competence for better learning and teaching experiences (Ell et al., 2017).

Previously, the main focus of teacher education programs was to develop pre-service teachers' basic technical skills through introductory courses (Tømte et al., 2015). However, acquiring digital competence demands going beyond technical skills (Instefjord & Munthe, 2016). In their review, Røkenes and Krumsvik (2016) emphasize that educational technology courses still prioritize increasing pre-service teachers' repertoire of digital technologies rather than demonstrating how they can use digital tools for educational purposes. To increase pre-service teachers' confidence and competence in incorporating technology into their teaching, teacher training institutions need to reshape their programs (Aslan & Zhu, 2016). If teacher education programs continue to focus on improving pre-service teachers' teaching skills and tool knowledge, the digital tools taught in teacher training might go out of use or be replaced with newer technologies (Instefjord, 2014). Therefore, instead of simply focusing on teaching how technological tools, teacher education programs must improve pre-service teachers' pedagogical, technological, content knowledge (Koehler & Mishra; 2009; Polly, 2010; Tondeur et al., 2012; Ranieri & Bruni, 2018). Besides, teacher training institutions need to encourage pre-service teachers to reflect

on their use of digital technologies rather than supporting excellence in several educational tools (Instefjord, 2014).

Teacher educators' use of technology with pedagogical awareness stands as a model for pre-service teachers during their teacher training (Gudmundsdottir & Hatlevik, 2018). Although observing teacher educators' digital practices is a good start, it is not sufficient on its own to equip pre-service teachers with the necessary knowledge and skills. Hands-on assignments in educational technology courses allow pre-service teachers to go beyond observing the application of digital tools, gain more experience with technology, and increase their confidence and abilities related to technology (Goktas, Yildirim, & Yildirim, 2008; Valtonen et al., 2015; Gill et al., 2015). However, previous studies demonstrate that pre-service teachers have difficulty in preparing technology-enhanced lesson materials and activities (Tondeur, Aesaert, Prestridge, & Consuegra, 2018). For this reason, they need to be assisted in designing digital materials and integrating them into teaching practices (Sadaf et al., 2012). This support can be in the form of peer feedback as well as teacher feedback. Working collaboratively with peers and receiving peer feedback on designing digital teaching materials to be used in their fields have been found useful for pre-service teachers (Tondeur et al., 2018; Liu et al., 2015; Røkenes & Krumsvik, 2016). Also, the literature has suggested that providing pre-service teachers with continuous feedback focusing on their development process and application of technologies is a significant part of teacher education (Ranieri & Bruni, 2018; Banas & York, 2014).

As the abovementioned studies document, educational technology courses in teacher training programs contribute to the digital competence development of pre-service teachers. Having said that, Choy, Wong, and Gao's (2009) study revealed

that although taking an educational technology course increased the pre-service teachers' confidence and positive beliefs regarding technology use for educational purposes, they could not sustain their positivity and confidence during their teaching practicum experience. By pointing out the participants' lack of adequate pedagogical skills to put their knowledge into practice, they stress the role of teacher educators in preparing pre-service teachers for real classroom practices. Teacher education programs need to give pre-service teachers enough opportunities to gain practical experience as well as theoretical knowledge so that they can be more confident and competent as future practitioners (Hatlevik, 2017). Besides, pre-service teachers should be supported to make connections between the theoretical knowledge they learn from courses and their teaching practices (Hatch, Shuttleworth, Jaffee, & Marri, 2016). Since teaching practicum allows pre-service teachers to receive first-hand experience by implementing their digital skills and knowledge in an authentic learning environment (Tondeur et al., 2018; Valtonen et al., 2015), field practices have been noted as quite significant to establish this link (Lee & Lee, 2014; Tondeur et al., 2016; Valtonen et al., 2015). Otherwise, observing teacher educators' technology use in line with a pedagogical approach in a subject area is not sufficient for pre-service teachers to implement technology in their lessons actively (Tondeur et al., 2019; Tearle & Golder, 2008).

In brief, the development of pre-service teachers' digital competence is a complex process that can be affected by various factors, such as pre-service teachers' attitudes, familiarity with digital technologies, experiences during teacher education programs and teaching practicum. These factors, along with many others, have an impact on the development of pre-service teachers' digital competence and whether their competence is transferred to educational settings.

2.3.2 Studies on digital competence of pre-service EFL teachers

There are many research studies in the literature indicating pre-service EFL teachers' positive opinions about integrating technology into language classes (e.g., Kuo, 2008; Yüksel & Kavanoz, 2011; Hismanoglu, 2012; Savas, 2014; Schmid & Hegelheimer, 2014; Merç, 2015; Durriyah & Zuhdi, 2018; Ozer, 2018; İşler & Yıldırım, 2018; Guillén-Gámez et al., 2019; Fathi & Ebadi, 2020; Liza & Adriyanti, 2020; Park & Son, 2020). According to Ozer (2018), if teacher candidates have a positive attitude towards technology, they are more likely to integrate it into their classes in the future. However, the positive attitude of prospective teachers towards technology use in language classes does not guarantee that they can apply it in language teaching (Guillén-Gámez et al., 2019) unless they are competent enough. Previous studies on pre-service EFL teachers' competence in ICT skills revealed that pre-service EFL teachers' perceived competence in ICT use ranges from high competence (Park & Son, 2020) to the medium-low level of competence (Guillén-Gámez et al., 2019).

Concerning the pre-service EFL teachers' repertoire of digital technologies, Akayoglu et al. (2020) investigated the digital tools used by Turkish pre-service EFL teachers and their purposes of utilizing technology for teaching English. The study was conducted with 113 senior pre-service EFL teachers studying at three universities in Turkey. The primary data was collected through an open-ended survey. The data collection process continued with the face-to-face interviews held with 43 pre-service teachers who voluntarily agreed to participate in the interviews. The findings of this qualitative research study revealed that while the participants mostly use social media networking sites, they are also familiar with some quiz tools. As for the potential pedagogical use of digital technologies as teacher candidates, the

participants reported that they could utilize digital technologies to enhance learners' motivation, support self-regulated learning and creativity, and teach and assess language skills. In comparison to the other studies indicating that pre-service teachers do not feel competent enough to incorporate digital technologies in teaching (Røkenes & Krumsvik, 2016), the participants of this study felt competent enough to use digital technologies not only in their personal lives but also in education. Although the pre-service teachers' self-reports indicate that they are ready and competent enough to use technology in language education, this study does not show the participants' actual use of digital technologies in a classroom setting.

When it comes to pre-service EFL teachers' digital technologies in practice, some studies highlight that despite being motivated and competent enough to utilize technology in language instruction, they use few tools they are familiar with for language teaching purposes (Guillén-Gámez et al., 2019; Park & Son, 2020). A well-planned and implemented teacher training program is necessary to help pre-service teachers go beyond their current digital knowledge and level of pedagogical digital competence (Guillén-Gámez et al., 2019).

Technology-enhanced teaching includes not only technological knowledge but also pedagogical and content knowledge (Mishra & Koehler, 2006). Therefore, teacher education instruction should allow pre-service teachers to be aware of the connection between technological knowledge, content knowledge, and technological knowledge (Koehler & Mishra, 2009). Educational technology courses positively impact pre-service EFL teachers' attitudes towards incorporating technology into their instruction (Hismanoglu, 2012). However, in his research study, Mei (2019) found that technology integration courses offered to all students in education faculties to promote prospective teachers' pedagogical digital competence did not

increase the participants' confidence in using technological tools for language teaching. Therefore, teacher education programs need to make changes in their curriculums by offering courses specifically designed to train pre-service teachers about using technology to teach language skills, such as listening and design materials for vocabulary and grammar instruction (Merç, 2015).

Prior research in the Turkish context indicated that pre-service EFL teachers' TPACK ranges from satisfactory (İşler & Yıldırım, 2018; Sarıçoban, Tosuncuoğlu, & Kırmızı, 2019) to relatively high (Öz, 2015). After taking subject-specific technology education courses, pre-service EFL teachers were able to expand their repertoire of digital technologies and explain how a particular technology could help them achieve their lesson objectives (Ersanli, 2016). Kurt et al. (2014) reported that pre-service EFL teachers in their study successfully reflected their TPACK knowledge in various stages of teacher education, including coursework and practicum teaching. These studies highlight the necessity of providing pre-service teachers with enough opportunities to enhance their technological pedagogical knowledge to foster language instruction.

Giving pre-service teachers a chance to design materials in line with the subject they will teach has been proposed as a useful strategy to improve their pedagogical digital competence during teacher training (Tondeur et al., 2018; Öz, 2015). In a qualitative research study conducted in Turkey, Sert and Li (2017) explored how pre-service EFL teachers' CALL knowledge developed over a semester. During the study, 111 participants prepared several audio-visual materials for language teaching and wrote reflections after completing the tasks. The analysis of the participants' reflections demonstrated that they were aware of the affordances of technology use in language education. The participants reported that learners feel

more motivated to learn English as technology provides them with more authentic input and opportunities to improve language skills. The authors argue that writing reflections allowed the pre-service teachers to evaluate their CALL practices with a critical eye and notice the benefits and shortcomings of CALL.

In short, for effective technology implementation, pre-service teachers' positive attitudes and confidence towards technology do not necessarily indicate their competence in using digital technologies in teaching. For this reason, teacher training programs should include subject-specific technology courses to equip pre-service EFL teachers with theoretical knowledge regarding the use of technology in English language teaching and practical experience so that they can bridge the gap between theory and practice (Merç, 2015). Practicum experience during which pre-service EFL teachers can apply their knowledge and skills related to CALL in authentic settings have been noted as valuable in the literature (İşler & Yıldırım, 2018). Therefore, it is significant that universities and practicum schools collaborate effectively (Schmid & Hegelheimer, 2014). Otherwise, pre-service EFL teachers' digital competence might not be sufficient to meet the needs of the learners who were born into a digital world (Kurt et al., 2014).

CHAPTER 3

METHODOLOGY

This chapter aims to inform the reader about the research methods used in the present study, including the research design, research setting, sampling, participants' backgrounds, course design, sources of data, procedures of data collection and analysis, along with ethical considerations. This study, which adopts a qualitative case study design, mainly aims to investigate how pre-service EFL teachers assess their digital competence levels at the beginning and end of a technology-enhanced language teaching course (RQ1), whether and how pre-service EFL teachers' digital competence develop after taking a technology-enhanced language teaching course (RQ2), whether and how pre-service EFL teachers plan to benefit from digital technologies in their future classrooms (RQ3), whether and how pre-service EFL teachers could reflect their digital competences in their lesson plans for macro teachings and reflections on macro teachings during their teaching practicum (RQ4). The DigCompEdu framework was used as the theoretical and analytical lens of this current study.

3.1 Research design

A qualitative case study design was adopted in this study. Creswell (2012) argues that researchers should use qualitative research when their study focuses on “learning about the views of individuals, assessing a process over time, generating theories based on participant perspectives, obtaining detailed information about a few people or research sites” (p. 64). In qualitative research studies, phenomena are investigated in their natural contexts, aiming to understand or interpret the situation regarding the

meanings people ascribe to them (Denzin & Lincoln, 2011). Since the interpretations are made based on the data gathered from a particular context, qualitative studies are affected by the dynamics of the study context. Another significant characteristic of qualitative studies is that participants' meanings towards the issue are focused on rather than the meanings researchers assign to the problem (Creswell, 2007). The qualitative research design is also characterized with being "interpretive," which means that researchers interpret what they see, hear, and understand, "emergent," which means that it is prone to change and adaptation during the research process, and "holistic," which underscores that the researcher tries to present a bigger picture of the research problem by including different perspectives (Creswell, 2007, p. 39).

A case study, which is one of the qualitative research designs (Duff, 2008), is "an intensive, holistic description and analysis of a single entity, phenomenon, or social unit" (Merriam, 1998, p. 34). According to Yin (2003), case studies are used in situations where research questions consist of how and why questions, the researcher has limited control over what is happening and focuses on a current phenomenon in a real-life setting. Merriam (1998) explains that case studies are preferred when the researcher wants to obtain a deeper understanding of an issue as well as its meaning to people concerned. Besides, she underlines that in case studies, "the interest is in process rather than outcomes, in context rather than a specific variable, in discovery rather than confirmation" (Merriam, 1998, p. 19). In case studies, the researcher uses a range of data sources to investigate a phenomenon in its context, which supports the examination of the issue through various lenses so that different aspects of the phenomenon could be identified (Baxter & Jack, 2008).

Yin (2003) classified case studies into three: descriptive, explanatory, and exploratory. He also distinguished single case studies from multiple-case studies. Yin

(2003) states that there is no single set of outcomes for the treatment being examined in exploratory case studies. Following Yin's (2003) categories, this study can be an example of an exploratory study. Exploratory studies may "reveal new perspectives of processes or experiences from participants" (Duff, 2008, p. 44). This study was exploratory in terms of revealing the participants' experiences regarding their digital competence development during the course and teaching practicum.

Overall, this study aims to understand the impact of a fourteen-week technology-enhanced language teaching course on pre-service EFL teachers' digital competence development and whether and how they could sustain their digital competence during teaching practicum. Therefore, the qualitative case research design was more appropriate to explore this issue in-depth, as it allowed the researcher to provide detailed descriptions of the context, participants, and other relevant information. Thanks to the research design, the researcher could thoroughly investigate the experiences of each case throughout the study.

3.2 Research setting

3.2.1 Context of the study

The research study was carried out at one of the top state universities in Turkey. The university is an English medium university with more than 16.000 students and has six campuses, six faculties, two schools, and six institutes. The Department of Foreign Language Education offers both B.A., M.A., and Ph.D. programs in ELT. The four-year undergraduate program aims to train qualified English teachers who will work at primary, secondary, and post-secondary levels. The compulsory courses in the curriculum aim to increase pre-service EFL teachers' theoretical, pedagogical, and methodological knowledge regarding the acquisition and teaching of foreign

languages. In the first years of the program, the department offers courses that focus on improving their language skills and linguistic knowledge, such as Academic Writing, Critical Thinking into Writing, Developing Communicative Competence in English, and Introduction to Language and Linguistics. In line with the mission of the program, pre-service EFL teachers take several field-related compulsory courses like Childhood Bilingualism and Bilingual Education, Second Language Learning, Second Language Teaching Methods, Theoretical Foundations of Language Skills, Teaching Second Language Grammar, Teaching Second Language Skills, Language Assessment, and Technology-Enhanced Language Teaching.

In addition to the courses listed above, pre-service EFL teachers take other courses offered by different departments, such as Educational Psychology, Special Education, Survey of American Literature, Classroom Management, Instructional Technology and Material Development, Fundamentals of Guidance, and Counselling. Teacher candidates also take two courses related to field experience in the last year of the program. These courses allow them to observe real English classrooms at K-12 schools and get first-hand teaching experience through four macro teaching sessions. These teaching practices take place under the supervision of mentor teachers and supervisors from the department. The department also provides a great number of elective courses to help teacher candidates explore other fields and broaden their horizons.

Pre-service EFL teachers in the B.A program at this university receive two required courses on technology use in education: a) Instructional Technology and Material Development and b) Technology-Enhanced Language Teaching. While the former is offered to all students studying at the Faculty of Education, the latter is specifically designed for and offered to the students of the Department of Foreign

Language Education. The former focuses on teaching pre-service teachers basic information skills that could help them develop instructional materials, such as audio-visual materials. The latter intends to increase pre-service teachers' familiarity with theoretical, practical, and pedagogical applications of various aspects of CALL.

3.2.2 Course design

In most universities in Turkey, there is only one compulsory educational technology course that is not subject-specific. In some of these universities, the educational technology courses specifically designed for pre-service EFL teachers are offered as elective courses. Technology Enhanced Language Teaching (ENGT416) is a required course for senior students in the department of Foreign Language Education at a state university. It aims to prepare pre-service EFL teachers to incorporate computer technology and other media into English language teaching. In the Fall 2020 semester, two different instructors offered the course in two sections to keep the student numbers low and allow more hands-on tasks to be practiced.

The main objective of the course is to prepare pre-service EFL teachers to integrate digital technologies into their English lessons effectively. This course focuses on equipping pre-service teachers with theoretical and pedagogical knowledge related to different aspects of CALL and providing them opportunities to apply their knowledge into practice to evaluate and select digital technologies for language instruction appropriately. The course also aims to prepare pre-service EFL teachers in the following areas: writing and evaluating instructional objectives, identifying different types of instructional materials, selecting digital resources considering lesson objectives, target students, context, appropriate instructional method, and pedagogical approach, designing materials following the principles of

material design, developing technology-enhanced instructional materials to teach grammar, vocabulary, and the four basic language skills (listening, speaking, writing, and reading), evaluating CALL materials, adapting materials to make them more suitable for students' proficiency levels, needs, and interests, identifying multimodal literacies and acquiring multimedia and cyberlearning literacies, and gaining an understanding of ethical considerations in material design.

In their literature review, Røkenes and Krumsvik (2014) note the approaches teacher education programs adopt to develop pre-service teachers' digital competence: collaboration, modeling, metacognition, blending, student-active learning, assessment, and bridging the gap between theory and practice. The course ENGT416 consists of some of these approaches. This course was designed to provide pre-service EFL teachers with enough opportunities to learn by doing collaborative and authentic tasks. As suggested by Sert and Li (2017), the participants wrote reflection papers after submitting their assignments to establish a better connection between theory and practice. Through these reflection papers, the participants critically evaluated their performance on course assignments, which were also graded by the course instructor.

The course lasted 14 weeks, and due to the COVID-19 pandemic, all lectures were held via Zoom. During the training, classes were held twice a week for four hours. Throughout the course, the instructor first used the class time to discuss the theoretical issues related to the topic of that week in the light of the readings assigned for each week. In this way, the pre-service EFL teachers became familiar with the theoretical aspects of each topic before the production-based in-class tasks. Prior to the second class of the week, which was in the form of workshops, the pre-

service teachers were asked to sign up for the digital tools chosen for the session and have a look at them before attending the class.

During the workshops, the pre-service EFL teachers were introduced to some applications and websites related to the topic of the week (see Appendix A). They discussed how these tools could be used for language teaching by also identifying their affordances and constraints with the whole class. Then, the course instructor demonstrated how to use the tools to create instructional materials. Following the discussion, the pre-service EFL teachers were grouped into three to four students and sent to the breakout rooms on Zoom to work on the hands-on tasks. The instructor visited each breakout room and answered the teacher candidates' questions about the tasks. While the participants were working on their tasks, the researcher also visited each breakout room to observe them and took brief observation notes. Each group uploaded their group work on Moodle for other groups to see and comment on their product. They also presented their group work in the next session and received feedback from their peers. With these collaborative tasks, the pre-service EFL teachers were given a chance to learn from each other and build knowledge together.

In addition to the in-class tasks, pre-service EFL teachers taking the course completed the following six performance tasks to demonstrate their digital competence development throughout the semester: planning two technology-enhanced lesson plans, evaluating CALL materials, adapting materials, MAPP assignment set I and II (see section 3.4.1.4 for detailed descriptions of each performance task and in-class task). These tasks were completed individually or in pairs or groups. The structure of the course is summarized in Appendix A.

3.3 Participants

3.3.1 Gaining access

In the Fall 2020 semester, 21 students were enrolled in the first section of the ENGT416 course. The researcher explained the aim and scope of the research as well as the requirements of the participants in the first week of classes. Since the research design includes a following study to be conducted in the Spring 2021 semester, only senior students taking teaching practicum courses during both semesters were suitable for this research. Among the students who met these criteria, six pre-service teachers agreed to participate in the study. At first, four students voluntarily accepted to be participants of this study. Then, considering the additional workload and duration of the study, the students were offered an extra five credits for the course ENGT416. After the announcement of the extra credits, two more students agreed to participate in this study, and the total number of participants increased from four to six. These students contacted the researcher via email, and they were informed about the study in detail. After the researcher explained the aim of the study, participants' requirements, and duration of the study, these six students signed the informed consent forms (see Appendix B). Throughout the study, in addition to completing all the course requirements stated in the course syllabus, these participants also wrote reflection papers upon the completion of each assignment, attended all one-on-one interviews in the fall and spring semesters, and sent their macro teaching lesson plans and reflection papers to the researcher.

3.3.2 Sampling

In this study, two types of sampling are used: convenience sampling and purposive sampling. Convenience sampling entails gathering participants who are available and

accessible to the researcher (Lunenburg & Irby, 2008). The students enrolled in the first section of the course ENGT416 were informed about the study, and those who were convenient to participate in the study contacted the researcher via email.

Purposeful sampling is choosing participants based on the particular aim of the study and prior knowledge of a population, believing that they could provide the necessary research data (Fraenkel, Wallen, & Hyun, 2012). Among the students enrolled in this course, only the senior students who also took the required two-stage practicum course, both in the fall and spring semesters, were chosen as participants. In other words, the students who were taking the ENGT416 course but were not registered to their official practicum courses were not chosen to be participants of the study as they did not meet all the criteria.

3.3.3 Participants' backgrounds

The participants of this study are six senior students studying at the Faculty of Education, Department of Foreign Language Education at a state university.

Throughout this study, each participant was given a pseudonym to ensure privacy and confidentiality. What these participants have in common is that they took the ENGT416 course in the last year of their teacher training during their practicum experience. Regarding their pedagogical background, these senior students took a variety of courses related to developing their English language teaching skills.

Except for Caner, Aslı, and Selin, all participants took a required course focusing on developing lesson plans for teaching the four basic language skills that involved peer teaching in the classroom before the data collection process. Caner and Aslı took the course after the treatment, while Selin took it during the study. Table 3 below presents an overview of the participants:

Table 3. Overview of the Participants

	First encounter with English	Taken a course on educational technologies	Taken a course on teaching skills	Former teaching practice	Practicum school	Perceived digital competence
Nehir	Fourth grade	Yes	Yes	Yes	Private (High school)	C1
Damla	Fourth grade	No	Yes	Yes	State (High school)	B1
Aslı	Fourth grade	No	No	Yes	State (High school)	B2
Selin	Fourth grade	Yes	No	Yes	State (High school)	B1
Ege	Fourth grade	No	Yes	Yes	State (High school)	B2
Caner	Three years old	Yes	No	No	State (High school)	B1

In the Fall 2020 semester, within the scope of the course School Experience in TEFL, the participants completed structured observation tasks under the guidance of their mentor teachers and supervisors from the department. These tasks were followed by classroom discussions on theoretical and experiential aspects of teaching English. In the Spring 2021 semester, the participants took the course Practice Teaching in EFL that required them to plan and carry out macro teachings in their practicum schools in addition to the classroom observation tasks. Following their macro teachings, the participants wrote reflection papers to evaluate and reflect on their lessons critically. Because of the COVID-19 pandemic, the participants had to complete their teaching practicums online. The following section provides brief information regarding the placement schools.

Damla's practicum school was a state Anatolian high school. She observed the lessons of 10th and 11th-grade students and the preparatory class. The lessons she observed were based on the interactive coursebook determined by the school

with no other technology interaction. She carried out all her macro teachings in the preparatory class with 30 students via Zoom.

Aslı completed her practicum at a state Anatolian high school. She attended the ninth and 10th-grade classes. In the lessons she observed, the mentor teacher followed the interactive coursebook chosen for that grade level, and no digital tools were implemented. She delivered her macro teachings in a ninth-grade class with 20 students. The classes she observed were held via Perculus, but she preferred to use Zoom for her macro teachings due to the breakout room feature of Zoom.

Selin's teaching practicum school was a state Anatolian high school. She participated in the classes of ninth and 10th graders. The PDF versions of the coursebooks determined for each level were followed in these classes. Except for Kahoot, no other digital tools were integrated into the lessons she attended. She completed her macro teachings in a ninth-grade class with 15 students. Zoom was used as the online teaching platform in the lessons she observed, and she also used this platform for her macro teachings.

Nehir's practicum school was a private high school. She attended the classes of preparatory school students. The lessons she observed were digitally enhanced with various technological tools. Her mentor teachers implemented her lesson plans prepared according to the curriculum of the institution instead of using a coursebook. She delivered her macro teachings in the preparatory level class with 22 students via Zoom.

Caner completed his practicum at a state Anatolian high school. The classes he attended were ninth and 10th-grade classes with 20 students. They were using the interactive coursebooks determined by the placement school. No digital tools were

incorporated in the English lessons he observed. He completed all his macro teachings online via Zoom.

Ege's practicum school was an Anatolian high school. He attended the classes of ninth and 11th-grade students. In the lessons he observed, the PDF version of the coursebooks determined by the practicum school for each grade level was used, and no digital tools were implemented into teaching. Although he taught in both classes, he did most of his macro teachings in the 11th-grade class, which was an elective course. He used Microsoft Teams while delivering his macro teachings as all the lessons he observed were held on this platform.

Since this case study is based on the participants' thoughts, beliefs, experiences, and reflections, the participants' backgrounds are significant in this study. For this reason, the participants' teacher autobiographies were analyzed and summarized below to have further information about them. In the following section, the participants' backgrounds, language learning processes, prior experience with digital technologies, English teaching experience, and their future goals as English teachers are reported in detail.

3.3.3.1 Aslı's background

Aslı started learning English at a state school in the fourth grade. Although she received an English education in both primary and secondary school years, she states that the English classes provided there were not effective enough. Her dissatisfaction with the English classes at the school encouraged her to use technology to compensate for the ineffective English education she received. She decided to study in the language department of her high school, where she received intense training for the university entrance exam. Although she had over 10 hours of English classes

per week for two years, she expresses that the training was heavily on grammar and academic vocabulary. She believes that she improved her English skills by watching YouTube videos and listening to music in English. According to her, listening to music in English helped her the most as she would analyze the lyrics and interpret the meaning of songs. Moreover, she used an application named Musixmatch to improve her listening skills in English. She continues to use the same application to practice Russian.

Aslı has been learning Spanish and Russian, and she argues that technology helps her increase her proficiency in both languages. She uses Duolingo and SpanishDict to learn new vocabulary items in Spanish. She also uses Pinterest to read poems in Spanish, Instagram to be familiar with the colloquial language, and HelloTalk to communicate with native speakers. Her Erasmus experience in Spain also familiarized her with Padlet. As for her Russian learning journey, which has recently begun, she watches tutorial videos of native speakers on YouTube and follows channels teaching Russian. Also, she uses a website named MasterRussian to enhance her knowledge about the language.

Although she has been using technology for her language learning processes, she admits that she had a superficial knowledge of educational technology at the beginning of the semester. Except for Kahoot and Padlet, which were actively used in her Spanish classes, she did not have much information about educational tools before taking the course. She mostly uses her computer for academic purposes. However, she does not follow technological developments actively. She only searches for technological tools when she needs to learn for herself or her students. Her teaching experience is limited to her recent tutoring experience and three-month internship in a private language school in her second year at the university. She did

not take any educational technology course prior to this course. Therefore, she did not have a chance to gain information about educational technologies.

Overall, she has a positive attitude towards technology integration into English lessons, and she aims to use technology to not limit her students' language learning process to the classroom environment. She believes that technology can help her accomplish this goal by making language learning a part of learners' lives. She also claims that using technology in her future English classes will give her students a chance to receive and produce more authentic language input. According to her teaching philosophy, the teacher has a facilitative role that allows students to communicate in group activities. In her ideal classroom, students should be active rather than passive receivers of information, and it is teachers' responsibility to make their class as interactive as possible.

3.3.3.2 Damla's background

Damla's first encounter with English was at primary school in the fourth grade. As she lived in Germany for four years, she could speak German. While learning English, she did not use technology. She took Spanish courses during her university education, which helped her reach the B1 level in Spanish. The only digital tool she was familiar with was Padlet, as the course instructor used this platform to share assignments. Her teaching experience is limited to tutoring, and during this study, she continued to tutor a fourth-grade student.

She mainly uses her computer for online courses, assignments, checking her emails, and creating teaching materials that require the use of basic programs, such as Microsoft Word. Before taking this course, she did not have much idea about digital tools that she could use in language teaching except for the British Council

Kids language teaching materials she used for her private tutoring sessions. She emphasizes that she did not know where and how to find digital resources for education. Besides, she admits that she was not very curious to learn about educational technologies before this course, as they sounded somewhat confusing and difficult to use in classrooms. Although she has heard of the webinars on educational technology use in language learning for professional development, she expresses that she does not know where to find these types of online events on the internet.

She underlines that none of her teachers, including the instructors at the university, used technology while teaching prior to this course. She argues that she could not form an idea of technology integration in an educational context because she was not exposed to this type of learning as a student. Even though she did not know how to use technology for language teaching, her attitude towards technology integration in English classes was positive even before the course. She has always believed that implementing technology in education makes learning a lot more entertaining, effective, and easy.

She plans to use technology as an in-service teacher. According to her, technology will be like her assistant while teaching English because she argues that teachers should not be the only source of knowledge in the classroom. Instead, she thinks there should be many other learning resources for students, and technology should be the first source after the course instructor. She claims that sometimes technology can be more helpful and informative for students than a single teacher with the various teaching materials that it incorporates. She argues that even a simple activity that can be completed without technology becomes more informative when technology is incorporated. Therefore, if necessary conditions are met for her to use

technology in her workplace, she wants to integrate technology into her English lessons in the future.

3.3.3.3 Selin's background

Selin was introduced to English in the fourth grade at a state school. She expresses that she has always had a passion for learning English, but she gained basic English knowledge in the ninth grade. Then, she studied the language department in the last two years of high school, where she received quite structured and extensive training. She thinks that she did not receive support from technology to improve her English skills, except that she watched Korean dramas and movies with English subtitles. In her opinion, seeing the sentence structure in movies and TV shows supported her understanding of syntax. Thanks to the Korean courses she took at the university, her proficiency level in Korean is intermediate. Similar to her English learning experience, she did not receive technology-enhanced Korean instruction.

Concerning her teaching experience, she worked as a volunteer teacher for a short time, and she had been tutoring during the study. She did not go beyond using Kahoot and YouTube videos during the tutoring sessions before taking this course. She also was familiar with Padlet as a language learner. Furthermore, despite being curious to learn more technological tools, she did not attend any workshop, seminar, or training to boost her knowledge of the affordances of technology for education. She uses her computer for online classes and assignments, but she generally does not benefit from online resources for professional development. She was also enrolled in the instructional technology and material development course, which was offered to all students at the faculty of education at the time of the study.

She argues that nowadays, almost all students are digital natives, which leaves her no choice but to integrate technology to grab their attention and make her lessons more effective. She believes that today's students do not love worksheets as much as students in the 2000s. Since students are exposed to a wide variety of technology daily, she believes that her students would like their lessons to be enriched with technology. In her opinion, technology will be quite helpful for her teaching practices with the solutions and usefulness it brings. Therefore, she aims to attend seminars, webinars, and workshops during her professional career and make the best use of her knowledge and skills in educational technology to teach English more efficiently.

3.3.3.4 Nehir's background

Nehir started her English language journey when she was a fourth-grade student. She remembers that the only implementation of technology at her school was a projector. Other than that, she did not get the chance to practice English through technology. At that time, she did not have a computer. She watched movies in English on her DVD player to be engaged with English on her own. She completed her school years in a state school, where she mostly had limited opportunities to practice English. The education she received was heavily on explicit grammar instruction. In the last year of secondary school, she met an English teacher who changed her vision and encouraged her to learn English for communicative purposes. However, she expresses her disappointment with the English lessons during her high school years, as she studied grammar repeatedly each year. When she started studying at the university, she began taking Spanish courses. What made her Spanish lessons special for her was that the course instructor used digital learning tools, such as Flipgrid,

Padlet, and Kahoot. More importantly, she was happy that the lessons were genuinely interactive, and the emphasis was mainly on communication rather than linguistic accuracy.

As a pre-service teacher, she took part in a voluntary teaching project with eighth-grade students studying at a state school. During the study, she continued to tutor a primary school student. In her previous teaching experiences, she had limited opportunities to integrate technology into her lessons, as she worked with socioeconomically disadvantaged students. In her autobiography, she reports that her students did not have access to computers, which led her to design learning activities that can be completed using mobile phones, such as Mentimeter. Since some of her students did not have mobile phones, she had some strategies to include every student in the classroom. For instance, she designed group or pair work activities that allowed her students to use one technological device or let them use her phone.

She interacts with technology every day and uses her computer mainly for educational purposes. However, she argues that she did not have much awareness of the different uses of technology in education before this course, as projectors were the only source of technology used when she was learning English. Under these circumstances, her practices with educational technology were limited. The exception was the educational technology course that she took before taking this course, during which she learned how to use Articulate Storyline. As a teacher candidate, she feels the need to equip herself with a variety of technological tools and materials, considering the possible learning environments in the future. Therefore, she is curious to learn new digital tools that she can use in her future classrooms. Reviewing her past learning experiences, she promised herself to do her best to integrate technology successfully in her classes as an in-service teacher. She

desires to support her ideal classroom environment in which communication in English has the utmost importance with the help of technology.

3.3.3.5 Caner's background

Caner's first encounter with English was when he was three years old. During his preschool education, he learned some basics in English, such as numbers, colors, and shapes. According to him, his real English learning process began at the age of seven at a private school. Since he learned to read on his own when he was three years old, and his mother taught him writing a year after that, he was ahead of his classmates. Because of this, with the permission of his teacher and school principal, he studied by himself in the library and computer lab to develop himself more instead of attending regular lessons. By doing so, he argues that he spent half of his time playing educational computer games in the computer lab, which helped him develop his English skills. To be better at playing games, he studied English by himself and got better at reading and vocabulary knowledge in time. He believes that his competence in English results from his love for video games. Furthermore, he admits that studying at private schools has also helped him improve his skills in English. Besides, going to Shanghai as an exchange student in the 10th grade facilitated his English learning process. He also took a French course at the university, but his proficiency level in French is not beyond elementary. The only digital material integration into his French lessons was Kahoot quizzes. In other words, he did not receive technology-enhanced language training.

Caner uses his computer for more than 11 hours daily to read the news, play games, watch documentaries, and study. Thanks to his close connection with computers since his childhood, he is curious to learn new technological tools. His

interest in technology encouraged her to attend an ELT conference offered by a private school in Turkey. He has a comprehensive list of digital resources that he created after the conference. He constantly updates his list when he learns new digital tools. Although he was familiar with some digital resources at the beginning of the semester, he has used none of these tools for teaching English. Since he has no previous teaching experience, he could not find the chance to use the digital tools he is familiar with in a real learning environment.

Despite his lack of experience in teaching, he supports the use of technology in English education. He encourages everyone he knows to improve their language skills with online games, TV shows, and songs to make their learning process more engaging and relevant. He is confident that he will apply his technological knowledge to his teaching as much as he can in his professional life. He is looking forward to graduating and leading the way in fully digitalized language learning and teaching, which has become a necessity during this pandemic, according to him.

3.3.3.6 Ege's background

Ege's English learning adventure started in high school. Until that time, he had a basic knowledge of English that could not go beyond the beginner level. Since he did not have a computer during his high school education, he could not make much use of technology back then. However, he used applications, such as Memrise and Quizlet, to memorize words and prepare for the university entrance exam. Although he used technology outside the school to develop his English skills, his English lessons at his school were not enhanced with technology. Thus, as a student, he could not observe the role of technology in English education in a classroom context. He speaks only English for the time being, but he is planning to learn Spanish in the

future. In his learning plans for the future, technology has an important place because he believes that the mobile applications he used were helpful for learning English, and he wants to benefit from similar applications to learn Spanish as well.

Ege had teaching experience with young learners before the study. He tutored two kids studying at primary school for two years. He states that he did not use any technological tools while teaching English because he did not feel the need to use such tools in one-on-one private lessons. Prior to this course, he took a mandatory educational technology course where he was introduced to the idea of technology integration in education. While taking this course, he learned how to create animations on Articulate. Despite feeling confident in using that particular tool, he reported that he still had a limited perspective on the benefits of utilizing various digital tools for education.

Since he met with computers at the age of nine in an internet cafe in his neighborhood, he has been spending hours in front of the computer every day. Because of the pandemic and online education, he argues that his daily screen time reached 15 hours. He expresses that his loaded coursework does not allow him to follow the latest developments in educational technology and learn new technological tools. However, he is eager to expand his knowledge in this field because he believes that using technology makes learning English a lot easier. Besides, he thinks that technology allows self-learning, which enables learners to be more independent. In the future, he wants to work in state schools and help his students learn English in the best possible way. According to him, technology has become a significant part of today's students' lives. For this reason, he plans to use technology in his future English classes by taking advantage of their familiarity with

technological tools. In this manner, he believes that his students will be more interested in learning English.

3.4 Data collection procedures

The data collection period, which started on November 24, 2020, and ended on June 29, 2021, took a total of seven months. This section summarizes the data collection process starting from the second week of the 14-week course.

Week 2: all students taking the course were assigned a technology-enhanced lesson plan preparation task (see Appendix C) as a course requirement. After submitting their lesson plans, only the participants were asked to write reflection papers on their lesson plans in the light of the questions sent via email (see Appendix D). These lesson plans were analyzed after the participants signed the informed consent form (see Appendix B). The participants were provided feedback on their lesson plan based on the required components underlined in the task instructions. All students enrolled in the course ENGT416 were also asked to fill in the online check-in survey of the DigCompEdu framework (see Appendix E). The survey results revealed the current digital practices of the pre-service EFL teachers at the beginning of the term.

Weeks 2-5 and 10-14: all students enrolled in the course ENGT416 were asked to submit six performance tasks that were designed to monitor their digital competence development from the perspective of the DigCompEdu framework. Although all students taking the course completed these tasks, only the participants of the study wrote reflection papers upon completion of the tasks. After the participants submitted their assignments, the researcher sent them the guiding reflection questions for each assignment via email. Then, the researcher read the

assignments and reflections papers before the next assignment. All students were provided feedback on these assignments via Turnitin.

Weeks 6-10: the participants were assigned hands-on in-class tasks that they completed in pairs or groups. The researcher observed the online lectures of the course and visited the breakout rooms while the participants were working on these in-class tasks.

Week 7: one-on-one semi-structured interviews were conducted with the participants after they designed an instructional activity of their choice using ThingLink.

Week 8: semi-structured individual interviews were carried out with each participant. In these interviews, the participants shared their opinions towards taking the ENGT416 course online and how well they had been benefitting from the course until that point. Both interviews were transcribed verbatim for data analysis.

Week 14: the pre-service EFL teachers were asked to fill in the same online check-in survey (see Appendix E) to identify if there were any improvements in any areas of the DigCompEdu. In the last week of the training, the participants developed and submitted skill-based CALL lesson plans. These lesson plans were analyzed later to see if the participants' digital competence development could be observed compared to the first lesson plan they submitted. As the last step of the data collection process for the Fall 2020 semester, semi-structured individual interviews (see Appendix F) were conducted with the participants to hear their end-state remarks about their journey of digital competence development.

Spring 2021 semester: the participants' online macro teachings started within the scope of the practicum course. The researcher contacted the participants during the winter break and asked them to send their lesson plans for their macro teachings

and reflection papers to the researcher for data analysis. Based on the availability of the participants, semi-structured interviews were carried out to discuss how successfully they applied their digital competence to lesson plans prepared for authentic classrooms. Also, the interviews contributed to the study by revealing the participants' challenges regarding developing and implementing technology-enhanced English lessons during practicum. This follow-up study aimed to observe whether the participants could sustain their digital competence in the long term and make use of their competence during their macro teachings. Table 4 presents an overview of the data collection process, which lasted for seven months over two academic semesters.

Table 4. Overview of the Data Collection Process

Data Sources	Months						
	1	2	3	4	5	6	7
Online survey of DigCompEdu							
Teacher autobiographies							
Course assignment (including lesson plans)							
In-class tasks							
Reflection papers							
Semi-structured individual interviews							
Lesson plans (macro teaching)							

3.4.1 Sources of data and data collection procedures

Instead of basing their research on one data source, researchers who conduct qualitative studies use multiple sources of data, some of which are interviews, observations, and documents (Creswell, 2007). In this study, several data sources are used to ensure data triangulation, which is a strategy that may be utilized in a case study to support the principle (Baxter & Jack, 2008).

Primary data was gathered from the participants in the first semester through the following sources:

- online survey
- performance tasks (lesson plans, assignments, and hands-on in-class tasks)
- reflection papers
- one-on-one semi-structured interviews

For the follow-up study in the second semester, the data was derived from the secondary data sources below:

- lesson plans for macro teachings
- reflection papers on macro teachings
- one-on-one semi-structured interviews

The following section provides detailed information about each data source.

3.4.1.1 Survey

The participants filled in the online check-in survey of the DigCompEdu framework to assess their digital competence at the beginning and end of the semester. The survey (see Appendix E) consists of 22 questions related to the six areas of the DigCompEdu. The questions of the online survey include statements regarding different levels of digital technology use in education. The following is a sample statement from the survey: “I use different internet sites and search strategies to find and select a range of different digital resources.” Among the five options, starting with “I only rarely use the internet to find resources.” and ending with “I advise colleagues on suitable resources and search strategies.” the participants chose the option that best reflects their current digital practice. The survey also includes questions about their background, such as their gender, age, years of teaching

experience, how long they have been using digital technologies in education, the digital tools they have used for teaching, and their personal use of digital technologies.

The researcher explained that the survey aims to reveal their current digital practices before asking the participants to answer the questions. The participants were asked to read all the statements for each question and choose the one that best described their current practices. Since the participants were pre-service EFL teachers who did not teach English regularly in a classroom, for the questions asking about their current teaching environments, they were told to think about what they would do in that situation with their existing digital knowledge.

After completing the online check-in survey, the participants received detailed feedback from the website informing them about the areas they are good at, those leave room for improvement, and the next step to be taken for further development. The results of the survey revealed the participants' perceptions regarding their current pedagogical digital competence. The participants were asked to take the same survey again at the end of the fall semester to see whether their perceptions of their digital competence changed after the treatment.

3.4.1.2 Semi-structured individual interviews

Relying on surveys as a data source was useful in understanding pre-service EFL teachers' perceptions of their digital competence. However, surveys alone were not sufficient to collect in-depth data about the participants' current digital practices concerning underlying pedagogy. Interviews in which participants are asked open-ended questions to disclose their experiences and opinions are commonly used in qualitative research (Creswell, 2012). Thus, semi-structured one-on-one interviews

were conducted throughout the study. Despite the fact that the interview questions are prepared by the researcher prior to the interview, semi-structured interviews are more conversational in nature, allowing participants to discuss things that are significant to them (Longhurst, 2003). For this reason, semi-structured interviews were preferred in this study. The researcher asked probing questions in addition to the prearranged questions during the interviews to explore the issue closely (Hoepfl, 1997). These individual interviews were conducted only with the participants of the study. The total data obtained from the semi-structured interviews consists of 15 hours and 40 minutes of recordings with 154 pages of transcript.

Before the interviews, the researcher explained the purpose of the interview and interview process to the participants and informed them about the ways the confidentiality of the data was ensured. Due to the COVID-19 pandemic and related health measures, the interviews were conducted online via Zoom at the most convenient time for the participants. As requested by the participants, the language used during the interviews was Turkish. Although the participants were advanced speakers of English, conveying their thoughts and experiences in their mother tongue was more practical for them. To make the participants feel at ease so that they could share their ideas sincerely and comfortably, the researcher tried to keep the tone of the interviews conversational. It was also made clear to the participants that these interviews would not affect their grades to make sure that they could express their feelings and thoughts without feeling pressured. With the permission of the participants, the interviews were recorded and transcribed verbatim for the data analysis process. The video recordings gathered via Zoom were kept on the researcher's password-protected personal computer, whose password is known only to the researcher. Each interview was transcribed before the next interview, and the

member checking technique was employed to ensure the accuracy and clarity of the data (Anfara, Brown, & Mangione, 2002). The researcher translated the interview transcriptions from Turkish to English.

In the Fall 2020 semester, three individual interviews were conducted with all six participants. The first one-on-one interview was conducted after the completion of a hands-on language material preparation task using ThingLink. Each interview on this activity lasted between 10 and 18 minutes. In these interviews, the participants were asked the following questions: “What is your attitude towards a digital language activity prepared via ThingLink?”, “How did you feel during this material development process?”, “What was your objective while preparing this activity?” “Do you think you were successful in linking your pedagogical knowledge of ELT and the objectives of your activity?”, “Based on your experience preparing this activity, what kind of activities do you intend to use this tool for in your future language classes?”, “Did you pay attention to copyright issues when selecting images for your activity? If yes, please explain how you followed copyright rules.”

The interviews allowed the researcher to see the participants’ attitudes towards a digital language teaching material and whether they plan to prepare a similar language activity as in-service EFL teachers of the future. A further contribution of the interviews to this study is that they demonstrated whether the participants considered the objectives of the language activity carefully before production. These interviews also revealed the participants’ awareness of copyright rules towards digital language material creation, which is a component of the DigCompEdu framework.

In the fifth week of the study, another one-on-one interview was carried out with all participants to explore the participants’ opinions about the course, including

the hands-on tasks. Although the researcher attended and observed the online lectures, it was not possible for her to observe the participants' learning experience during the course in a physical classroom environment due to the pandemic. Therefore, the researcher aimed to build rapport with the participants through the interviews. Each interview lasted between 16 and 31 minutes. The interview questions were as follows: "What do you think is the impact of taking a course that aims to integrate technology in education through technology (via Zoom)?", "What is the learning environment like in the online classroom?", "Do you think you can participate sufficiently in the lesson?", "What do you think about the hands-on group/pair work activities in the class?", "Do you find these activities useful for language learning/teaching?", "Do you think you are active enough during the in-class activities using breakout rooms?" These questions helped the researcher have a better understanding of the participants' attitudes towards receiving the course online and how much they benefited from this training and its components, such as hands-on activities. They also informed the researcher about the effectiveness of the offered course and the ways to improve it from the perspective of the participants.

At the end of the Fall 2020 semester, the researcher conducted the third interview with the participants after they submitted all their assignments and reflection papers. The interview questions (see Appendix F) were prepared beforehand in line with the DigCompEdu. However, the participants were asked additional questions based on their answers when the researcher needed to gain a broader understanding. The participants were not asked any sensitive questions during the interviews. Instead, the questions mainly focused on the impact of the course on the development of pre-service EFL teachers' digital competence, the areas of DigCompEdu in which they improved the most and least, the role of

technology use in language education, their plans for using digital technologies in their future English classrooms and how they will make use of their digital competence for language teaching, and their plans regarding the use of digital technologies in their macro teachings. As a result of the rapport that was established between the participants and the researcher during the semester through course observation, interviews, and other research requirements, the participants were enthusiastic and relaxed while answering the questions. Interviews lasted between 55 and 90 minutes.

In the Spring 2021 semester, individual interviews were carried out with the participants to explore their macro teaching experiences, challenges, and reflections on this process. The main goal of these one-on-one interviews was to see whether and how the participants could reflect their digital competence and what they learned from the course to their macro teachings. The researcher contacted the participants in February 2021, and meeting schedules were created based on their availability. The participants sent their lesson plans and reflection papers to the researcher before each interview. The researcher had the chance to analyze their plans and ask probing questions to clarify some parts that were not explicitly stated in the documents.

Since Nehir, Aslı, and Caner designed and delivered at least three lessons for their practicum course and were available for two separate individual interviews, the researcher interviewed them twice. Selin and Damla were given the opportunity to teach two longer lessons instead of four shorter macro teachings. Because of their busy schedules, the researcher interviewed them once after their macro teachings were completed. In these interviews, the participants answered questions considering both of their macro teachings. Despite the researchers' invitations, Ege did not contact the researcher at the beginning of the semester. When the researcher

managed to contact him in May, it turned out that he had completed all his macro teachings. Therefore, the researcher interviewed him only once to discuss his overall macro teaching experience.

The interview questions (see Appendix G) were mainly about the impact of the ENGT416 course on the participants' practicum teaching experience and the strengths and weaknesses of their macro teachings from the perspective of technology implementation. In addition to the questions related to the areas and sub-areas of the DigCompEdu framework, the participants were asked whether their mentor teachers and supervisors from the department encouraged them to integrate technology into their lessons. Furthermore, the participants were asked whether they could put what they learned from the course and their digital competences into practice during their macro teachings.

The interviews, which lasted between 35 and 60 minutes, helped the researcher analyze whether the transition from the course to the actual classroom experience during macro teachings was successful. Besides, the interviews provided insights into the challenges the participants encountered regarding the application of their digital competence to their macro teachings. During the interviews, the participants also shared their feedback on how the course could be improved.

3.4.1.3 Reflection papers

Shandomo (2010) argues that good teachers engage in self-examination and self-evaluation on a frequent basis to enhance their professional practices. Røkenes and Krumsvik (2016) note that pre-service English teachers' awareness of how digital tools can be used critically to teach English could be increased through reflection. Acknowledging the significance of reflection on increasing pre-service English

teachers' awareness of their digital competences, the researcher asked the participants to write reflection papers after submitting their assignments. The total data collected from reflection papers consists of 60 pages.

In the Fall 2020 semester, the participants wrote six reflection papers: two reflection papers upon planning their lesson plans at the beginning and end of the study and four reflection papers after completing the other course assignments. The participants were sent guiding questions via email to follow while writing reflections. The participants were not limited to answering the guiding questions. Instead, they were encouraged to write about things they deemed important. The questions aimed to help the participants approach the task more critically and generate ideas more easily. The guiding questions also allowed the researcher to obtain more detailed information from the participants regarding the areas of the DigCompEdu framework. Since the reflection papers were productions of the participants' self-examination, they informed the researcher about their feelings, opinions, and experiences while completing their assignments.

3.4.1.4 Performance tasks

According to Engen et al. (2014), participants tend to overrate their digital skills; thus, relying on self-report measures might be misleading during the data collection process. In other words, they argue that one's perceived digital competence generally does not match with their actual levels of digital competence, especially with the applications they frequently use. Therefore, they advise researchers to take into consideration both self-reports and other measurements while examining pre-service teachers' levels of digital competence. In Engen et al.'s (2014) study, the importance of supporting pre-service teachers' use of technology with explicit "pedagogical

visions” (p. 2108) is also highlighted. Considering these, to be able to analyze how the participants’ digital competences develop based on the training they received, in addition to the survey and interviews, the participants completed performance tasks throughout the study. The course instructor gave them feedback after the completion of the tasks.

3.4.1.4.1 Course assignments

Jantori et al. (2020) suggest that classroom tasks through which pre-service EFL teachers improve digital skills help them establish the link between theory, practice, and their personal experiences with digital technologies. According to Park and Son (2020), hands-on activities, such as lesson plans, give pre-service EFL teachers an idea of how to integrate technology into their lessons efficiently. Taking these into account, the pre-service EFL teachers in this study were given opportunities to engage in several assignments. These assignments were course requirements; therefore, they were completed by all student teachers taking the course. Participants also wrote reflection papers in addition to the course assignments. A total of six assignments were submitted throughout the semester, and the participants allowed the researcher to analyze their assignments and reflection papers as part of the data collected for the study. These six assignments were as follows:

- Planning a technology-enhanced skill-based lesson plan for an intended learner group (before the treatment).
- CALL evaluation (the evaluation of a CALL material of their choice based on the criteria they compiled).
- Materials adaptation (choosing a unit from an ELT textbook, identifying the shortcomings, adapting a learning activity by stating the type of the

adaptations, reasons for adapting, and objectives for the adapted digital activity).

- MAPP assignment step I (finding the digital tools matching the levels of the SAMR model or Bloom's Taxonomy, describing these tools, and explaining why the tools should be categorized under certain levels).
- MAPP assignment step II (producing learning activities appropriate for each level of the Bloom's Taxonomy or SAMR level for target learners, including the procedures, justification of their selection of digital tools, and reflection on the appropriacy of these tools with the language teaching approach adopted).
- Designing a CALL skill-based lesson plan for an intended learner group (after the treatment).

These assignments were related to the core areas of the DigCompEdu framework.

While the lesson plans served as the primary data source, the other performance tasks were complementary to the data collected from the reflection papers. Detailed information about the course assignments is presented below:

Week 2: pre-service EFL teachers worked individually to design a skill-based technology-enhanced lesson plan for a group of students of their choice following the provided prompt (see Appendix C). The participants also wrote reflection papers based on the questions sent (see Appendix D) after completing their first lesson planning task.

Week 4: CALL evaluation and materials development task was assigned to the participants. Following the theoretical discussion on this topic, the pre-service EFL teachers were sent to breakout rooms in groups of three to establish the criteria for CALL evaluation. Then, working individually, the participants chose a digital

resource, such as an application or a website, and wrote a detailed description of this digital resource, including its intended users, objectives, and other components. They evaluated the chosen resource based on the criteria with specific references to the components of the digital material. The participants also wrote reflection papers on this assignment based on the following questions: “What did you learn from this assignment?”, “Did you find this assignment useful as a pre-service EFL teacher? If yes, how?”, “While doing this assignment, did you explore new digital materials?”, “What did you learn about these materials?”, “Before using the CALL materials in your lessons, would you evaluate them as you did in this assignment?”, “Do you think this is important? Please state the reasons.”

Week 5: Materials Adaptation task was assigned to the participants. Working in groups, they chose a unit from an ELT textbook, identified the shortcomings within the unit and explained them, stated their reasons for adapting, and adapted at least one activity they believed needed to be adapted by following these steps: stating what type of adaptation (extending, expending, re-ordering, restructuring, replacing, and omitting) they planned. They also wrote the objectives of the adapted activities by referring to Bloom’s Taxonomy, planned the pedagogical and contextual realization of the adapted activities, and produced the material using technology along with the report. In addition, the participants wrote reflection papers after adapting the materials by answering these questions: “What did you think about the concept of adaptation before doing this assignment?”, “What did you learn about the concept of adaptation after homework?”, “What did you pay attention to the most while adapting the material?”, “What was the most important thing(s) for you? Why?”, “How adequate and necessary do you think technology is in material adaptation?”, “Do you think that thanks to the use of technology, you can achieve

language learning gains that you cannot reach with only print materials? (If you don't think so, please state the reason). If yes, what are these gains brought by technology?”, “What is your attitude towards materials adaptation?”, “How do you evaluate your own competence in material adaptation?”, “How do you think material adaptation will contribute to you in your professional life?”, “In which situations do you plan to adapt the material in your future classrooms? (If you do not intend to adapt, please state the reasons).”

Week 10: the participants, working in pairs, completed the MAPP assignment, which required them to choose four levels from Bloom’s Taxonomy or SAMR Model and find the digital tools that fit those levels, describe the tools, and explain how the tools fit into the levels. The participants also wrote reflection papers by answering the following questions: “How well do you know the tools in your MAPP assignment?”, “What did you consider while classifying the tools in your MAPP?”, “Did you pay enough attention to the different features or aspects of the tools?”, “Did you have trouble finding the tools?”, “What kind of process did you go through while doing the homework?”, “Do you think that you completed the assignment correctly? Please refer to the assignment while answering the question.”

Week 13: the participants completed the second part of the MAPP assignment. Working with their pairs, they designed instructional activities for each level of Bloom’s Taxonomy. The assignment consisted of the following components: the intended learner profile, learning objectives, the procedures of the activity, the links of the activities, the justification for the selection of the digital tools for each level, and the reflections on the activities.

Week 14: the participants designed another skill-based CALL lesson plan for an intended learner group. Then, they wrote reflection papers upon planning their

lessons following the reflection questions (see Appendix D). The second lesson planning assignment helped the researcher to see if there was any improvement in the participants' digital competences and to what extent they could reflect their digital competence in their lesson plans.

Since the participants did not create lesson plans for their practicum course during the first semester, they were asked to send their lesson plans for macro teachings in the spring semester to the researcher via email for further analysis. The lesson plans that were collected in the spring semester revealed whether the participants could reflect what they learned from the course ENGT416 into their actual macro teachings, which indicated the sustainability of their digital competences in the long term.

3.4.1.4.2 Hands-on tasks

According to Røkenes and Krumsvik (2016), pre-service teachers should be offered collaborative, hands-on activities with their peers to reflect on the significance of the use of technology for education. Considering the importance of hands-on activities in the development of digital competence, the participants were assigned a variety of hands-on tasks throughout the semester. The in-class hands-on tasks were completed in groups via the breakout rooms of Zoom, and each group presented the task outcomes in the main room. The participants also uploaded their tasks on Moodle for their peers to see. The hands-on tasks that all pre-service EFL teachers enrolled in the course completed during the semester were as follows:

- Week 6: designing a teaching activity for target student profile and language skill using ThingLink with the description of the learner group and learning objectives.

- Week 7: designing a poster using Canva and commenting on at least one other group's poster
- Week 7: creating interactive videos for a chosen language topic using PlayPosit with a short text describing the intended learner profile and objectives of the activity and commenting on at least one other interactive video on Moodle.
- Week 8: designing a grammar worksheet based on an ELT textbook with customized feedback using H5P.
- Week 9: creating a visual organizer for a reading task using Popplet, Conceptboard, Mural, Lucidchart, or other relevant applications.
- Week 10: replying to a VoiceThread content by leaving a comment with text, audio, and video.

These hands-on tasks not only allowed the pre-service EFL teachers to explore the digital resources through first-hand experience but also gave them a chance to develop instructional activities for language teaching purposes.

3.5 Data analysis procedures

This section explains the data analysis process, which has been carried out systematically since the beginning of the data collection, which lasted for seven months. The qualitative data analysis procedure adopted in this study was a two-phased analysis in which deductive and inductive content analyses were used together. Content analysis refers to “a research method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns” (Hsieh & Shannon, 2005, p. 1278). Patton (2002) underlines that qualitative content analysis can also be conducted with

deductive reasoning, despite being typically seen as inductive. Deductive content analysis includes testing categories, concepts, models, or hypotheses (Marshall & Rossman 1995, as cited in Elo & Kyngäs, 2008). As Mayring (2000) emphasizes, “deductive category application works with previously formulated, theoretically derived aspects of analysis, bringing them in connection with the text” and is followed by “a methodological controlled assignment of the category to a passage of text” (procedures section, para. 5).

During the deductive analysis stage, the DigCompEdu framework was used as the lens of analysis to assess the participants’ digital competence development. The data obtained from interview transcriptions, performance tasks, and reflection papers were analyzed by considering the main and sub-areas described in the DigCompEdu, which served as the coding scheme. The participants’ expressions that were related to the areas of the framework were extracted from the data set, listed under correspondent categories, and analyzed in depth. This way, the researcher could identify the participants’ expressions related to their digital competence development from the perspective of the framework.

To analyze the extent to which the participants’ self-evaluations of their digital competence development reflected their actual production, the researcher analyzed the lesson plans the participants submitted at the beginning and end of the semester. Since there was no assessment instrument in the literature used to assess teachers’ digital competence in practice from the perspective of the DigCompEdu, the researcher designed a rubric (see Appendix H) to analyze the lesson plans systematically. To be able to design the rubric, the researcher reviewed the assessment tools developed based on the TPACK framework, as the literature on this framework is richer. The assessment instrument created by Harris, Grandgenett, and

Hofer (2010) was the starting point of the rubric developed for this current study. Then, following a similar logic, a scoring rubric covering the competences and sub-competences of DigCompEdu was created. The rubric was sent to two researchers experienced in the field of educational technology and was reshaped according to the feedback received to ensure its validity.

As recommended by Weber (1990), the same data should be coded by different people to achieve consistency during data analysis. Therefore, the researcher first analyzed half of the lesson plans using the rubric, and the same lesson plans were analyzed by another experienced teacher working at the preparatory school of a state university using the same rubric. After the double-rating process, the researcher and critical peer compared and discussed their ratings and negotiated the final points given to each lesson plan. The researcher continued to analyze the rest of the lesson plans adhering to the agreed rubric. The data gathered from each case were analyzed within and across cases to have a deeper understanding of the research problems. The researcher followed the same data analysis protocol for the lesson plans that the participants designed and implemented in the spring semester.

During the inductive analysis phase, in which the analysis process was based on the data rather than a framework (Brownlee, Scholes, Walker, & Johansson, 2016), the data obtained from the semi-structured one-on-one interviews and reflection papers were read several times and compared with one another to identify emergent themes. Then, the recurring patterns were highlighted, and relevant extracts were extracted from the data set to be analyzed. After the extracts were reviewed repeatedly, the data were coded under relevant themes. The same data analysis procedure was followed both in the fall and spring semesters. The results of these

analyses were presented under relevant themes in the following chapter. Table 5 summarizes the sources of data and the type of analysis used to answer the research questions of the study.

Table 5. Sources of Data and Types of Data Analysis

Research Questions	Data Collection Instruments	Type of Data Analysis
1	The DigCompEdu Survey Semi-Structured Individual Interviews	Deductive and Inductive Content Analysis
2	Performance Tasks Reflection Papers Semi-Structured Individual Interviews	Deductive and Inductive Content Analysis
3	Semi-Structured Individual Interviews Reflection Papers	Deductive and Inductive Content Analysis
4	Lesson Plans (Macro Teaching) Semi-structured Individual Interviews Reflection Papers	Deductive and Inductive Content Analysis

3.6 Trustworthiness

Lincoln and Guba (1985) claim that the trustworthiness of a qualitative research study is significant for evaluating its quality. According to them, to ensure the trustworthiness of a study, the following criteria need to be taken into consideration: credibility, transferability, dependability, and confirmability.

Regarding the crucial role of credibility in ensuring the trustworthiness of a research study (Guba & Lincoln, 1989), more than one technique was used in this study to ensure credibility. Firstly, triangulation was employed in the pursuit of credibility. Triangulation refers to the strategy of using more than one data source or method to avoid potential errors susceptible to using only one method in qualitative research (Patton, 1999). According to Patton (1999), there are four types of triangulation: methods triangulation, triangulation of sources, analyst triangulation, theory triangulation. Similarly, Lynch (1996) proposes that triangulation can be

employed in several ways. He states that the researcher can gather data from (1) different program participants (e.g., teachers, students, and administrators); (2) from different settings (e.g., inside and outside of the classroom; (3) from different times (e.g., before and after examinations). In the present study, different types of triangulation were used. To illustrate, the researcher gathered data from multiple sources of data, such as interviews, reflection papers, surveys, and performance tasks. Moreover, the data were collected at different times: during the coursework in the first semester and the teaching practicum in the second semester. Analytical triangulation was also achieved to some extent, as an experienced instructor and the researcher analyzed the lesson plans submitted in the first semester.

Member checking was another technique recommended by Guba and Lincoln (1989) to increase the credibility of a study. Since the analysis of interviews and reflection papers requires the researcher's interpretations, the member checking technique was also used in this qualitative study to improve the credibility of the findings. In other words, the researcher asked the participants to confirm the interpretation of what they wrote in their reflection papers and what they said in the interviews at different stages of the study.

Transferability refers to the generalizability of the research findings to different settings. It can be achieved through the thick description technique (Guba & Lincoln, 1989). In the present study, the researcher reported detailed information about the setting and participants. In line with the detailed information provided, the issue under investigation can be transferred to different settings.

Dependability is related to "the stability of the data over time" (Guba & Lincoln, 1989, p. 242). The technique they propose to achieve dependability is dependability audit, which refers to extensively documenting the data collection and

analysis processes of a study. To achieve dependability in this study, the researcher explained the research design, data collection instruments, data collection and data analysis processes in detail.

Confirmability is about basing the results of a study on the setting and participants rather than the researcher's imagination (Guba & Lincoln, 1989). The role of the techniques mentioned above, such as member checking, triangulation, and dependability audit, should be underlined again to ensure confirmability. The researcher based their interpretations of the data and the results of this study on multiple data sources rather than solely using one data instrument. Besides, the participants were asked to confirm the researcher's understanding of the data gathered from the interviews and reflection papers. Moreover, the researcher allowed outside reviewers to understand the conclusions drawn in the present study by providing detailed descriptions of the participants, setting, and methodology, and reporting excerpts from the original data (Guba & Lincoln, 1989).

3.7 Ethical considerations

The data collection process started after obtaining ethical permission from the ethics committee of the institution (see Appendix I). At the beginning of the Fall 2020 semester, the participants of the study were informed about the content, scope, and duration of the research study in detail. After the announcement of the study, four pre-service EFL teachers voluntarily agreed to participate in this study. However, as the participants were required to complete some additional workload and the study required active participation for seven months, the participants were offered five extra credits for the course ENGT416. Upon the announcement of the extra credits, two more pre-service EFL teachers volunteered to participate in the study.

The participation forms (see Appendix B), which explain the aim of the research, requirements, and rights of the participants throughout the research study, were sent to each participant when they contacted the researcher. The participation forms clearly state that the data would be kept anonymous, confidential, and not be shared with anyone outside the research team. By signing the informed consent forms, the participants agreed that their course assignments, reflection papers, and survey results to be used and analyzed as data of this study. Before signing the participation forms, the participants were given some time to ask questions and share their concerns about the research study, and the researcher answered their questions. The participants were reminded that they had the right to withdraw from the study at any time without facing any consequences. It was ensured that in case of the withdrawal from the study, the data gathered from them would be omitted from the study, and their course grade would not be affected in any way.

Since this study aims to explore how pre-service EFL teachers' digital competence develops, the data collection instruments do not contain sensitive information about the participants. The survey includes basic questions, such as the participants' name, age, e-mail address, types of digital devices they have, digital tools they have already used teaching, the amount of their internet use, whether they are a member of social networks, and whether they are curious about new digital applications and tools. As the interview questions are based on the participants' ideas, experiences, and reflections, the researcher tried to make the participants feel at ease so that they could share their opinions without hesitation.

Because of the COVID-19 pandemic, all interviews were conducted online over Zoom. The researcher asked permission from the participants before recording each interview, and they voluntarily turned their cameras on during the online

interviews. These video recordings were kept on the researcher's password-protected personal computer. The only person who knew its password was the researcher. Each participant was given pseudonyms to ensure confidentiality. During the data collection process and in this paper, any information that would reveal the participants' identities was not shared with third parties.



CHAPTER 4

FINDINGS AND DISCUSSION

The findings of the qualitative data collected from the participants through online surveys, reflection papers, semi-structured interviews, lesson plans, and other assignments, including in-class hands-on tasks, are presented in this chapter. The data were first analyzed in the light of the research questions generated, and the findings were discussed in relation to the previous studies in the literature.

4.1 Findings and discussion of RQ1

The online DigCompEdu check-in survey and semi-structured individual interviews were analyzed to answer the first research question and its sub-question. The first question investigated the participants' perceived digital competence levels before and after the study, while the sub-question aimed to identify the areas of DigCompEdu in which the participants made the most and least progress after the treatment. Based on the first survey results, none of the participants were found at the Newcomer (A1) or Explorer (A2) levels, where beginner educators fall into at the beginning of the term. Selin, Damla, and Caner were at the B1 (Integrator) level of digital competence. In other words, although they would integrate digital technologies into their practice to some extent, they still needed to establish the connection between digital technologies and pedagogic methods and understand which tools work best in different situations. Ege and Aslı's perceived digital competence level was B2 (Expert), which means that they felt confident using a range of digital tools and were curious to expand their repertoire. Finally, Nehir was

at the C1 (Leader) level of digital competence, which indicated a higher competence compared to her peers. The C1 level is the second-highest level of digital competence according to the DigCompEdu, which requires a broad repertoire of digital resources to benefit from in a range of situations. Thus, as expected, only one of the participants was at this level prior to the course. The survey, based on the participants' perceptions, indicated that they were familiar with digital technologies to various extents before taking the course. Their perceived digital competence was at least beyond the beginner level. The findings are consistent with the study of Guillén-Gámez et al. (2019) in that the initial survey indicated a medium level of digital competence for five pre-service EFL teachers, except for Nehir.

The results of the second DigCompEdu survey the participants took at the end of the term demonstrated that all participants, apart from Nehir, moved from their initial competence level to the next level in the DigCompEdu framework. While Selin, Damla, and Caner moved to the B2 (Expert) level, Ege and Aslı reached the C1 (Leader) level. From the lens of the DigCompEdu, it was assumed that Selin, Damla, and Caner, who moved to the B2 level of competence, not only expanded their repertoire of digital tools but also gained a greater understanding of why and how to integrate digital technologies into teaching and which digital tools to use in which situations. As for Aslı and Ege, in addition to broadening their digital strategies from which they could choose the most suitable in various situations, they were supposed to develop the practice of reflecting on their current digital practices at their level. As moving from the C1 level to the C2 (Pioneer) level requires a greater cognitive leap, as predicted, Nehir stayed at her previous level at the end of

the term. Since the survey was based on the participants' self-evaluations of their current digital competences, these findings indicate that all participants perceived themselves as more digitally competent after taking the course. Table 6 summarizes the results of the DigCompEdu survey on the participants' digital competence levels before and after the course.

Table 6. Participants' Digital Competence Levels Before and After the Course

Participants	Level of digital competence (First survey)	Level of digital competence (Second survey)
Selin	B1 (Integrator)	B2 (Expert)
Damla	B1 (Integrator)	B2 (Expert)
Caner	B1 (Integrator)	B2 (Expert)
Ege	B2 (Expert)	C1 (Leader)
Aslı	B2 (Expert)	C1 (Leader)
Nehir	C1 (Leader)	C1 (Leader)

Although the participants said that the survey results were in accordance with their expectations, Aslı stated that she took the online survey twice at the end of the term before submitting her survey results to Moodle. She expressed that she felt the necessity to take the survey again, as she believed that she was too critical towards her own digital skills after taking the course. Her opinions on this issue are as follows:

I have just got 69 from the second survey, and I think that this is more accurate. When I saw the lower score of the first survey that I took, I got confused. Compared to the survey we took at the beginning of the term, I answered the questions by thinking if I had been doing these while working with my students. This is probably why the results were different than I thought because it was not the score that I felt that I would get. Since my knowledge on this subject is more extensive after taking the course, I may have become too self-conscious and given myself lower scores than I should have while answering the questions. (Aslı, Excerpt 1, February 2021)

In their previous study, Engen et al. (2014) concluded that the participants overrated their technological skills. Excerpt 1 demonstrated that receiving training on digital technologies might cause some pre-service teachers to underrate their digital competences as a result of their increased knowledge in this area. Therefore, as Engen et al. (2014) suggested, taking other measurements in addition to self-reports into account when assessing pre-service teachers' digital competence could help researchers have a clearer understanding of the data.

As for the findings of the sub-question of the first research question (RQ1.a), the analysis of the online survey results suggested that the participants' perceived digital competences in all areas of the DigCompEdu developed to various extents compared to the beginning of the term. The areas the participants developed the most and least varied based on the survey results for each case. As for Ege, the results of his second survey demonstrate that he improved the most in the areas of Teaching and learning, Empowering Learners, and Assessment by receiving four more points in each of these areas compared to the first survey results. Although she developed in all areas of DigCompEdu to various degrees, Selin's survey results indicate that she developed the most in the area of Teaching and learning. Likewise, the area where Nehir developed the most was Teaching and learning. Damla and Aslı developed the most in the area of Digital resources. Similar to his friends, Caner's second survey results showed improvements in all areas of the DigCompEdu, but unlike his friends, he developed the most in the area of Empowering Learners.

To see the extent to which the participants agree with the survey results, during the semi-structured individual interviews, they were asked the areas of the DigCompEdu they believe they developed the most after taking the course. Area 2, Digital resources, was the most frequent answer in the interviews. In other words, the

participants think that they developed the most in how to create, select, modify digital resources for language teaching. Some of the comments of the participants related to their development in the area of Digital Resources are presented below:

I can say that I got better at finding, using, and creating digital resources in general. Also, I think I learned better how to adapt digital resources based on my teaching goals when the resources I find do not suit my students' needs. (Aslı, Excerpt 2, February 2021, Semi-Structured Interview)

I think I have become competent in those that fall under the scope of digital resources, especially things such as selecting, modifying, and creating. Since I had no knowledge of these before the course, I think this was the area where I developed the most. (Damla, Excerpt 3, February 2021, Semi-Structured Interview)

I think I learned a lot about accessibility regarding learning empowerment, but I think I improved myself the most within the scope of Digital Resources. Out of class hours, I purchased trial versions of several digital tools with burner emails and analyzed most of them in detail out of pure curiosity. Therefore, I have at least basic knowledge regarding all tools on my list. When I graduate and start working as a real teacher and need to use some of these tools, there will be no need to start from scratch for me. I will be able to start developing learning materials using the tools in my list in one or two hours. (Caner, Excerpt 4, February 2021, Semi-Structured Interview)

After taking this course, I realized that digital resources offer teachers unlimited opportunities to benefit from in their lessons. Therefore, I can say that I feel most competent in the area of Digital Resources, especially in terms of the tools that we have hands-on experience with so far. (Nehir, Excerpt 5, February 2021, Semi-Structured Interview)

Although Selin and Ege agreed with their peers in that they also significantly developed in the area of Digital Resources, they also highlighted the importance of learning about Bloom's taxonomy in the lectures and the Pedagogy Wheel while deciding whether, why, and how to integrate digital tools into English teaching. They stated that they have become more familiar with the digital tools for language teaching and learned how to create, select, and modify digital resources based on their goals and the needs of their students. These two students also made comments regarding the planning the use of these activities in a classroom setting, which can be

categorized under the area Teaching and Learning. The following excerpts are related to these students' comments on their development in this area:

Frankly speaking, I think I developed significantly in the area of Digital Resources. Well, the course was built on this, and besides learning the available digital tools and what can be done with these tools in each lecture, it was really helpful to learn how I can integrate a certain tool into my lessons when we covered Bloom's taxonomy. . . Regarding which tool to use and where to use it in a lesson, Bloom's taxonomy and the Padagogy Wheel helped me a lot, and I think I have improved myself more in this area. (Selin, Excerpt 6, February 2021, Semi-Structured Interview)

We have worked with quite a few different tools, and I believe that I have improved myself more in this regard. For example, I did not have an impression of how to integrate different types of applications into my lessons, except for Kahoot or Canva, but now I have such an impression. I also became aware of the Padagogy Wheel. Again, I understood what I should consider when introducing such tools to students in the classroom. (Ege, Excerpt 7, February 2021, Semi-Structured Interview)

The results of the second survey indicated that the participants' least developed areas of the DigCompEdu are Area 4 (Assessment) and Area 5 (Empowering Learners). While Selin, Asli, and Damla felt they developed the least in the area of Empowering Learners, Assessment was the area in which Caner and Nehir reported they made the least progress. During the interviews, the participants, except for Caner, also confirmed that they made the least progress in the areas of Empowering Learners or Assessment. Only Caner stated that his least developed digital competence area was Teaching and Learning. The participants' comments on their lack of development in the area of Empowering Learners are as follows:

Particularly speaking, there are diverse learning groups in the classroom, and we have to address each of them. While preparing an activity, I realized that I think very generally. I mean, I consider the whole class as a single unified thing. Thinking of the class individually, maybe the rest might be the ones who go fast or those with some disabilities. I realized that I ignore them too much. I can say that we did not talk much about these in the lessons if we did at all. I am talking about how to approach such students and how to adapt technology according to them. I think I am still very incompetent in the area of Empowering Learners. (Damla, Excerpt 8, February 2021, Semi-Structured Interview)

As for the area of Empowering Learners, I could not quite understand what should come to our minds considering this area. I think I fell behind in this regard. I think that I cannot focus much on learners with special needs. However, I can bring students with different interests, proficiency, or fluency levels together on a common point. I believe I can do this more or less, but I am not sure what to do when it comes to learners with special needs. (Aslı, Excerpt 9, February 2021, Semi-Structured Interview)

I imagined a regular class setting, not a child with special needs, and I always created the lessons that way. I think I still do that. But, for example, when I have a student with autism, I wonder if the lesson will be challenging for him. Well, it would not because, after all, there are more group tasks, including collaboration and cooperation. Therefore, I believe that if this child has difficulties when he works individually, he can easily do group tasks with the help of other students and the teacher. Writing reflections increased my awareness of this issue, but if I have an elementary class with a child who falls behind in terms of language proficiency, I still cannot fully know how to handle this situation using technology. (Selin, Excerpt 10, February 2021, Semi-Structured Interview)

Some participants' statements related to their need for further training in the area of Assessment are presented below:

Considering the era we are currently in, I think I need more information in the area of Assessment. Especially if online education becomes a permanent application in the future or if it becomes a hybrid application, assessment will be the area where we will need online and semi-online digital resources the most. In my opinion, to assess an online exam fairly, using a digital tool instead of a take-home exam can make the assessment process more fun, yet more reliable, valid, and comprehensive. However, assessment seems to be the biggest obstacle to online education right now. For this very reason, I think I need to receive more training in this area to be a better teacher. (Ege, Excerpt 11, February 2021, Semi-Structured Interview)

I think I need to experience technology-enhanced assessment a little more. In my opinion, I developed the least in this regard because, from my point of view, it is a competence area that needs to be emphasized a lot these days. (Nehir, Excerpt 12, February 2021, Semi-Structured Interview)

I think the problem that I still have is especially with automated assessment. I have not practiced automated assessment with my learners. For example, we were going to prepare an activity on H5P to provide automatic feedback to learners during the course. I could not do that, and now, considering whether and how I can provide my students with detailed feedback using technological tools, I can offer feedback to my students using digital tools after they submit their assignments. However, I am not sure if and how I can make a digital tool to provide my students with decent feedback. I feel like I fell behind in this respect. (Aslı, Excerpt 13, February 2021, Semi-Structured Interview)

It is evident that the participants valued the role of technology-enhanced assessment in language teaching, especially during the pandemic. However, even after taking the course, although they believe that they learned how to provide feedback to their students using digital tools, the participants did not feel competent enough to assess students' language skills fairly with technology-based exams with immediate and customized feedback. In her current study in Indonesia, Prastikawati (2021) also emphasized that pre-service EFL teachers need to improve their digital competence on technology-based formative assessment of language skills during teacher education. Teacher educators need to pay more attention to this area of DigCompEdu in the future to pre-service EFL better for the design and delivery of digital quizzes and exams that could generate instant and personalized feedback.

Caner's comments about his least developed area of digital competence are given below:

I learned a few things in the area of Teaching and Learning, but at the end of the day, everything was hypothetical. Therefore, I am not sure if I have made much progress. For example, I could not implement any of these lessons plans in a real classroom where the internet connection might be unstable, students might not participate or attend the classes. If I tried to implement these plans in a real classroom, I probably would not be able to finish everything in time. . . I believe that I should take two or more courses in this regard. (Caner, Excerpt 14, February 2021, Semi-Structured Interview)

Since the offered course mainly focused on improving pre-service EFL teachers' digital competence through tasks that guided them to plan technology-enhanced lessons effectively, the participants did not have a chance to implement their lesson plans in a classroom in the first semester. Designing lesson plans without delivering them was not enough for Caner to decide if he was digitally competent enough in the area of Teaching and Learning. As the implementation of the lesson plans with real students was beyond the scope of the course, the participants could not teach in an authentic context until the second term. For students like Caner, learning how to plan

and deliver technology-based lesson plans seems to be more useful when they go hand in hand, as suggested by Kurt et al. (2014). If the pre-service EFL teachers were given the opportunity to teach in the first stage of their teaching practicum while taking the course at the same time, they could test their competence in lesson planning with real students.

4.2 Findings and discussion of RQ2

The second research question aimed to investigate whether and how pre-service EFL teachers' digital competence develop after taking a technology-enhanced language teaching course from the perspective of the DigCompEdu framework based on their performance tasks, reflection papers, and interviews. Each participant's digital competence development journey was reported as separate cases. The cross-case analysis was presented at the end of this section.

4.2.1 Damla's case

4.2.1.1 Before the treatment

Damla designed her first lesson plan for a hypothetical 10th-grade intermediate-level group of students studying at a private school. The allocated time for this lesson was 45 minutes, and the theme of the lesson was climate change. The target skills of this lesson were listening and speaking. As for her objectives, Damla stated that students would be able to practice speaking, listening, and writing skills in context. She assumed that the target students could form cause-and-effect sentences and effectively use computers and the internet. The technological tools used in the lesson plan were Padlet, Mentimeter, and LyricsTraining. She expected her target students

to have a mobile phone, tablet, or personal computer as the lesson was planned to be delivered online via Zoom.

The lesson plan starts with a whole-class discussion on what causes damage to our planet. After this brief discussion, students are asked to go to Mentimeter using the link provided and share what comes to their minds when they hear about climate change. Then, students are shown the word cloud consisting of all answers. Following this mini activity, students listen to a conversation on climate change and touring musicians on LyricsTraining for six minutes and fill in the blanks they see on the screen. The blanks in the conversation are related to climate change, such as carbon emission, carbon footprint, and the greenhouse effect. Then, students are sent to breakout rooms to discuss what they have learned from the dialogue in five minutes. As for the main task, students watch a YouTube video about climate change. After watching the video, they are sent to breakout rooms in groups of four to discuss what phrases or information they have learned from the video. While speaking, students are expected to keep notes of what is being discussed to be able to summarize the key points in the main room. The lesson ends with the final task in which students, working individually, write down the characteristics of an imaginary planet and how to keep it environmentally safe and clean using the phrases they have learned from the lesson and share their posts on Padlet. Then, students are asked to read their friends' posts and vote for the best planet. As for homework, students are asked to record their voices explaining how to stop climate change and share these recordings on Padlet.

Damla's lesson plan was analyzed with the help of the rubric to assess its appropriateness for the lesson objectives, adopted pedagogical approaches, and learners' age, proficiency level, and context. In her lesson plan, she aimed her target

students to practice speaking, listening, and writing skills in a contextualized manner. To achieve this goal, Damla integrated a YouTube video and a dialogue on LyricsTraining as listening activities, a Padlet activity for writing, and used breakout rooms on Zoom for speaking practice. Although her selection of digital resources matched her general goal, Damla explicitly stated in the lesson plan that her main focus was on listening and speaking skills. Except for the homework asking students to record their voices, the digital tools did not directly help students practice speaking. The digital technologies she chose primarily served to improve learners' listening and writing skills, while speaking was not focused as much as she emphasized. Therefore, she received 3 for the match of lesson objectives and used digital technologies.

In her reflection paper, she argued that she adopted the Communicative Language Approach (hereafter CLT) because she believes that the best way to learn English is to increase interaction and communication among learners through authentic topics. She received 3 regarding the match between the selection of digital technologies and the pedagogical approach applied because they did not support communication among the learners strongly. The digital materials in this lesson, such as the interactive listening activity on LyricsTraining or the writing task she designed on Padlet, were quite appropriate for the online teaching context. Also, the digital resources used in the lesson are suitable for intermediate-level high school students, both content and linguistic-wise. Considering these, Damla received 4 in terms of context, age, and proficiency level appropriateness of the digital technologies in her lesson plan. As for the sub-competence of Sharing digital resources, the lesson plan was analyzed to see whether the pre-service EFL teacher could clearly explain how she would share the digital resources with learners and make them accessible. Damla

provided all the necessary links and codes related to the activities, except for the homework on Padlet, and adequately explained how she planned to share them with learners in her lesson plan. Therefore, she received 3 for this category. Regarding the proper application of copyright rules, Damla received 1, as she did not provide any references for the digital content in her lesson plan (e.g., YouTube video).

Regarding the sub-areas of Teaching and Learning, the lesson plan was analyzed to see whether it was ready to be implemented smoothly. For the sub-competence of Teaching, Damla received 3 because she adequately planned the implementation of digital technologies into the lesson. Damla received 3 for adequately supporting collaborative learning among learners through breakout rooms on Zoom. In terms of the Guidance sub-area, the lesson plan does not include any statements regarding the use of technology to guide and assist students inside and outside the class; therefore, she received 1. As for the Self-regulated learning sub-competence, Damla received 2, considering that she partially used digital technologies to give students a chance to self-assess their listening skills during the pre-task. The homework that encourages learners to record their voices while speaking could also be an example of self-regulated learning, as students would monitor their progress. However, she did not write any statement about this issue in her reflection paper. Instead, she focused on the self-assessment PDF she planned to send through the chat box. It can be implied that she might not be aware of the potential of this task to promote self-regulated learning.

For the sub-competence of Assessment strategies, the lesson plan was analyzed to evaluate whether different assessment strategies, such as formative and summative, were used. Damla received 3 for this sub-competence, which means that she used digital technologies adequately to assess learners' knowledge and progress

in her planned lesson. The analysis revealed that she implemented formative assessment strategies. To illustrate, there is a writing task on Padlet that would require students to use phrases they have learned from the lesson. Also, as homework, students are expected to record their voices to talk about how to stop climate change. Considering the Analyzing digital evidence sub-area, Damla received 3 because the Padlet activity generates digital evidence on students' activity and progress. She did not receive 4 for this sub-area because neither in the lesson plan nor in her reflection paper she explained how she would analyze digital evidence, which means that her use of digital technologies for this purpose was limited to the generation of digital evidence rather than its analysis. Concerning the sub-competence of Feedback, Damla received 2, which means a partial involvement of digital technologies to provide students with feedback. Although the inclusion of Padlet and other digital tools in the lesson can be used to offer feedback, Damla did not emphasize this in her reflection paper, where she explained how she used digital technologies to provide feedback. This might indicate that she was not entirely aware of the affordances of the tools for feedback at the beginning of the term.

About the first sub-competence of the area Empowering Learners, Accessibility and inclusion, Damla received 2, as she did not ensure the accessibility of digital resources for the majority of the students. For example, except for one group task where students are sent to breakout rooms to work together, the listening task on LyricsTraining and writing task on Padlet are individual. It might be difficult for learners with limited internet data or other technical issues to complete these tasks. In terms of the sub-area of Differentiation and personalization, Damla received 2 because of her use of multimedia, which can cater to different types of learners (e.g., visual). She did not receive 3 because digital technologies were not used to

address the diverse needs of students. In other words, the designed lesson was linear, and students were not offered alternative paths to learning. Concerning the sub-competence of Actively engaging learners, digital technologies were used adequately in the lesson plan to foster learners' active engagement with English (receiving 3). For example, students are expected to listen to a dialogue, fill in the blanks while listening, create a word cloud using Mentimeter, and write about their imaginary planet. She received 3 instead of 4 because target learners are not asked to actively search for information using the internet. As for the sub-competence of Creative engagement, Damla received 4 because the creative writing task would make target students imagine and describe a new planet and find ways to keep it safe and clean using Padlet.

Parallel with the results of her first survey, Damla was an Integrator (B1) who could integrate digital technologies into her lesson. As can be seen from the analysis above, Damla received higher points (3-4) in most sub-areas of the DigCompEdu, which means that she was at least sufficiently competent in these areas. That being said, the areas where she was not competent enough and received 2 were Self-regulated learning, Feedback, Accessibility and inclusion, and Differentiation and personalization. As excerpt 15 shows, Damla confirmed the findings above, expressing that she did not consider learners with special needs, different abilities, interests, or those with limited access to digital resources while planning her lesson.

Unfortunately, I did not pay attention to learners with special needs. It was mainly because I forgot to pay attention to those situations. I have prepared several lesson plans, but this is the first time I am being reminded of keeping these conditions in mind; that is why. (Damla, Excerpt 15, Reflection, November 2020)

Finally, she received 1 in the areas of Copyright rules and Guidance and did not write anything about these areas in her reflection paper. Hence, it can be argued that she needed training the most in these areas at the beginning of the term.

4.2.1.2 During the treatment

In this section, Damla's comments about the areas and sub-areas of the DigCompEdu framework during the course are presented. While her comments mostly focused on selecting, creating, and modifying digital resources for language teaching (Area 2), little or no comment was found about the rest of the areas. For the sub-competence of Selecting digital resources, she wrote in her reflection paper that before the CALL evaluation assignment, she did not think it would be important to evaluate CALL materials critically. In this assignment, she underlined that she analyzed the website, British Council, in terms of its target audience (e.g., young learners), user-friendly interface, the context (e.g., EFL), teaching approach (e.g., implicit or explicit grammar teaching), the variety of activities (e.g., individual, group, pair work) and visuals that can be used for learners with different learning styles (e.g., auditory) and interests, linguistic skills included (e.g., speaking), and opportunities for providing feedback. She reported that it was the first time she evaluated digital teaching materials systematically. Although she was already familiar with the website, she noticed that she was using it in a limited way. She noted in her reflection paper that the website offers much more for English teachers to make their classes more fun.

In her first lesson plan, she selected digital tools mainly considering whether they are user-friendly, appropriate for the target group's age, and increase active participation of the students. She argued that such an evaluation helped her understand the strengths and weaknesses of the material at hand. She also stated that

evaluating the materials in the light of some criteria made her evaluation process more systematic and concrete. Therefore, it can be argued that she became more aware of what else to consider while selecting digital tools and resources for language teaching after this assignment.

After submitting the MAPP assignment, which required her to select and categorize digital tools using Bloom's taxonomy, Damla wrote in her reflection paper that she had a quite limited idea about the applications before the assignment. She expressed that she became familiar with many digital tools and learned how to use them, at least to some extent, thanks to the assignment. Although it was challenging for her to find applications, as she did not frequently use digital tools, she figured out how to find and select them with the help of her partner. Excerpt 16 reveals her criteria for selecting digital materials for this assignment.

First, we looked at the general objectives of tools while categorizing them under the levels of Bloom's taxonomy. When we could not decide which tool to choose among those that met the first criterion, we asked these questions: 'Is it user-friendly, attention-grabbing, suitable for the intended proficiency level and age?' . . . However, we mostly tried to answer why we put the tool at that particular level while selecting tools. (Damla, Excerpt 16, Reflection, December 2020)

As written above, when Damla and her partner found two different tools with similar objectives suitable for the same level of the taxonomy, they asked secondary questions to investigate whether it was age and level appropriate, easy to use, and attention-grabbing. In her previous reflection paper about the CALL evaluation assignment, she focused more on what the digital tool could offer to make English classes more fun. In this assignment, she paid more attention to the main objectives of the tools and whether these objectives are in line with the levels of Bloom's taxonomy. Selecting digital tools considering target students, learning objectives, context, and teaching approach are some of the indicators of teachers' digital

competence according to the DigCompEdu framework. Therefore, it can be said that she made progress in this sub-competence during the treatment.

Regarding the sub-competence of Creating and modifying digital resources, Damla admitted that while creating the ThingLink activity, which was their first hands-on task, she did not have any ELT theory in mind. Besides, she did not consider specific learning objectives because her focus was on creating fun content for learners. After submitting her materials adaptation assignment, she noted in her reflection paper that “it was important to write down the learning objectives for the adapted materials as we did for lesson plans.” She also emphasized that “adapting materials on its own is not enough” and “it was necessary to consider pedagogical and contextual realization of the adaptations.” What she took into account when adapting learning materials was explained below:

One of the things we paid attention to was Bloom’s taxonomy. It especially helped us while writing our objectives in material adaptation. Because of the change we made, we actually changed the classification of the material according to this taxonomy. While the material was more focused on comprehension, we turned it into output and speaking-oriented material. We also considered students’ age and interests. Otherwise, adaptation may not be very effective. (Damla, Excerpt 17, Reflection, December 2020)

Similar to Selecting digital resources, excerpt 17 demonstrated that Damla also developed significantly in the sub-area of Creating and modifying digital resources, as she started to consider the learner group, learning objectives, contextual and pedagogical factors.

Concerning the Managing, protecting, and sharing digital resources sub-area, Damla commented on how she shared the digital material with others and whether she paid attention to copyright rules while creating it during the interview conducted after submitting the task on ThingLink. Excerpt 18 demonstrates that she made her material public without considering the other sharing alternatives.

I made the material public without questioning too much. Since I saw it done that way in the tutorial video, I thought maybe the link would be easier to reach that way because that is how it is explained in the video. (Damla, Excerpt 18, Semi-Structured Interview, December 2020)

After the interview, she argued that she would pay more attention to this issue next time. However, there was no other comment in the data on this sub-area during the treatment. Regarding copyright rules, she talked about it twice during the term. The first time was after she created a ThingLink activity. The second time was when she wrote a reflection entry about materials adaptation. The excerpt with relation to copyright rules is as follows:

Well, I pay attention to copyright rules. I mean, I share the links or insert references. However, I do not directly state where I get these resources when I use them somewhere. We were never asked about such a thing before. Copyright is an important point when using images. However, maybe we do not generally notice this because our previous course instructors never asked about it. Therefore, I think this task has been very effective for me. (Damla, Excerpt 19, Semi-Structured Interview, December 2020)

This excerpt shows that she was never reminded to pay attention to copyright rules when she used digital content before this course. Therefore, she was not aware of the importance of this aspect of digital competence while designing the task. In the following weeks, she wrote the following sentence in her reflection paper: “It is necessary to pay attention to the copyright issue in the materials we use in the adapted version.” It can be understood from this sentence that her awareness of the significance of copyright rules when adapting materials has increased.

As for the area of Teaching and Learning, Damla commented on the sub-competences of Teaching and Collaborative learning, whereas there was no data on the sub-area of Guidance during the term. For the Teaching sub-area, she commented on the role of technology in teaching listening and speaking skills. She emphasized that students’ increased familiarity with technology has made technology-enhanced language teaching more effective, as seen from excerpts 20 and 21.

Considering how familiar the students are with technology today, using technology is the best way to communicate effectively with students and teach them English. Therefore, the implementation of technology in classrooms has become the “normal” way to teach any subject, including languages. (Damla, Excerpt 20, Reflection, December 2020)

When I think about the advantages of technology over print materials, the first thing that comes to my mind is related to listening skills. Many applications allow students to listen to conversations in different accents creating a more authentic learning environment. It is impossible to achieve this with print materials. In addition to this, I also believe that technology promotes the speaking skills of learners. (Damla, Excerpt 21, Reflection, December 2020)

While there was no comment about the Self-regulated learning sub-area in her individual assignments or reflection papers, she focused on this issue in one assignment she completed with Nehir. In their MAPP assignment, they wrote, “By using this digital tool [Nearpod], students can turn the material into a self-assessment activity in which they monitor their productions.” This statement might imply that working with a peer has increased her awareness of this sub-area.

Damla expressed that the best way to learn English is through communication and collaboration in group tasks where learners build knowledge together. However, as excerpt 22 reveals, it took her some time to notice the affordances of digital tools to support collaborative learning in language education. In other words, engaging with a hands-on task in pairs using digital tools and reflecting on their work upon production allowed Damla to see the potential of ThingLink to enhance collaborative learning.

In our ThingLink activity, I noticed that we did not include anything communicative or group activity. I think the reason for this is that we have just started to use digital tools. If I used it again, I would definitely add more speaking-focused group activities because I think the natural acquisition of language is through communication and cooperation. I strongly believe that students learn a lot from each other by cooperating. Therefore, I would design the activity to be done in groups next time. The mode of communication in the activity we designed was limited to “teacher to student”. However, student-to-student interaction would be more effective. If I created this material again, I would change it by including these. Such an activity would

be more efficient, especially in the context of online education. (Damla, Excerpt 22, Semi-Structured Interview, December 2020)

About the sub-competence of Assessment strategies, there were no data about it in her reflection papers. In their MAPP assignment with Nehir, they analyzed whether the digital tools allow teachers to assess learners' performance and provide feedback. Within the same assignment, they underlined that teachers could use PlayPosit to assess learners' knowledge and skills through multiple-choice or open-ended questions. As for the sub-competence of Analyzing evidence, they stated that PlayPosit gives teachers a chance to see students' responses to the questions and their performance. Considering the sub-competence of Feedback, they underlined that teachers can offer feedback based on the quiz scores and that students can receive immediate feedback while answering the questions.

The data analysis revealed that there were sporadic references to the other sub-competences of Empowering Learners, whereas Damla's comments were heavily focused on the sub-area of Actively engaging learners. She underscored the role technology plays in making English classes more interactive, engaging, fun, and motivating for students, and making them more active while learning. She laid particular emphasis on digital games to increase students' active engagement while teaching English, which can be seen from excerpt 23 below:

The use of technology in education contributes positively to learners' English language skills. For example, through technology-based games played simultaneously, students can gain significant skills, such as cooperation and problem-solving. They can also use a foreign language in line with their goals. (Damla, Excerpt 23, Reflection, December 2020)

Damla commented on the sub-competence of Differentiation and personalization once when she evaluated CALL materials. She wrote in her assignment that "the exercises on the website (British Council) can be used with a variety of students from different ages, interests, learning styles." As for the sub-area of Accessibility and

inclusion, she did not focus on this issue in her reflection papers except that she highlighted the importance of choosing freely available tools that are easy to navigate for learners. In her materials adaptation assignment with Nehir, they stated that QR codes might lead to technical problems because not all students have access to digital devices to scan the code during the learning session. This finding showed that Damla started to pay more attention to the accessibility issues while evaluating and adapting materials during this pair-work assignment.

4.2.1.3 After the treatment

At the end of the semester, Damla designed another lesson plan for a hypothetical seventh-grade class consisting of 20 students with intermediate proficiency in a state school context. The allocated time for the lesson was 40 minutes. The theme of the lesson was joining, interrupting, and ending conversations in English. The target skills of the lesson were listening and writing. The lesson objectives were stated being able to use common phrases to start, interrupt, or end a conversation appropriately, considering contexts, people, and situations. She assumed that target students would express themselves clearly using appropriate grammatical structures. This lesson was designed for online education, and the integrated digital tools were PlayPosit, Google Jamboard, and Conceptboard.

The lesson starts with warm-up questions about whether students love meeting new people and how they start or interrupt a conversation. Then, as the pre-activity, students watch an interactive video created using PlayPosit. This video includes exemplary situations explaining how to start, interrupt, and end conversations depending on the interlocutors. While watching the video, students, working individually, are asked to answer multiple-choice and open-ended questions,

such as “What did the boy say to join the conversation?” The teacher monitors students’ answers on PlayPosit and initiates a discussion about which parts of the video were difficult for them to follow having watched the video. For the next task, the students are sent role-play cards informing them about the type of conversation, situation, and people involved in the conversation. Then, working in pairs or groups in breakout rooms, students are expected to write dialogues collaboratively for the given situation on Google Jamboard using the phrases they have learned from the video. As for the post-task, depending on students’ choice (working individually or in groups), students are asked to create a mind map categorizing the phrases they can use to start, interrupt, and end a conversation using Conceptboard. Students are given the names of other mind mapping tools (Mural, MindMeister, Popplet, Lucidchart), considering that they might prefer to use one of them. Finally, the teacher goes over the written phrases on the mind maps in the main room with all students.

Damla’s second lesson plan received 4 in all sub-areas of Digital Resources because the digital technologies in her lesson plan were strongly in line with her lesson objectives, pedagogical approach, context, learners’ age, proficiency level, and context. She highlighted in her reflection paper that she adopted a student-directed collaborative teaching methodology while designing the lesson. Her lesson plan includes collaborative tasks through which students build knowledge together. She clearly explained how each digital content is shared with students and provided the necessary links; thus, she also received 4 in the sub-area of Sharing digital resources. In her reflection paper, she emphasized that she changed the settings while sharing digital resources so that only students with the link could access them. She admitted that she did not pay much attention to privacy settings during the treatment. Hence, it can be said that her awareness of this sub-area has increased after taking

the course. As for the category Copyright rules, she received 4 because she appropriately attributed all digital resources she used in her lesson plan.

Regarding the sub-area of Teaching, Damla received 3 because of her adequate planning and organization of digital technologies to be implemented. For the sub-competence of Collaborative learning, she received 4, as she optimally used Google Jamboard and Conceptboard to maximize collaboration among learners. She received 2 for the sub-area of Guidance because she partially used digital technologies to offer learners help in the pre-task by identifying the questions they struggled with based on the results of the interactive video quiz. Concerning the sub-competence of Self-regulated learning, she partially used digital technologies to encourage students to identify their mistakes after completing the pre-task (receiving 2). In the lesson plan, she provided learners with a self-evaluation sheet. However, the sheet was in PDF format, and she did not turn this into a digital version through which students' responses could be saved automatically.

The data analysis revealed that Damla received 3 in all sub-areas of Assessment. As she also stated in her reflection paper, she adequately used PlayPosit to assess learners' listening comprehension and provide students with feedback by analyzing the generated digital evidence (e.g., quiz results). Although other digital technologies in her lesson plan, such as Conceptboard and Google Jamboard, could allow her to assess students' writing skills, their role in assessment was emphasized neither in the lesson plan nor in the reflection paper. This finding might suggest that despite being competent in integrating assessment tools into her lesson, Damla was not fully aware of the affordances of those digital tools for language assessment.

Damla received 2 for the sub-competence of Accessibility and inclusion because students with limited internet data or access to digital devices can only be

included in certain tasks. Concerning the Differentiation and personalization sub-competence, the lesson plan was not designed to allow learners to progress at different paces or through various paths. Her lesson plan includes a video that she implemented in the pre-activity for different types of learners; therefore, Damla received 2 in this sub-area. She designed all her tasks to increase target students' active and creative engagement with English. For instance, students are asked to answer open-ended questions while listening to conversations, create a dialogue based on real-life situations, organize a mind map, and search for information on the internet. Taking these into account, she received 4 in the sub-areas of Actively engaging learners and Creative engagement with English.

At the beginning of the term, Damla was already competent in designing a technology-enhanced lesson plan that is age, proficiency level, and content appropriate. After the treatment, Damla improved even more in the area of Digital Resources and its sub-areas, including copyright rules. The observed improvements in her lesson plans regarding the suitability of the selected digital tools for the target student profile, learning objectives and pedagogical approach were also visible in her reflection paper.

While designing the lesson plan, I did not decide on the digital tools in the first place. First of all, I decided on the other aspects of the lesson plan, such as the theme, intended students, and the types of activities I can use to attain my objectives, etc. Once settled on these, I made a list of some of the tools that may help me reach the objectives of the activities better. All the tools on my list were the ones I heard or had the chance to evaluate during this course. One of the things I paid attention to and focused on in selecting tools was whether these tools were suitable, practical, and appropriate for my students' level of understanding of digital tools. Moreover, I considered whether they have a user-friendly interface and whether there is a match between the objectives of the tools and the lesson goals. (Damla, Excerpt 24, Reflection, February 2021)

Actively engaging learners, Feedback, Guidance, and Collaborative learning were other sub-areas of the DigCompEdu in which Damla received higher scores in

her second lesson plan. Furthermore, she managed to meet the expectations in the sub-areas of Teaching, Assessment strategies, Analyzing evidence by receiving the same score (3). Confirming her second survey results, it could be argued that Damla reached a higher digital competence level in general after the treatment. However, she still could not meet the expectations for the sub-competence of Guidance after the treatment. Likewise, she did not make any progress in the sub-competences of Accessibility and inclusion, Differentiation and personalization, and Self-regulated learning after the study. This finding is also consistent with the results of the first research question suggesting that her least developed area of DigCompEdu was Empowering Learners. Being aware of her lack of development in the sub-area of Accessibility and inclusion, Damla expressed that although she wanted to make her lesson more accessible and inclusive, she did not know how to do it.

Students with special needs were always in my mind; however, I could not come up with an effective solution. Through the course, I think we did not pay enough attention to this issue; that could be one important reason.
(Damla, Excerpt 25, Reflection, February 2021)

As she highlighted above, the lack of development in this sub-area and others might have resulted from the fact that the course could not bring them to the participants' attention explicitly. To reach a satisfactory level of digital competence in these areas, she still needs more training in which these issues are taught in detail.

4.2.2 Nehir's case

4.2.2.1 Before the treatment

Nehir's first lesson plan was designed for hypothetical fourteen-year-old high school students attending a state school. The proficiency level of the targeted students was intermediate, and the target skill was speaking. She assumed that these students have already excelled at the zero and first conditionals. They were expected to have a

general understanding of type 2 conditional and space-related vocabulary that was practiced in the previous unit. The lesson objectives were identifying the type 2 conditional in a context, discussing an authentic topic using the target grammar structure in the form of writing and speaking, summarizing group discussions orally, examining different resources, generating, and justifying ideas, and evaluating their work as well as their peers' works. The allocated time was 40 minutes, and the digital technologies in the plan were Google Docs and Mentimeter. As the lesson was designed to be delivered online, she expected students to have a telephone, tablet, or laptop.

The lesson plan starts with a discussion about the innovations in the space industry and the SpaceX launch, which was a current event of the time. Then, students are sent a Mentimeter link to write down three things that come to their minds when they think of space. After creating a word cloud on Mentimeter, they discuss the everyday challenges of the astronauts in space missions as a whole class activity. Then, students are sent a Google Doc, including seven questions about living on a space station, such as "If you were an astronaut, how would you exercise in space?" to discuss in the breakout rooms with a partner. After they write down some notes on Google Docs for each question, working in pairs, students choose one of the questions that interest them most and find more information about it on the internet in the remaining time. While students discuss the questions in the breakout rooms, the teacher visits each room in case there are any questions or difficulties. Following their research, students go back to the main room. Then, each pair is matched with another pair to create groups of four and sent to breakout rooms again. In these rooms, the pairs review each other's documents and discuss what they have talked about in the main activity. The lesson ends with students' presentations of

what they have discussed in the breakout rooms and their reviews, and the teacher also comments on their works.

The data analysis revealed that Nehir had a good level of digital competence in the area of Digital Resources. Since the digital technologies in the lesson plan are in line with the objectives of the lesson, she received 3 in this category. In terms of the appropriateness of the digital technologies for target learners' age, proficiency level, and context, Nehir received 4. Concerning the category of pedagogical approach, she received another 4, as both her lesson plan and reflection paper revealed that she adopted a task-based language teaching (hereafter TBLT) approach that facilitates student-centered and collaborative learning activities through which students can learn from each other and contribute to each other's learning processes. For the sub-competence of Sharing digital resources, she clearly explained how she planned to share digital resources with learners and listed all the links of the designed activities in the lesson plan (receiving 4). As can be seen from excerpt 26, she paid attention to the privacy issues while making the links available for target learners.

It is quite easy for students to access to because, as a teacher, I share the links for the resources using Zoom's chat feature. Students will just click on it to access it. In addition, I prepared Google Documents for the main and the post-task as these documents are formed within our own Google Classroom platform; only our classroom will have access to them. Anyone who is not given access to these materials will not be able to see them. Likewise, the Mentimeter code will be just shared with the students during the classroom, and when the word cloud is formed in the pre-task, the teacher will share the cloud with the students, and then it can be kept in the teacher's account, or it can be deleted right after the class. (Nehir, Excerpt 26, Reflection, November 2020)

Regarding the category of Copyright rules, she did not give references to any of the digital resources in her lesson plan. Therefore, she received 1 in this category.

Nehir successfully planned the use of digital technologies and clearly organized the learning tasks. Considering these, she received 4 in the sub-area of

Teaching. When it comes to the sub-area of Collaborative learning, she received 4 again because she optimally used the digital technologies to promote communication and collaboration among learners in more than one task. Since she planned to visit the breakout rooms on Zoom to help learners if needed and answer their questions, her score in the sub-area of Guidance was 2. She planned to use Google Docs to help learners monitor their progress by allowing them to check their understanding of the topic with other students and evaluate their initial performance. Taking these into account, she received 2 regarding the sub-area of Self-regulated learning.

Nehir received 2 in all sub-areas of Assessment, which means that she used digital technologies partially to assess learners' performance and progress in the class. As she underlined in her reflection on this lesson plan, target students' entries on Google Docs would serve as evidence of their activity and performance in the breakout rooms. As for the sub-competence of Feedback, she wrote both in her lesson plan and reflection paper that students can receive peer and teacher feedback on their entries thanks to Google Docs. Since the digital technologies were not used to assess learners' speaking skills, which was the focus of the lesson, she did not receive higher points in these categories.

As for the sub-area of Accessibility and inclusion, she highlighted in her reflection paper that she selected free digital sources with simple interfaces for the lesson plan. Except for this, she did not consider accessibility issues in the lesson plan, which made her receive 2 in this category. The analysis of her reflection paper showed that she took learner differences into account by using images. Besides, she designed activities with different modes of interaction. When her reflection paper and lesson plan were taken into consideration, she received 2 concerning the sub-area of Differentiation and personalization. The lesson plan requires students to

describe their imaginary life in a space station as astronauts based on their brief research on the internet. They also discuss and compare their findings with others in the breakout rooms. Therefore, Nehir received 3 for the sub-competences of Actively engaging learners and Creative engagement with English.

In short, the analysis revealed that Nehir was already competent in the area of Digital Resources and its sub-competences, such as Teaching, Collaborative learning, Actively engaging learners before the treatment. However, she was not adequately competent in terms of applying copyright rules. Likewise, the areas where she received 2 points (i.e., Assessment strategies, Analyzing evidence, Feedback, Guidance, Self-regulated learning, Accessibility and inclusion, Differentiation and personalization) were those she needed to improve herself more to be sufficiently competent. Moreover, the analysis of her first lesson plan demonstrated that she was more digitally competent than most of the participants at the beginning of the semester. However, considering the sub-areas in which she could not meet the expectations, it can be said that her actual level of digital competence was not C1 as the initial survey suggested.

4.2.2.2 During the treatment

During the term, Nehir commented about what she paid attention to while selecting, creating, and modifying digital tools (Area 2) in her assignments, reflection papers, and during the semi-structured interview conducted in December. Nehir reported in her reflection paper that she was unaware of how important it was to evaluate CALL materials before taking this course. She argued that she started to look at the learning materials with a critical eye after working on this assignment.

With our CALL Evaluation assignment, I actually learned how to examine the digital materials I plan to use in my lessons critically. Before this

assignment, when I was looking for or preparing materials, I focused more on the aspects of design and practicality. Of course, at first, I used the learners' proficiency level, needs, interests, and age as criteria, but now I think I have a better understanding of how to evaluate the materials from a very different angle. (Nehir, Excerpt 27, Reflection, December 2020)

In line with what she wrote in her reflection paper, the analysis of her CALL evaluation assignment revealed that she evaluated the digital material by paying attention to the following criteria: design and practicality, methodology (e.g., compatibility with the learning objectives), input and output opportunities (e.g., comprehensible, meaningful, authentic), motivation, collaboration and interaction, learners needs and interests, privacy, assessment, and feedback. Likewise, when she talked about what she considered while creating a learning task on ThingLink, she stated that her main intention was designing a content-based activity. With this task, she wanted students to communicate with each other in an authentic and meaningful way while discussing their learning styles. Another thing she considered was practicality, as she thought that the tool was easy to navigate for learners. She also stated that she liked the idea of creating an interactive activity that might draw students' attention. Similarly, the practical use of digital tools, being familiar with these tools, and whether these tools matched with the intended objectives were among the things she took into consideration while modifying, as can be seen from excerpt 28 below:

While deciding on the digital tools to use in this assignment with my partner, we generally tried to select tools that we are familiar with from our practicum school or those we have used at least once. Apart from this, we evaluated the tools used or mentioned in our classes and analyzed whether they fit our objectives. . . While categorizing tools, we adhered to the criteria of Bloom's taxonomy and evaluated all the tools one by one according to them. When a tool did not meet our objectives, we decided to use another tool. Practicality was one of the things we paid the most attention to while choosing the tool. In particular, we think that the tools we will use in the distance education process should offer ease of use to both the student and the teacher. (Nehir, Excerpt 28, Reflection, January 2021)

In short, it can be inferred that at first, she only paid attention to the factors related to the learner group, such as their age, proficiency level, interests, and needs. Then, she started to pay more attention to both generic and content-specific pedagogical factors during the treatment.

She also reported that this course helped her realize the importance of data privacy and privacy settings when sharing digital resources. Her comments about the sub-area of Managing, protecting, and sharing resources are given below:

Although I used the website [British Council] a lot for the students I tutor, I had not seen the criteria it offers regarding data privacy. But now, I can say that I have a better understanding of how cautious I should be about data privacy. (Nehir, Excerpt 29, Reflection, December 2020)

After the lectures, I became more aware of data privacy. I started to pay more attention to students' privacy issues in every aspect. For example, if I am going to share a Drive file, I pay great attention to this issue so that only those with the shared link can access or edit it. (Nehir, Excerpt 30, Semi-Structured Interview, December 2020)

Considering copyright rules, Nehir admitted that although she was aware of the copyright issues, she did not attribute the digital resources she used while designing a teaching task for this course. Her comments about copyright issues are as follows:

I voluntarily work as a content writer. We always give references to an image or a video we use. For instance, I use Flickr, and there is already a warning saying that I must give credit. However, I do not pay attention to this when creating digital materials and worksheets. I also know that we should. For example, we did not think about this issue while using digital resources when creating this ThingLink activity, but I think it was something we had to do. I will be more careful from now on. (Nehir, Excerpt 31, Semi-Structured Interview, December 2020)

Excerpts 29, 30, and 31 revealed that her awareness of copyright rules for educational materials and data privacy increased during the treatment.

Regarding the area of Teaching and Learning, Nehir stated that teaching through technology-enhanced tasks provides learners with ample opportunities to improve their language skills and increase their involvement with critical and

creative thinking. In addition, she commented on the role technology plays in guiding and supporting students as well as maintaining classroom management. Her opinions about the Guidance sub-area are as follows:

I can use ThingLink to facilitate guidance and manage the classroom effectively. Imagine that I sent my students to breakout rooms on Zoom and that I listed and arranged everything in order on ThingLink. That way, students can find when and where to go on the page more easily. Based on my observation, I can say that sometimes things become very difficult in breakout rooms when the teacher assigns students a task. Students do the first part of it, then say, 'Let's go back to the main room,' and the teacher explains the task again, and they go back to the breakout rooms. When ThingLink is used, I can explain the task once, and students would know what to do by following the embedded instructions. (Nehir, Excerpt 32, Semi-Structured Interview, December 2020)

Nehir expressed positive opinions about including technology to enhance collaborative and self-regulated learning in language education. Based on her observation in her practicum, she expressed that mind mapping tools, such as Mural, are helpful in promoting a cooperative learning environment where students not only can share their own ideas but also see their friends' ideas to compensate for their lack of knowledge in certain topics and build knowledge collaboratively. She argued that teachers could promote teamwork, critical thinking, and problem-solving skills in collaborative classrooms. Likewise, she discussed how technology could be used to promote self-regulated learning in her reflection paper entries, individual, and pair-work assignments. She stated that students could assess their strengths and weaknesses in their language skills using digital tools, such as Brainscape as self-access materials. She also underlined that technology allows students to keep track of their language learning processes and be more autonomous learners. Nehir's comments about this sub-area are presented below:

Based on my observation, I should point out that students cannot express themselves and hesitate to speak when they do not know the meaning of a word in English. At this point, technology increases students' responsibility for their learning processes by providing a more comfortable and flexible

working environment as well as quick access to information. (Nehir, Excerpt 33, Reflection, December 2020)

When students have an account [British Council], they also have their own dashboard in order to follow their improvement in their own language learning process. . . Their works are archived for learners to monitor their learning. . . This is important for opening a room for learners to involve in self-monitoring and become autonomous learners (Nehir, Excerpt 34, Assignment, December 2020)

Regarding the sub-competence of Assessment strategies, the data collected from the assignments she worked with Damla revealed that they discussed the advantages of digital technologies, such as Nearpod, to assess language learners' performance, knowledge, and progress. In her individual assignments, she expressed that technology can also be used for product and process-based assessment, peer assessment, and self-assessment purposes. As for the sub-areas of Analyzing evidence and Feedback, she expressed that when learners complete a grammar activity on British Council, they receive immediate, error-based feedback. In addition to providing learners with automated feedback, she stated that teachers could also use the data gathered from H5P to evaluate their students' performance. In the MAPP assignment she completed with Damla, they shared their review of the Conceptboard for offering personalized feedback to learners, as can be seen below:

The best side of this tool [Conceptboard] is that teachers can share personal or group-specific feedback by attaching students' mail addresses to make sure that each student/group receives immediate, contingent, and specific feedback. (Nehir & Damla, Excerpt 35, Assignment, January 2021)

Concerning Empowering Learners, Nehir commented about the sub-competence of Accessibility and inclusion in her assignments and reflection papers. In her CALL evaluation assignment, she noted that British Council provides PDF transcriptions of the listening tasks, which can increase the accessibility of these tasks for those with unstable or limited internet connection. She also wrote in her reflection paper that students must not only have physical access to digital materials

teachers provide. According to her, the materials should also be understandable and pedagogically appropriate to them. According to her, evaluation of CALL materials will be inevitable in English classes to ensure the accessibility and suitability of teaching materials for learners. Furthermore, in her individual and pair assignments, she approached the use of digital technologies in ELT from the perspective of multiple intelligences. She evaluated whether digital resources and tools consider learner differences and allow students to present their tasks in different ways, such as recording audio or writing a text. Excerpt 36 demonstrates her opinions about the sub-area of Differentiation and personalization:

By taking comprehension and meaning into its focus, the material itself proves that it is compatible with the current trends and learners' needs as well. In addition to its diversity in terms of tasks and contents, this platform also takes learner differences and multiple intelligences into account and gives learners a chance to make preferences. To illustrate this, learners can make their own choice on whether they want to practice through video or a transcript. This depends on learners' learning styles, and this material values such differences. (Nehir, Excerpt 36, Assignment, December 2020)

About the sub-area of Actively engaging learners, she expressed that utilizing digital technologies, especially multimedia, in language teaching makes the learning process more interactive, interesting, motivating, and authentic. She stated that students could use English for real-life purposes by starting a podcast, recording a video using Powtoon, writing stories using Storybird, or designing a poster using Canva.

4.2.2.3 After the treatment

Nehir designed her second lesson plan for hypothetical seventh-grade students at a private school with an intermediate level of English proficiency. The target skill was speaking, and the topic of the lesson was the advantages and disadvantages of online learning. It was assumed that the target students were already familiar with the dynamics of online learning from the previous session, and they would use cohesive

devices while expressing their opinions. The objectives of the lesson were to discuss the advantages and disadvantages of distance learning, categorize the features of distance learning as a group, report the findings, and evaluate the works of other groups. The digital tools integrated into the lesson were Mentimeter, Natural Reader, Mural, and Google Classroom. The allocated time for the lesson to be delivered via Zoom was 40 minutes.

The lesson plan starts with a whole-class discussion on online learning. Then, the teacher asks students to click the Mentimeter link and answer the poll questions about whether they like online learning and find it more effective than face-to-face learning. Then, as a whole class activity, they listen to a recording of a visually impaired student who shares his experiences in online lessons. Following the listening activity, the teacher asks some questions about the impact of online education on students with special needs. After that, working in groups, students discuss the advantages and disadvantages of online learning and create a mind map using Mural in the breakout rooms. The teacher reminds students to keep track of the time and use the internet while generating ideas. Students record their discussions in the rooms for the teacher to watch them later for further assessment. The teacher visits each breakout room to check if there are any questions or problems. In the post-task, all students return to the main room for each group to present their mind map and briefly report what they have discussed in the breakout rooms. Then, the teacher asks if students had difficulty in categorizing certain concepts as advantages or disadvantages and what they did in this situation to help students reflect on their work. As for feedback, students go to Google Classroom and choose one of the group's mind maps, upload a short video about their evaluation of their friends' work to the file that the teacher created beforehand.

In the area of Digital Resources, she received 4 for the selection and creation of digital technologies, which were strongly in line with the learners' age and proficiency levels, the lesson objectives and target skills, context, and methodology (TBLT). Regarding the category of Sharing digital resources, she received 4 for clearly explaining how to share the links or codes to the activities. In terms of copyright rules, she received 2 because she provided the links to the digital resources but did not attribute them correctly.

As for the sub-competences of Teaching and Collaborative learning, Nehir received 4 for successfully planning the use of digital technologies and implementing technology to maximize collaboration and communication among learners. Like her first lesson plan, she received 2 in the sub-area of Guidance for visiting the breakout rooms to monitor students' progress and offering help when needed. Regarding the sub-area of Self-regulated learning, she received 3 for adequately using Google Classroom to help learners monitor their progress. She emphasized in her reflection paper that Google Classroom allows teachers and students to keep records, and "it makes it easier for students to go back and monitor their improvement," which explained why she used this platform in her lesson plan.

In terms of the sub-area of Assessment strategies, Nehir adequately used digital technologies for formative assessment; therefore, she received 3. As for the sub-areas of Analyzing digital resources and Feedback, she stated in her lesson plan and reflection paper that she would use the recordings of the breakout sessions, the mind maps on Mural, and video recordings on Google Classroom to assess students' performance and activity both during and after the class and give feedback based on the generated digital evidence. In addition, she aimed to facilitate peer feedback within and outside the class time; thus, she received 4 in these areas.

For the sub-area of Accessibility and inclusion, she received 2. As she also highlighted in her reflection paper, she designed group tasks considering that students with technical or accessibility problems could receive help from their teammates and still be involved in the lesson. Regarding the sub-competence of Differentiation and personalization, the analysis revealed that she used Mentimeter to allow anonymous contribution to discussions. She also added various activities with different modes of interaction for different types of learners. Considering these, Nehir received 2 in this category. Finally, she received 4 in the sub-areas of Actively engaging learners and Creative engagement with English, as she used digital technologies to maximize students' activity and creative expressions in English.

To summarize, after the treatment, Nehir received high scores in the areas of the DigCompEdu where she was already competent at the beginning of the term, such as Digital resources, Teaching, Collaborative learning, and Actively engaging students. The analysis of her second lesson plan revealed that after taking the course, her competence in the sub-areas of Assessment strategies, Analyzing evidence, Feedback, and Self-regulated learning reached a satisfactory level. In contrast with the survey results, the production-based tasks revealed that she sufficiently made progress in the area of Assessment.

Although she has become more conscious of copyright rules after taking the course, her competence in attributing digital sources was still unsatisfactory. The treatment did not change her scores in the sub-areas of Guidance, Accessibility and inclusion, and Differentiation and personalization. The integration of Google Classroom in her second lesson plan served solely to archive students' works rather than a collaborative environment where the teacher could offer timely and targeted support and guidance to learners. Likewise, although the lesson plan included a text-

to-speech tool, neither in the lesson plan nor in the reflection paper, she stated that she integrated this tool to meet the needs of the learners with special needs.

Considering the points raised, it can be argued that Nehir needs more training that includes more hands-on tasks in order to put her developing competence in these areas into practice.

4.2.3 Ege's case

4.2.3.1 Before the treatment

Ege designed his first lesson plan for a hypothetical pre-intermediate second-grade class of 18 students at a private school. The topic of the lesson was health suggestions. The focus of the lesson was modal verbs and vocabulary related to health problems. It was assumed that students could form questions as well as affirmative and negative sentences in the simple present tense. He stated that target students would be able to use modal verbs (e.g., can, should, must) in an appropriate context to give advice or express prohibitions at the end of the lesson. The lesson was planned to be delivered in 40 minutes in the classroom. Necessary materials were listed as mobile phones with a stable internet connection, a computer, a projector, blackboard, health problems cards, and a notebook. Memrise and Kahoot were the digital tools integrated into the lesson.

The lesson plan starts with a discussion on what students do to stay healthy, and the teacher writes down their responses on the blackboard. Then, a YouTube video about health problems, including advice with the modal verb *should*, is shown to students, and they comment about the suggestions. Then, the teacher asks some of the students to come to the board and rewrite the sentences written on the board at the beginning of the lesson using modal verbs. For the main task, students are paired

up and given some health problems cards and matching picture cards. Taking turns, students shuffle the cards and randomly choose a health problem card and a picture card and save the ones that match. When all the cards are matched, students make suggestions using the modal verb according to the health problem cards they have. Then, the teacher writes down some sentences using modal verbs. Each pair shuffles their cards again and chooses health problems cards taking turns. While one of them says what their health problem is, the other student gives advice using the sentence structures written on the board. The teacher ends the lesson with a Kahoot quiz about modal verbs and offers feedback to students based on the results. As for homework, students are asked to practice modal verbs on Memrise. The teacher will check their performance on the platform and give feedback to them.

The data analysis revealed that the integrated digital technologies, although not exemplary, aligned with the teaching context and the target students' age and proficiency level; thus, Ege received 3 in these categories. The main lesson objective was to teach students some modal verbs and have them practice these verbs through conversation. However, his selection of digital tools for this lesson was limited to Kahoot, and there was no technology integration in the conversation-based tasks. In parallel with his lesson objectives, he reported that he adopted TBLT, but the selected digital tools did not directly support this approach. Consequently, as for the suitability of the digital technologies used in the lesson with the objectives of the lesson and the teaching approach adopted, he received 2. Although he produced the digital learning tasks and provided the necessary links in his plan, he did not explicitly state how these links would be shared with students in the classroom. Therefore, he got 2 for the sub-competence of Sharing digital resources. For the category of Copyright rules, he received another 2 because he did not correctly

attribute the digital resources he used in the lesson plan, although he listed the necessary links to these resources.

Ege adequately planned the use of the digital tools in the classroom, although the integration of digital technologies into the lesson was highly limited. Therefore, he was given 3 regarding the sub-competence of Teaching. No digital technologies were used in the lesson plan to facilitate collaborative language learning; thus, he received 1 in the sub-area of Collaborative learning. Digital technologies were not used to monitor students' activity in the classroom and provide learners with timely and targeted support. For this reason, the score he obtained in terms of the sub-area of Guidance was 1. In the lesson plan, students are asked to take a Kahoot quiz and are assigned a Memrise training to assess how well they remembered the use of modal verbs introduced in the lesson. However, these tasks do not require students to reflect on their own performance and progress. It could be said that these digital tools do not adequately foster self-monitoring; therefore, he got 2 in the sub-area of Self-regulated learning.

As for the sub-competence of Assessment strategies, Ege received 3, as he designed a Kahoot quiz to assess students' understanding of the modal verbs at the end of the lesson. Similarly, he used Kahoot and Memrise to monitor students' activity and performance inside or outside the classroom. Thus, he received 3 for the sub-competence of Analyzing digital evidence. Regarding the sub-competence of Feedback, Ege received 2 because he implemented Kahoot in his lesson plan to provide learners with instant feedback on the accuracy of their responses.

The digital learning tasks were set to be completed individually, and learners with special needs or who have limited access to technological devices or internet data were not provided with any alternatives in the lesson plan. Taking these into

account, Ege was given 1 for the sub-area of Accessibility and inclusion. Neither the lesson plan nor the reflection paper contained a statement about using technology to address the different needs of the students. Therefore, the score he obtained for the sub-competence of Differentiation and personalization was 1. He received 2 in the sub-area of Actively engaging learners because the role of digital technologies in enhancing students' active engagement during the teaching session was restricted to the Kahoot quiz. Since Kahoot and Memrise do not encourage students to produce creative expressions in English, his score in the category of Creative engagement with English was 1.

Although the survey result indicated a B2 level of proficiency, the analysis of his first lesson plan demonstrated that Ege's digital competence was rather limited before the study. His use of digital technologies partially met the expectations in the sub-competences of Selecting and managing digital resources, Self-regulated learning, Feedback, and Actively engaging learners. However, he did not meet the expectations in the following sub-competences: Collaborative learning, Guidance, Accessibility and inclusion, Differentiation and personalization, and Creative engagement with English. The analysis of his reflection paper supported these findings. In this reflection paper, there was no statement about the appropriateness of the selected digital technologies for the lesson objectives or the teaching approach. Instead, he explained that his main concern was integrating familiar digital tools that are free and compatible with different digital devices. Likewise, he admitted that he did not think about how to ensure the accessibility of digital tools he used in the lesson plan. He asserted that if not all students have access to digital devices, there is no way he can integrate technology into his lessons. Despite having a positive attitude towards using digital tools for language teaching, he reported that he had

almost no experience in designing technology-enriched learning tasks and was open to improvement in this regard.

4.2.3.2 During the treatment

Ege evaluated and selected many digital resources and designed digital learning activities throughout the study. He reported that the CALL evaluation assignment helped him realize what to consider while identifying, assessing, and selecting digital resources. In the assignment and reflection paper, he wrote that he evaluated the resources based on the following criteria: content (e.g., authentic, fun, culturally sensitive, and interesting), methodology, context, input (e.g., rich and sufficient), learner profile (e.g., proficiency level), interactivity (e.g., multimedia), practicality (e.g., easy-to-use with a simple interface, time-efficient), and compatibility with multiple devices. At that level, he did not focus on learning objectives while selecting digital resources. With the introduction of Bloom's taxonomy, he expressed that he started to evaluate whether the objectives of the digital technologies are in line with the stages of the taxonomy. According to Ege, "the important thing is not to be familiar with different types of digital tools but how effectively a tool can be used." Therefore, he emphasized that it was not very difficult for him to find or select digital tools. He reported that the main challenge for him was to design sample activities that support different stages of Bloom's taxonomy using the selected tools.

As for the sub-area of Creating and modifying digital resources, upon designing a learning activity on ThingLink, he stated that his primary motivation in the creation process was to produce fun, interactive, and motivating material for target students. When asked if he achieved the learning objectives in his mind, he argued that he would know this only if an actual learner group could interact with

and give feedback on the activity. He primarily took the learner profile (e.g., proficiency level, age) and context into account while adapting resources. He modified the resources when the content was repetitive, boring, inauthentic, and the activities were not interactive and motivating enough.

For the sub-area of Teaching, Ege expressed that digital transformation has accelerated in all areas of life, and education is not an exception. He argued that it is inevitable for teachers to implement technology in teaching to attract the attention of Generation Z, whose encounter with technology starts from a very young age.

Since Generation Z, which is the generation of technology, interacts with technological tools and equipment from the age of three, integrating digital tools into education helps teachers draw students' attention to the educational environment without extra effort. In addition, it is evident that technology and scientific methods are inseparable, as the latest studies on learning have progressed as computer-assisted. . . As written materials are slowly being replaced by digital media, it is not difficult to see that technology has also transformed written materials into digital media. This transition is happening mainly because digital materials can be used multiple times, can be changed at any time, and duplication is cost-effective and environmentally friendly. (Ege, Excerpt 37, Reflection, December 2020)

Having acknowledged the increasing importance of technology in language classes, Ege asserted that technology should be a tool for language learning rather than a goal. He criticized some applications by arguing that they make constant innovations just to make changes, which has caused them to deviate from their primary aim.

By making never-ending innovations just to be different, they have turned the digital tools from being a learning aid tool to a goal, which makes one spend the whole day using these applications. In my opinion, the idea that the more complex, the better does not work after a while. (Ege, Excerpt 38, Reflection, January 2021)

In parallel with his comments in excerpt 38, Ege stated that he could make students use digital platforms to write an alternative ending to a story or add a post including their book review using simpler tools like Padlet. During the treatment, Ege commented about the sub-area of Guidance only once. He expressed that Edmodo is

a safe platform for teachers and students to communicate and interact with each other, share ideas and materials, and coordinate meetings. In terms of the sub-area of Collaborative learning, Ege expressed that he supported the use of technology in language education for self-learning purposes before the study. However, during the treatment, he realized that students could benefit more from digital technologies when used to increase collaboration and interaction among them.

I used to think that digital tools could only be helpful when used for self-learning. In other words, I used to believe that technology can be more useful as a self-learning tool in terms of extending the scope of language learning by integrating it into our philosophy of life instead of restricting the learning process to classrooms. However, this course made me realize that digital technologies can also be more useful in classrooms to increase the interaction and collaboration among students. (Ege, Excerpt 39, Semi-Structured Interview, December 2020)

In addition to his comments about using technology to facilitate collaborative learning, he noted that digital flashcards, such as Quizlet and Brainscape, can be used as supplementary materials for students to study autonomously to develop their language skills whenever and wherever they want. He also underlined that Brainscape trains students to monitor vocabulary retrieval. Furthermore, upon reviewing ChatterPix, he underscored the role of technology in enabling students to reflect on their performance by re-recording their speech until they are content with it. He also stated in excerpt 40 that English teachers could use digital technologies to encourage students to reflect on their learning process. Considering these, it can be said that the training made him think about how to use digital technologies to support self-regulated learning.

Students may be asked to narrate what they learned in the lesson and record a video with this app. In addition, they may be asked some questions for reflection, such as ‘Tell me about your work,’ ‘Why did you choose to do it this way?’ or ‘I saw you had some trouble; how did you solve the problem?’ and they can be told to record their answers to share on Clip. (Ege, Excerpt 40, Assignment, January 2021)

As for the sub-area of Sharing digital resources, Ege claimed that he generally changes the privacy settings as public so that they can be helpful for all students. He also emphasized that some digital tools, such as ChatterPix, do not require students to show their faces while recording their voices. He argued that he could use such tools while teaching English to young students as they can take a picture of an object and add voice over a picture. He believed that he would avoid violating the privacy of minors in this way. Although he started to pay more attention to privacy rules while sharing digital resources with learners, he admitted that he ignored copyright rules while designing learning activities as these activities were non-profit and shared with a few people for “educational purposes.” Similarly, he did not state his ideas about the area of Assessment during the study, except that he evaluated digital tools before using them to check whether they offer immediate feedback to target students.

Concerning the sub-areas of Accessibility and inclusion and Differentiation and personalization, Ege did not focus on how teachers can ensure the accessibility of resources and activities for learners and help them progress at their own pace. Instead, during the treatment, he assumed that all students would have access to digital devices, and there would be no learner with special needs or interests, as can be seen from excerpt 41.

They are supposed to have a laptop, a mobile phone, and internet connection to create, share and publish the works they will be studying on. . . Students are assumed not to have any disability or special interest; that is, they are all obligated to complete the same tasks with the same objectives, but they can add their creativity and opinions on it. (Ege, Excerpt 41, Assignment, January 2021)

For the sub-area of Actively engaging learners, Ege stated that he learned how to use digital technologies to increase learners’ active and creative engagement with English. The analysis of his assignments supported his arguments. In one of his

assignments, he wrote that teachers could ask their students to create their own blog, design an online questionnaire to gather data, and use mind mapping tools, such as SimpleMind, to organize their thoughts. He also stated that teachers could ask students to use ChatterPix to take photos and record their voices while giving information about themselves. He believed that such voice-recording tools could be especially encouraging for students who are mostly silent in class to produce creative expressions in English.

4.2.3.3 After the treatment

Ege's second lesson plan was designed for hypothetical seventh-grade students studying at a private school. The theme of the lesson was chocolate, and the target skill was extensive and intensive reading. Students were expected to have basic browsing skills on the internet. It was also assumed that they had enough knowledge about sentence construction and cohesive devices, which would help them grasp the meaning of a text. At the end of this 40-minute lesson, students were expected to use digital tools to gather information and present their ideas, improve their micro and macro reading skills to understand the gist of the text. Scanning the text to find relevant information, making inferences, and reaching a conclusion were other objectives highlighted in the plan. The digital technologies Ege integrated into his lesson plan were AnswerGarden, YouTube, Kahoot, Quizlet, and ChatterPix. Suggested tools to be used in the homework were Padlet, Lucidchart, and Popplet.

The lesson starts with a pre-task in which students are asked to go to AnswerGarden using the link and write down the first word that comes to their minds when they think of chocolate. Students' responses are reflected through the projector, and students look up the unknown words on the screen. Then, as the pre-reading

activity, students watch an informative video about chocolate so that their schemata can be activated, and they can be more prepared for reading the text. Having watched the video, the teacher distributes a short reading text about the story of a person who eats too much chocolate. Students skim the text to understand the gist of it. Then, they take a Kahoot quiz with inferential questions about the text. After taking the quiz, students scan the same text again to identify the main idea and supporting details. Following this activity, students are sent a Quizlet link to match the main ideas of each paragraph with their numbers. For the post-reading task, students are divided into groups of four, and they discuss some questions about how to overcome an addiction. Then, one student from each group reports their ideas related to the questions using the voice recording feature of ChatterPix and uploads their voice recordings to the Google Drive folder of the class. For homework, students are asked to read a story or news about some food they are addicted to, even though they know that it is unhealthy. Then, students create a visual organizer to be discussed in the next lesson, using Padlet, Lucidchart, or Popplet to summarize the main ideas and what they have learned from the text.

As for the competence area of Digital resources, Ege received 3 for selecting appropriate digital resources for the student-centered teaching approach he adopted, lesson objectives, teaching context, target learners' age, and proficiency level. For instance, he expressed that he preferred to use AnswerGarden to activate learners' schemata. Although he physically produced all the learning tasks using digital tools and provided the necessary links, Ege did not explain how he would share these links with the students in the classroom. In other words, he did not use a virtual bulletin board or a cloud storage service to make the links available. Therefore, he received 2 for the sub-competence of Sharing digital resources. Similarly, he obtained 2 in the

category of Copyright rules, as he could not attribute all the digital resources in his lesson plan appropriately.

In terms of Teaching sub-competence, he received 3 because the lesson plan was applicable in the classroom. As stated in his lesson plan and reflection paper, digital tools, such as Kahoot, were used to monitor students' behavior in the classroom and offer help when needed. Thus, his score in the sub-competence of Guidance was 2. Concerning the category of Collaborative learning, he received 2 because the impact of the digital technologies on students' collaboration and communication was rather limited. Gamified digital quiz-generating tools (Kahoot and Quizlet) and audio-recordings in ChatterPix would support self-regulation of learning. However, Ege did not design the tasks in a way that students could reflect on their performance based on the recordings or the quiz results. Therefore, he received 3, instead of 4, for the sub-area of Self-regulated learning.

Ege received 4 for the category of Assessment strategies as students' reading comprehension was planned to be assessed through digital quizzes and a digital mind mapping task. Concerning the sub-area of Analyzing digital evidence, he received 3 for generating digital evidence to monitor students' progress within and outside the learning session. He planned to offer feedback on students' overall performance by looking at the results of the Kahoot quiz. As this type of feedback is not personalized nor targeted enough, his score for the sub-competence of Feedback was 2.

Ege did not ensure the accessibility of the digital resources for all learners, and those with special needs or limited access to digital resources can only be included in some tasks; therefore, he received 2 for the sub-competence of Accessibility and inclusion. As for Differentiation and personalization, he received 2 because although he offered students different digital tools to create their mind maps

for the next class, the task itself remains the same irrespective of students' needs or interests. The digital technologies in the lesson plan were adequately used to facilitate learners' active and creative engagement with English. For this reason, he received 3 in the sub-areas of Actively engaging learners and Creative engagement with English.

Overall, when the two lesson plans were compared, it was seen that Ege managed to receive 3 again in the following areas in which he already met the expectations in the first lesson plan: Selecting digital technologies considering learners' age, proficiency level, and the teaching context, Teaching, and Assessment strategies. Furthermore, his second lesson plan met the expectations in the categories of Selecting digital resources considering the lesson objectives and the teaching approach adopted, Actively engaging learners, and Creative engagement with English. The analysis of his reflection paper also corroborated these findings. His main concern before the study was to choose digital tools that are easy to use, free, and familiar. After the treatment, he underlined that he focused more on choosing digital technologies that would meet the needs of target students and target English language skills.

Although Ege's perceived competence was C1 according to the survey results, he could not meet the expectations in his second lesson plan by receiving the same score (2) in the sub-areas of Sharing digital tools and Copyright rules. Despite his slightly higher scores in the sub-competences of Guidance, Collaborative learning, Accessibility and inclusion, and Differentiation and personalization, he was not at a satisfactory level of digital competence in these areas even after the study. As excerpt 42 indicates, Ege did not ensure the accessibility of digital resources for all learners, including those with special needs, because he did not consider this

factor while planning the lesson. He claimed that he would take this issue into consideration when teaching real students.

I think students with special needs would not have problems with the tasks in general. However, if I had some students with special needs, such as visually impaired students who could not read the text, I would be aware of this situation beforehand. I would need to prepare personalized materials for this learner. (Ege, Excerpt 42, Reflection, February 2021)

I do not think that I have enough pedagogical knowledge in ELT because pedagogical knowledge is more than academic knowledge that you can receive by reading coursebooks. As a teacher, I need more practical knowledge and experience because teaching is not as easy as described in our books. (Ege, Excerpt 43, Semi-Structured Interview, February 2021)

Excerpt 42 shows that Ege did not feel the need to suggest an alternative to address learners' special needs, as he did not plan the lesson plans to teach in an actual classroom environment. As can be seen from excerpt 43, Ege complained that pre-service teachers were not given enough practical opportunities during their teacher training. Therefore, he believed that he needed more practical experience before graduating from the department to design better lesson plans.

4.2.4 Selin's case

4.2.4.1 Before the treatment

Selin's first lesson plan targeted state school students in the 11th grade. The intended learner profile was intermediate-level students who could use active and passive forms in the simple and past tense. The classroom size was 21, and the allocated time for this lesson was 40 minutes. The topic of the lesson was sacred places from around the world. Speaking and listening were the target language skills. She expected students to be familiar with different sacred sites in the world, practice active and passive forms in the present and past tenses, create a brochure about the topic in groups, and form a mind map using the information they learned from the

main task at the end of the lesson. The lesson was designed for face-to-face education. The necessary materials for this lesson were tablets provided by the school, a computer, a projector, and some cue cards. The digital tools integrated into the lesson were as follows: Kahoot, Mentimeter, Articulate Storyline, PowerPoint, and Microsoft Word.

After a brief introduction about the topic of the lesson, students go to Mentimeter and write down what they already know about sacred places to create a word cloud. The answers are seen as they pop up through the projector. Then, students elaborate on their answers by raising their hands to express their opinions. For the main task, students pick a paper from a box, and they find their group mates to form groups of three. The name of a sacred place with general information is written on each cue card. The teacher asks students to use their tablets to collect more information about these places. With the information they gathered from the internet, students design an informative brochure using PowerPoint or Microsoft Word. Then, each group presents their brochures using the projector in the classroom. After that, students create a mind map of all sacred places introduced in the main task using an A4 paper. Then, students exchange their mind maps with others. The lesson ends with a Kahoot quiz about the sacred places covered in the lesson. The teacher displays the questions through the projector, and students use their tablets to answer the questions. The winner chooses the song that the class will listen to in the next lesson. As homework, students are asked to create a new brochure on white paper to introduce a different sacred place in the world.

Concerning the area of Digital Resources, selected digital technologies partially support the objectives of the lesson and target language skills, which were stated as speaking and listening. Therefore, Selin received 2 for choosing digital

tools that align with the target skills and lesson objectives. As the digital tools integrated into the lesson were appropriate for the teaching context, she received 3. For the suitability of the selected digital technologies for target learners' age and proficiency level, her score was 4. She reported in her reflection paper that the teaching pedagogy she adopted while planning the lesson was student-centered pedagogy. In line with this approach, she argued that she used different methods, such as brainstorming, discussion, and small group tasks. Since the digital technologies in the lesson plan support the instructional method, she was given 3. Although she provided a working Kahoot link and explicitly stated how to share it with students, the link to the Mentimeter activity did not work. Furthermore, she did not clearly explain how the teacher and students would share their brochures in the classroom. Considering these, for the sub-competence of Sharing digital resources, her score was 2. For the category of Copyright rules, she received 1, as she did not give references to any of the digital resources in her lesson plan.

Selin received 2 concerning the sub-competence of Teaching as her lesson plan was not ready to be implemented in a real classroom. Since some of the links she shared did not work, it can be argued that she did not adequately plan the use of digital tools in her lesson plan. Moreover, she did not use digital technologies to monitor student behavior and offer support and guidance to students in the classroom. For this reason, the score she received from the sub-area of Guidance was 1. Students are asked to work collaboratively to do research using their tablets and design and present their brochures; therefore, she received 3 for the sub-area of Collaborative learning, which indicates an adequate competence in using digital technologies to foster collaboration among learners. The score she received from the

category of Self-regulated learning was 2 because she incorporated Kahoot in her lesson to allow students to check their understanding of the topic.

For the sub-competence of Assessment strategies, Aslı received 3 for designing a Kahoot quiz through which students' overall understanding of the topic could be assessed. Moreover, she used Mentimeter and Kahoot to monitor students' activity and performance in the classroom. Therefore, in terms of Analyzing digital evidence sub-competence, her score was 3. Since she did not plan to select and analyze the generated digital evidence, she could not receive 4 in this category. As for the sub-area of Feedback, Selin argued in her reflection paper that she preferred to use Kahoot for its affordances for assessment and feedback. The score she received from this sub-area was 2 because she used Kahoot to provide learners with instant feedback about the accuracy of their responses.

Regarding the sub-area of Accessibility and inclusion, she neither considered potential accessibility issues nor provided alternatives for learners with special needs in her lesson plan. She assumed that all students would have their tablets provided by the school, and they would work together by sharing a tablet when needed. Since she did not ensure the accessibility of digital resources for all learners, she received 2 in this category. She did not plan her lesson in a way that students could be offered different paths to learning. She pointed out in her reflection paper that she used Mentimeter to encourage shy students who remain silent in whole-class or group discussions to participate. For these reasons, her score for the sub-area of Differentiation and personalization was 2. Concerning the categories of Actively engaging learners and Creative engagement with English, she received 4, as she planned to have students take a gamified quiz, do research on the internet, and create a brochure based on their research using their tablets during the lesson.

In brief, Selin was competent in terms of selecting digital tools considering target learners' age, proficiency level in English, teaching context, and pedagogical approach at the beginning of the study. However, she needed to improve herself in selecting digital technologies that would match the lesson objectives and target language skills. Similarly, she was adequately competent in designing technology-enhanced collaborative to increase learners' active and creative engagement with English. She was also competent enough in using digital tools to monitor and assess learners' activity and performance in the classroom.

The analysis of her first lesson plan revealed that Selin was not sufficiently competent in the following sub-areas of the DigCompEdu before the study: Sharing digital resources, Copyright rules, Teaching, Guidance, Self-regulated learning, Feedback, Accessibility and inclusion, and Differentiation and personalization. Furthermore, she did not adequately plan how she would share digital resources with students and implement digital tools in a classroom. It could be said that she did not know how to apply copyright rules properly because she could not attribute the digital resources listed in her lesson plan. Likewise, she did not seem to be competent in designing differentiated and inclusive lessons using technology. These findings were in line with the analysis of her reflection paper. She reported in the paper that she paid attention to selecting easy-to-use digital tools that would help her save time while teaching a topic in the classroom, rather than considering how these tools would be used to address target learners' potential needs in English lessons.

4.2.4.2 During the treatment

The data gathered from her assignments, reflection papers, and the interviews during the term were generally related to the area of Digital Resources and its sub-areas,

while there were sporadic references to the other areas. In her assignments and reflection papers, Selin stated that she considered the following criteria while selecting and evaluating digital resources: learner group (e.g., proficiency level, age, interests, learning styles), content (e.g., interesting, authentic, relevant), input and output opportunities (e.g., meaningful, comprehensible, linguistically rich), methodology (e.g., communicative and collaborative learning), and opportunities for self-monitoring and learners' progression at their own pace. As can be seen from excerpt 44, it was a new and positive experience for her to evaluate a digital tool before using it for English instruction.

I have never made such a detailed evaluation of materials before, truth to be told. I generally take a look over the material and decide whether I can use it, with some adaptation or no adaptation. For now, I do not feel the need for such elaborated evaluation as I am only a tutor. However, if I become a teacher at a school someday, I will definitely make this kind of detailed evaluation of the materials I plan to use in my classes. It is important because you get to see what the material includes and decide whether it needs some adaptation. You see whether the technological tools are easy to use in class thanks to elaborate inspection. You also become familiar with the material, which will probably help you feel relaxed while using it during the lesson and deduce whether the material is really useful for your class, or it is incompetent or too complex. (Selin, Excerpt 44, Reflection, December 2020)

Towards the end of the semester, when she was asked how she selected digital tools in her MAPP assignment, she stressed that she mainly focused on whether the objectives of the tools are in accordance with the stages of Bloom's taxonomy.

Regarding the sub-area of Creating and modifying digital resources, Selin created various education materials using digital tools, such as ThingLink, Canva, Popplet, and PlayPosit, during the treatment. She argued that while creating digital resources, she looked through the eyes of students and tried to design materials that were fun, interesting, motivating, and easy to use with simple interfaces. One of her main concerns, which was more directly related to ELT, was to teach grammar in context using ThingLink. Similar to the points raised above, Selin pointed out that

while modifying resources, her intention was to make the content more fun, diverse, authentic, challenging, motivating by increasing the opportunities for meaningful output. She emphasized that she also considered the learner profile (e.g., proficiency level) and methodology while adapting the instructional material.

In terms of the category of Sharing digital resources, the data was rather limited. Selin once said that she made the material she designed public because she wanted everyone to learn some facts about South Korea. As for the category of Copyright rules, she admitted that she did not consider this while creating learning material using ThingLink.

I did not pay attention to copyright issues. I typed South Korea into the search engine and copied and pasted the first map with the cities I wanted. I did not know that I had to follow copyright rules while creating teaching tasks. (Selin, Excerpt 45, Semi-Structured Interview, December 2020)

Similarly, there were no data related to the sub-competence of Guidance during the treatment. For the category of Self-regulated learning, except for an assignment she worked with Aslı, she did not express her opinions in this respect. In terms of the sub-competence of Teaching, Selin commented about the importance of using digital technologies to reach students who are already competent users of them. She highlighted that she could foster implicit English language teaching using digital technologies.

Students can practice some vocabulary items and grammar structures while watching videos, playing games, reading online texts, and listening to digital materials in English lessons. I think such digital resources are very useful for fostering implicit language teaching and learning. (Selin, Excerpt 46, Reflection, December 2020)

Regarding the sub-area of Collaborative learning, Selin reported that one of the things she considered important when choosing digital resources was whether they allow communicative and collaborative language learning. However, there was no other data about this sub-competence during the treatment.

While she did not explicitly focus on assessment and feedback in her individual assignments and reflection papers, in those she worked with Aslı, they gave an example of how digital technologies can be used for the categories of Assessment, Analyzing evidence, and Feedback in English classrooms.

We wanted to give more opportunities to the teacher to monitor the students' outputs. In the activities, there were already some speaking activities, but as they were mostly occurring in pairs, we thought that it created some challenges for the teacher. In order to solve this problem, we created a Wizer.me worksheet where the students are expected to record their voices during the speaking part. That way, the teacher will be able to listen to those recordings, analyze them properly, and give their students feedback. (Selin & Aslı, Excerpt 47, Assignment, November 2020)

The data analysis showed that the only sub-area of Empowering Learners where Selin did not focus on during the study was Accessibility and inclusion. As for the sub-area of Differentiation and personalization, in the assignment she worked with Aslı, they expressed that digital technologies can be utilized to differentiate speaking-focused activities for students with high affective filters.

Sock Puppets (and ChatterPix) is a great tool for role plays, and I thought that instead of forcing my students to speak in the classroom, making them record their voices could be especially to the advantage of shy students with a high affective filter in the class. Also, due to the visual input and design of the tool utilized, I believe that this activity might help us include students with lower motivation levels into our class by sparking their attention. (Selin & Aslı, Excerpt 48, Assignment, February 2021)

Finally, as for the sub-area of Actively engaging learners, Selin argued that teachers could increase learners' activity and participation by integrating digital technologies into their lessons.

We need hard copy materials as well. However, nowadays, most students are digital natives. It tends to be more interesting when technology use is integrated into the class. I suppose that playing instructional games and completing tasks via tech tools help teachers get students to participate in activities. (Selin, Excerpt 49, Reflection, December 2020)

4.2.4.3 After the treatment

Selin planned her second lesson plan for hypothetical intermediate-level 10th-grade students attending a state school. The topic of this 40-minute lesson was digital habits across generations. The intended class size was 20. She assumed that her target students had knowledge of the present simple and continuous tenses. The overall objectives of the lesson were for students to offer solutions to excessive use of technology and to practice present simple and present continuous tenses. The lesson integrated all four language skills, but she emphasized that the main skill focused on in the lesson was reading. She listed the necessary materials as tablets with a stable internet connection and a smartboard in the classroom. The digital tools used in the lesson were as follows: Padlet, Google Docs, Google Drive, VoiceThread, and Google Forms.

After greeting the students, the teacher starts the lesson by asking who uses technology the best in their extended family. Students, working individually, share their answers on the Padlet page created by the teacher. As the students' answers appear on the screen, the teacher reads them aloud. Then, the teacher shows students a picture of family businesses across generations and asks them to describe what they see in groups of four. While students are completing the assigned task, the teacher wanders around the class to listen to their discussions in English. For the main task, students skim a text relevant to the topic on Google Docs and write the gist of the text on a piece of paper. Then, students exchange their papers with desk mates and compare their answers. Following this pair-work activity, students are divided into groups of four, and each student randomly chooses a paper on which different characters from the text are written. They reread the text altogether, and everyone acts out their parts. While they are reading aloud the text playing their roles, they

record their voices using VoiceThread. Students upload their VoiceThread links to the folder on Google Drive shared by the teacher. For the post-task, students are sent a Google Form link via email and fill out the form, including self-assessment questions about the post-task. The teacher ends the lesson by asking students to list what they could do to decrease the time they spend using technological tools and increase their family time in the form of a blog post.

The data analysis revealed that the digital technologies Selin used in her lesson were aligned with her lesson objectives and teaching context; therefore, she received 3 in these categories. The selected digital resources were quite suitable for the age and proficiency level of the students; that's why she was given 4 in these categories. Although she stated that she selected and created digital resources to support cooperative learning, the digital technologies used only partially supported this pedagogy in the main task; thus, she received 2. For the sub-area of Sharing digital resources, she did not share all the links to the learning activities, and she could not adequately explain how some of the digital resources would be shared with students in the classroom. Therefore, she received 2 in this sub-competence. Concerning the category of Copyright rules, she provided some of the links to the digital resources in her lesson plan, but she did not attribute them. Therefore, she received 2 in this category, which would indicate that "she was aware of the copyright rules but cannot attribute open digital resources properly."

In terms of the sub-area of Teaching, Selin's lesson plan is not ready to be implemented in a classroom because she did not produce all the teaching tasks using digital tools. For instance, she planned to have students write a blog post and post it, but she did not specify where they would post their writings. Consequently, she received 2 in this category, which means that the lesson plan was not complete yet.

She did not use technology to monitor students' behavior in the classroom or offer guidance when needed. Therefore, she received 1 for the sub-area of Guidance. The digital tools she used did not directly support the communication and communication among learners. For this reason, her score for the sub-area of Collaborative learning was 2. Regarding the sub-competence of Self-regulated learning, students are expected to record their voices using VoiceThread, but the task does not go beyond that by asking students to reflect on their performance based on the recordings. Students are also sent a Google form for self-assessment, but she did not produce the form to send it in a real classroom. Taking these into account, she received 3 instead of 4 in this category.

Regarding the area of Assessment, she received 3 in the sub-categories of Assessment strategies and Analyzing digital evidence. Although the lesson plan includes a self-assessment form, she did not physically produce it using Google Forms. As stated in her reflection paper, she planned to assess each student's performance according to the digital evidence (i.e., voice recordings) gathered from VoiceThread. However, neither in the lesson plan nor in her reflection paper, she explicitly stated that she would give feedback to learners after analyzing the audio recordings. It might be argued that she did not adequately plan how to offer feedback using digital technologies; thus, her score in the sub-area of Feedback was 2.

Selin assumed that students would have access to tablets in the classroom or visit the computer laboratory if needed. She argued that she designed group activities to allow learners to work together by sharing the tablets. Considering these, regarding the sub-area of Accessibility and inclusion, she received 2 for partially considering students' access to digital resources. Selin's reflection paper analysis revealed that she integrated Padlet into her lesson plan to allow students to post

anonymous entries. She stated students who could not express themselves orally could also be a part of her lesson. Therefore, it can be said that she partially used digital technologies to differentiate the lesson and received 2 for the sub-area of Differentiation and personalization. Moreover, she integrated some digital tools, such as VoiceThread, Google Drive, and Padlet, into her lesson plan to enhance learners' active engagement with English in the classroom. Hence, she received 4 for the sub-area of Actively engaging learners. As for the category of Creative engagement with English, she received 3 for adequately utilizing digital technologies to give learners a chance to write creative expressions in English in the pre-and post-tasks.

Compared to her first lesson plan, Selin received higher scores in terms of selecting digital tools that support the lesson objectives and target language skills. Similarly, she received higher scores in the categories of Copyright rules and Self-regulated learning. Although she still could not attribute all digital resources correctly, she provided references for some of the digital resources in her plan, which suggested her increased awareness of this issue. She managed to get satisfactory scores again in the following sub-areas: Assessment strategies, Analyzing Evidence, Actively engaging learners, and Creative engagement with English. Nonetheless, her score in the sub-areas where she was expected to improve her competence after the study remained the same as her first lesson plan, and these were as follows: Sharing digital resources, Teaching, Feedback, Accessibility and inclusion, and Differentiation and personalization.

Contrary to expectation, she received lower scores in the categories of Collaborative learning and Selecting digital resources that align with her pedagogical approach. Excerpts 50 and 51, which were gathered from her reflection paper and the

one-on-one interview conducted at the end of the term, revealed that she was aware of the fact that her digital competence was still not at an adequate level.

I did not think about learners with special needs while planning the lesson. I think that I still do not have this competence. I imagined a regular classroom without any learners with special needs and designed my lesson accordingly. I should pay more attention to this situation. (Selin, Excerpt 50, Reflection, February 2021)

Thanks to the hands-on tasks during the class and other assignments, I learned many digital tools. These tasks helped me understand that technology could serve as a tool in addition to being a teaching material. I thought about how I could use these tools in my language classes; thus, they were useful. However, I believe I need more practice in terms of using these tools most effectively. I need to develop my digital competence by preparing more lesson plans. For example, Bloom's taxonomy helped me a lot while planning my lessons, but I feel like I need more practice in planning lessons. Therefore, I can say that I am more confident about using digital tools in teaching. I mean, I am a little more digitally competent, but I still feel inadequate. (Selin, Excerpt 51, Semi-Structured Interview, February 2021)

In contrast with the survey results and her initial remarks, the analysis of her lesson plans indicated that Selin did not sufficiently improve in the area of Teaching and Learning. Although the performance tasks gave Selin the chance to become more familiar with a range of digital tools and design short learning activities using these tools, it was not enough for her to learn how to integrate digital technologies into her lessons effectively. She reported that more lesson planning tasks should have been assigned to help her increase her digital competence in practice.

4.2.5 Aslı's case

4.2.5.1 Before the treatment

Aslı planned her first lesson for hypothetical fifth-grade students studying at a private school. Her target students were at the B1 level of English proficiency, and they were assumed to know basic vocabulary related to jobs. The theme of this 40-minute lesson was professions. The target grammar structure was modal verbs of

obligation. As for the objective of the lesson, she stated that students should be able to use the modal verbs of obligation appropriately in the given context. The technological tools she incorporated in her lesson were Mentimeter, Wizer.me, and Padlet. The lesson was designed to be delivered in a physical classroom. The necessary materials for the lesson were stated as smartphones and a smart board.

After the greetings, students are asked what they want to be in the future in the lesson plan. Then, the teacher sends a Mentimeter link and tells students to write three jobs that interest them. As students' responses appear on the screen, the teacher asks some questions, such as "What does a teacher do?" Then, the teacher writes some sentences on the board using modal verbs, such as "Teachers do not have to wear a uniform." Then, students are divided into pairs for the main task and told to log in to Wizer.me. Then, students start to play a game in which they think of a job and give hints to their pairs using modal verbs to help them guess the job in their minds. They record their conversations using the recording feature of the website and submit the recordings to the same page. Students are expected to form sentences like "In this job, you must stay for night shifts" while giving a hint. They continue to play the game, taking turns until their partners can find the correct jobs. As part of the post-task, students go to Padlet and write sentences about their responsibilities at home using models, such as "I must keep my room clean." Then, the teacher reads aloud the sentences on the Padlet page and makes necessary corrections. As for homework, students are asked to write down ten sentences about their responsibilities as students, using the modal verbs introduced in the lesson.

The analysis suggested that Aslı was relatively competent in the area of Digital Resources before the study. She received 3 for selecting digital tools that are in line with the lesson objectives, learning context, intended learners' age, and

proficiency level. She reported in her reflection paper that she planned her lesson plan according to the CLT approach. Since the digital technologies she used in her lesson plan did not directly support CLT, she received 2 in terms of the match between her use of technology and the pedagogical approach adopted. In her lesson plan, she did not provide learners with any links or codes to access the activities or explain how she would share them with students in the classroom. Because of that, she received 1 in the sub-area of Sharing digital resources. Likewise, she received 1 in the category of Copyright rules, as she did not give references in the lesson plan.

Aslı described how she would use digital technologies in different stages of the lesson plan, but she did not physically produce the activities and teaching materials. In other words, the lesson plan is not ready to be implemented in a classroom, which caused her to receive 2 for the sub-area of Teaching. She did not integrate digital tools into the plan to guide and support students. Therefore, her score in the sub-area of Guidance was 1. As for the category of Collaborative learning, she received 1 because she did not use digital technologies to support communication or collaboration among students. For the sub-competence of Self-regulated learning, she received 2 considering that students are expected to record their voices while speaking in the main task. However, she did not emphasize that the recordings would help students assess and reflect on their performance in the plan or reflection paper. Thus, she did not receive higher scores in this sub-area.

Aslı stated that she planned to assess students' activity and performance during the lesson and provide them feedback with the help of Padlet and Wizer.me. Also, she designed the learning tasks accordingly in her lesson plan. For this reason, Aslı received 3 in the sub-areas of Assessment strategies, Analyzing evidence, and Feedback.

Regarding the sub-area of Accessibility and inclusion, she received 2 because students who do not own a digital device or those with special needs can somewhat be involved in one task. In terms of the sub-competence of Differentiation, as she also stated in her reflection paper, Aslı used digital tools that support multisensory input for different types of learners; therefore, she received 2 in this sub-area. Since her lesson did not offer any alternative paths to learning, she was not considered competent enough in this sub-competence. The digital technologies integrated into the lesson, such as Wizer.me, and Padlet, adequately support students' active engagement in the classroom by allowing them to record their voice and publish a short post. Therefore, she was considered competent enough and received 3 in the sub-competence of Actively engaging learners. As for the category of Creative engagement with English, her score was 2, considering that the use of Padlet in the post-task partially enhanced students' creative expressions during the lesson. Since the digital technologies selected were not directly used to make learners create a product in English, she did not receive a better score in this category.

The analysis of her first lesson plan revealed that Aslı was relatively competent in the area of Digital Resources, except for implementing digital technologies that support the pedagogical approach adopted. Likewise, based on the lesson plan analysis, it can be argued that Aslı was adequately competent in the area of Assessment at the beginning of the study. On the other hand, she got low scores in the areas of Teaching and Learning and Empowering Learners. Therefore, it could be inferred that she needed more training in these areas of digital competence before the treatment. The analysis of her reflection paper on this lesson plan supported these findings. Although the survey results suggested that she was an Expert (B2), she reported that this was her first lesson plan that she designed by herself; thus, it was a

challenging experience for her. She stated that she needed to learn how to design a technology-enhanced lesson plan. Moreover, she admitted that she did not consider learners with special needs, as she thought that the main goal of the lesson was to integrate digital tools into the lesson effectively. She assumed that target learners might be involved in the tasks to some extent with the help of their partners if she delivered this plan in a classroom. However, she also argued that she would pay more attention to how to plan more accessible and inclusive lessons in the future.

4.2.5.2 During the treatment

Aslı argued that she felt more confident in the sub-area of Selecting digital resources during the study thanks to the assignments. In her reflection paper, she wrote that the CALL evaluation assignment helped her switch her perspective from a student to a teacher. Besides, as a teacher, she became more conscious of the weaknesses and strengths of digital resources before utilizing them in teaching.

Thanks to this assignment, I could look at Duolingo and investigate it not only as a student but as a teacher. While I was analyzing the app, I was also thinking about ways to make it more engaging and effective. I could see its defects better and come up with solutions to those weaknesses. After all, there is plenty of software and tools available to us thanks to the internet. They all have their own functions, advantages, and disadvantages. In my opinion, it is important to know the affordances of those tools because this way, we can plan how we can direct and use them to make our lessons more engaging and effective for our students. Once again, I appreciated how challenging it is to produce effective materials that assist language learning. As teachers, we have to consider every aspect separately. I have to admit that this was a challenging assignment, but I feel that it was quite beneficial at the same time. (Aslı, Excerpt 52, Reflection, December 2020)

She listed the factors she considered while evaluating and selecting digital resources as follows: target learners, target language skills (e.g., speaking), methodology (e.g., whether the activities are based on SLA theories or research), learning objectives, practicality (e.g., easy-to-navigate, simple interface, time-efficient), types of input

and output (e.g., authentic), opportunities for assessment and feedback, content (e.g., interesting, motivating), interactivity (e.g., multimedia). In other assignments that required her to evaluate and select digital tools to design learning activities, she continued to pay attention to these criteria. However, she underlined that she learned to question whether the objectives of the digital technologies she used were suitable for the stages of Bloom's taxonomy.

Although Aslı was able to determine criteria for assessing and evaluating digital resources, it was identified that she could not do the same for creating a digital learning activity on ThingLink with a partner. She expressed that they only focused on how to design an interactive language task for learners and forgot to consider the factors stated above.

Unfortunately, there were not any pedagogical approaches about ELT in our minds while we were creating it. We made a big mistake here. It really came to our minds at the last moment. We finished everything, and then I realized that we did not think about it. It should have been the opposite. . . First of all, we should have determined a learning profile, proficiency level, selected a topic and designed the activity accordingly. However, we made a mistake by choosing an image first and focusing on how to make it interactive. The thing that should have been done in the first place was done at the very end of the task. (Aslı, Excerpt 53, Semi-Structured Interview, December 2020)

As for the adaptation of the existing materials, Aslı argued that doing a hands-on material adaptation task allowed her to realize that technology should only be integrated when it makes a difference in language teaching and serves a goal that cannot be reached otherwise. She expressed that she tried to adapt the activities to make them less repetitive and more entertaining and interactive for learners. Despite keeping these in mind, she reported that her attention was mainly on learning objectives and methodology while adapting.

Actually, I did have an idea about adaptation before the assignment since we had covered the subject in our class. But putting that knowledge into practice was something else. I guess one of the most common mistakes that we make when making an adaptation like this is not being able to focus on a goal. We

are supposed to make adaptations to make the process more interactive and effective, but I guess sometimes we focus only on integrating technology and multimedia into the lesson, and we forget to consider if those adaptations make a difference from print material or not. I experienced this a few times while doing the assignment, and I think it is something to keep in mind. During the assignment, I learned how to pay attention to the learning objectives and methodology better while making adaptations to a material. (Aslı, Excerpt 54, Reflection, November 2020)

Regarding the sub-competence of Sharing digital resources, Aslı expressed that she started to pay more attention to privacy settings during the treatment. However, she reported that she had to change the visibility of the activity she designed on ThingLink to the public as she could not manage to share it in another way. In other words, she was still hesitant towards her technical skills while managing or sharing digital resources.

You can put your work in a private folder on ThingLink, and only the people you give permission can see it, but I could not do it. I am not extremely good at using technological tools. That is why I made it public while sharing. (Aslı, Excerpt 55, Semi-Structured Interview, November 2020)

During the study, Aslı did not cite the digital resources she used. Instead, she only provided the links to some articles. When asked if she considered copyright rules while creating digital activities that included images and videos, she argued that she was aware of the rules but forgot to apply them.

I am also an amateur painter; thus, I was aware of the fact that I needed to give credits for the illustrations I used in the learning task I designed. However, I forgot to do that while doing the assignment. (Aslı, Excerpt 56, Semi-Structured Interview, November 2020)

Aslı's comments in the area of Teaching and Learning were mostly related to the sub-competence of Teaching. She emphasized that she could design teaching tasks for learners to practice English skills. In excerpt 57, she reported how she could use digital tools for grammar instruction.

While teaching grammar, I can provide learners with a ThingLink where they can learn about Van Gogh's life and his most important paintings. Then, I can ask students to choose one of the paintings there and record their voices

talking about it. I can also ask them to make an informative video on the topic. (Aslı, Excerpt 57, Semi-Structured Interview, November 2020)

Regarding the sub-competences of Collaborative learning and Guidance, it was identified that Aslı did not comment about her competence or experience in these sub-areas during the treatment. Likewise, there were no data on the sub-competence of Self-regulated learning in her individual assignments and reflections. In the MAPP assignment she completed with Selin, they reported that they could encourage learners to work individually with flashcard applications for self-assessment.

Quizlet trains students via flashcards and various games and tests. It has different study modes such as flashcards, gravity, write, speller, match, and live. . . For instance, in the previous lesson, the professions were instructed. Instead of doing a plain review of the vocabulary, students may challenge themselves to see whether they can actually spell the word correctly or not. This activity will help students remember prior knowledge and refresh their memories. (Aslı & Selin, Excerpt 58, Assignment, January 2020)

Considering the area of Assessment, Aslı reported that she gained experience in using Wizer.me to assess students' speaking skills. She also stated that she could use the same website to give targeted and comprehensive feedback to her students.

I have been using a website named Wizer.me. I used it in my lesson plan too. What I like about it is that students can record their voices and upload their voice recordings there. As a teacher, I see and listen to their recordings on their pages, analyze them, and provide learners with detailed feedback about their pronunciation or accuracy. (Aslı, Excerpt 59, Semi-Structured Interview, November 2020)

As for the sub-competence of Accessibility and inclusion, while discussing the advantages of digital technologies for English language education, Aslı underlined the necessity to integrate technology into teaching to meet the needs of learners with special needs. Although she has become more aware of the potential of digital technologies for this purpose, she has not yet been able to put her increased awareness into practice through performance tasks.

The use of technology can even be obligatory to reach learners with special needs nowadays. However, I am not sure how I can reach these people or

how much I can think about them while planning lessons or in general. (Aslı, Excerpt 60, Reflection, November 2020)

In terms of the sub-area of Differentiation and personalization, the data analysis showed that Aslı focused only on how she, as a language teacher candidate, can differentiate her lessons by incorporating multimedia. As can be seen from excerpt 61, she argued that students could be provided with authentic language input through multimedia.

There are many more advantages and facilities of the use of technology in especially SLA. This way, we can make our lessons more efficient for learners with different learning styles by using multimedia, and it also helps us provide our students with authentic input. (Aslı, Excerpt 61, Reflection, November 2020)

Aslı, with her assignment partner Selin, reported how they used digital technologies in their assignments and redesigned the activity to actively engage learners and integrate higher-order thinking skills (see excerpt 62). Also, they suggested further activities they can implement in lessons as a teacher candidate to make their target students more active in the classroom. For instance, they stated that they could ask their students to design a poster about air or water pollution using Canva or create videos and animations related to these topics.

Just preparing a list of products and prices does not seem to include higher-order thinking processes and is not quite engaging for the students. So, we restructured this activity in Wizer.me. . . We kept the budget planning part and made students prepare a list of things they want or need. . . We wanted students to work in pairs and compare their lists, and while doing so, record their conversations with the audio-recording tool that Wizer.me provides users with. (Aslı & Selin, Excerpt 62, Assignment, December 2020)

4.2.5.3 After the treatment

Aslı designed her second lesson plan for hypothetical seventh-grade students attending a private school. The target skill she focused on was speaking. The overall objective of the lesson was to use the first type conditional accurately in

communication. She assumed that these intermediate-level students had knowledge of the type zero and the type one conditional structures. The allocated time for the lesson was 40 minutes. The necessary materials were stated as smartphones and a smart board that was assumed to be available in the classroom. The digital tools integrated into the lesson were Kahoot, Canva (for presentation), and Spiral.

The lesson starts with a Kahoot quiz to test students' background knowledge about the first conditional before speaking-focused activities. Following this activity, the students are divided into groups of four to play a game. Then, students are shown a presentation on Canva, including the characters to be selected for the game. After students select their characters, the teacher explains how to play the game. Students imagine being in a hot air balloon that is too heavy to be able to carry everyone. Only one of the characters will survive, and they need to justify that they should be the person to stay in the hot air balloon. During the game, students form sentences in the first conditional. The sample sentence provided was as follows: "I should stay in the balloon because if I survive, I will educate other people." Each group is asked to vote for the person who should not stay in the balloon every five minutes, and the last person who manages to stay in the balloon is announced as the winner of the game. While students play the game, the teacher observes them, reminds them of the time, and helps them when needed. Then, each group announces the characters who stayed in the balloon and justifies their choice. For the post-task, students go to Spiral using the code they see on the screen. Then, students are asked which character they would choose if they had the chance to add another character to the balloon. The lesson ends with the teachers' brief review of the submitted answers.

Aslı wanted her target students to be able to use the first conditional actively and accurately while communicating with their peers. In other words, her primary

focus was on learners' speaking skills. However, neither Kahoot nor Spiral did not foster students' ability to communicate with each other through speaking-based activities. These tasks designed with these tools were planned to be completed individually. Besides, students were not expected to produce the target language orally. The main task, on the other hand, was designed as a speaking task through which students could produce oral language output. However, the role of digital technologies in this task was fairly limited. The Canva presentation was used to present the characters in the game to the students visually. Therefore, she could only receive 2 for integrated digital technologies that were slightly in line with the lesson objectives and the target language skill. Likewise, she was given 2 points for the match between her use of digital technologies and the pedagogical approach adopted (CLT). Although the use of digital technologies was not exemplary, it was appropriate in terms of the learning context, age, proficiency level of the targeted students; thus, she received 3 in these categories. As for the sub-competence of Sharing digital resources, she shared the links or codes needed to access the learning activities and adequately explained how she planned to share these links with her students in the classroom. Therefore, she received 3 in this sub-area. Like her first lesson plan, Aslı received 1 for the category of Copyright rules because she did not attribute the digital resources in her lesson plan.

Although the activities in her lesson plan do not build on each other very well, Aslı adequately planned the digital technologies to be implemented in a classroom. For this reason, she received 3 in the sub-area of Teaching. She did not state anything about using digital technologies to provide assistance and guidance to students inside or outside the class. Therefore, concerning the sub-competence of Guidance, she received 1 because the pre-and post-tasks were designed as individual

in her lesson plan. The only group task was the main task in which technology has no role in enhancing collaborative language learning. Thus, she received the same score (1) in her second lesson plan for the sub-area of Collaborative learning. The Kahoot quiz might help students notice the gap in their grammatical knowledge, but Aslı did not ask students to evaluate their performance or reflect on their progress. As the use of digital technologies partially supported self-regulation, she received 2 in the sub-competence of Self-regulated learning.

Concerning the sub-area of Assessment strategies, Aslı received 3, as she designed a digital quiz using Kahoot to help students check their overall understanding of the target grammar structure. In the lesson plan, she used Kahoot and Spiral to monitor the activity and performance of the students in the pre-and post-tasks. Thus, her score in the category of Analyzing digital evidence was 3. The use of digital technologies in the lesson plan was not considered optimal because she did not analyze the generated digital evidence. Regarding the sub-competence of Feedback, she received 2 for using Kahoot to ensure that students receive instant feedback on the accuracy of their answers.

In her lesson plan, Aslı assumed that all students would have access to their mobile phones in the classroom. In other words, she did not ensure the accessibility of digital technologies for all learners in the pre-and post-tasks. Thus, she received 2 in the sub-area of Accessibility and inclusion. In her reflection paper, she reported that the reason why she used Spiral instead of whole-class discussion was to include not only the students who raise their hands to participate all the time but also those who remain silent in speaking tasks. Therefore, it can be argued that she started to think about classroom dynamics and different types of learners. Although the way she thought was a good start, she still needs to develop her competence in this sub-

area (receiving 2). The next step would be for this participant to design a lesson plan in which learners are offered different paths to learning. Since she planned the use of Kahoot and Spiral adequately to increase students' motivation and active engagement with English in her lesson plan, she received 3 regarding the category of Actively engaging learners. In the post-task, she planned to use Spiral to encourage students to answer an open question. Therefore, she received 2 in the category of using digital technologies to foster her target students' creative engagement with English.

When her lesson plans were compared, it was seen that Aslı received the same scores in most sub-areas of the DigCompEdu after the treatment, which were as follows: Selecting and creating digital resources, Copyright rules, Guidance, Collaborative learning, Self-regulated learning, Assessment strategies, Analyzing evidence, Accessibility and inclusion, Differentiation and personalization, Actively engaging learners, Creative engagement with English. In other words, she did not make any progress in these areas after taking the course. The sub-areas in which her second lesson plan was considered more successful were Sharing digital resources and Teaching. This finding indicated that she was more competent in producing digital learning materials and making them available to learners after the study.

Contrary to the second survey results stating her level of competence as C1, she received a lower score in terms of choosing digital tools according to the lesson objectives. Excerpt 63 demonstrates that she was aware of the affordances of each digital tool and what they helped her achieve in the lesson plan. However, as can be seen from the same excerpt, she focused more on choosing practical digital tools that would draw learners' attention and make learning fun rather than considering whether these tools could help her achieve her lesson objectives.

I selected Kahoot to start the lesson since it would be a quick and fun activity that would spark students' interest. Then, I prepared my presentation for the main activity using Canva because it is a very useful tool that is easy to use. I especially designed it like a video game introduction. At the beginning of the lesson, Kahoot helped me activate students' background knowledge and help them recall the grammar structures that we have learned so far in an interesting way. Spiral helped me elicit answers from the whole class instead of making students raise their hands and only hearing the ideas of a few. Canva helped me make the instructions in the main activity more comprehensible. Besides, it provides students with professional and eye-catching visual input. (Aslı, Excerpt 63, Reflection, February 2021)

Aslı reported that her repertoire of digital tools expanded after taking the course, and she has become more competent in integrating digital tools into her lessons and making adaptations when needed. However, she believed that she still needs more time to develop her competence in planning lesson plans in which learning tasks build on each other seamlessly.

I am not completely content with my lesson plan, to be honest. I have been feeling uninspired, and I am not sure whether I could make smooth transitions in my lesson plans. I hope to get better at lesson planning in time. (Aslı, Excerpt 64, Reflection, February 2021)

The data gathered from Aslı during the study revealed that she has become more aware of how to use digital technologies in ELT, what to pay attention to while selecting digital resources, or design teaching materials that support learners' active and creative engagement with English. However, it could be argued that she could not transfer what she learned from the course to her second lesson plan. As stated in excerpt 64, she was also aware that her lesson plan was not at a satisfactory level. This situation might have resulted from the fact that, despite being a senior student, she did not take the third-year course, which focuses on how to teach the four English skills, before this study. The course allows student teachers to learn how to design skills-based plans and practice peer-teaching. By taking the ENGT416 course before the other course, she tried to design both skill-based and technology-enhanced lesson plans while she was not still competent in the former. Put differently, it would

not be realistic to expect her to be quite competent in integrating digital technologies into her lesson plans before she learns how to design effective lesson plans for language teaching in the first place. Therefore, it can be concluded that she should be given more opportunities to work on lesson planning tasks in the future.

4.2.6 Caner's case

4.2.6.1 Before the treatment

The target students of Caner's first lesson plan were hypothetical ninth-grade students at a state school. The assumed class size was 20, and students were expected to have a pre-intermediate level of English proficiency. The topic of the lesson plan was comparatives and superlatives. The overall objective of the lesson was for students to describe the world around them and make comparisons by appropriately using comparatives and superlatives. The lesson was designed to be delivered online via Zoom in 40 minutes. Necessary materials for the lesson were a textbook (PDF) and students' digital devices (laptop, tablet, or mobile phone). The digital tools integrated into the lesson plan were Whiteboard.fi, Wordwall, and LyricsTraining.

After the greetings, the lesson plan starts with a gamified Wordwall quiz. In this quiz, students see several sentences with blanks and choose the correct form of the comparative or superlative adjectives for the given blanks. After that, the teacher shares his screen and shows the drag-and-drop exercise on Wordwall. In this exercise, students practice irregular superlative and comparative adjectives by telling the teacher where each adjective should be placed in the activity. Following that, the teacher shares his screen again for students to see the textbook. Then, students take turns doing the activities in the book. As the post-activity, students go to Whiteboard.fi and work on another exercise about comparatives and superlatives

while their answers are monitored simultaneously by the teacher. Before they begin, the teacher writes the participating students' names to the website called Wheelofnames, and the randomly selected student chooses a song. The teacher prepares a fill-in-the-blanks exercise with the chosen song using LyricsTraining. Students are given six minutes to complete the last exercise. The winning student is applauded. As for homework, students are sent a PDF worksheet with comparative and superlative exercises to complete until the next lesson.

The main lesson objective was to make comparisons using the correct form of comparatives and superlatives. The gamified quizzes would allow students to choose the proper adjectives for given sentences. Therefore, although his choice of digital tools was not exemplary, as students did not actively make comparisons themselves, he managed to use the tools to meet the learning objectives (receiving 3). His selection of digital technologies for the teaching context, teaching pedagogy adopted (game-based language teaching), and the learners' age and proficiency level were quite appropriate; therefore, he received 4 for each category. He physically produced all the digital activities and adequately explained how he would share these resources with learners during the learning session. However, he did not clarify how students would share the materials assigned to them with the teacher. For this reason, he received 3, instead of 4, for the sub-competence of Sharing digital resources. Since he did not cite any of the digital resources he used in the lesson plan, he was given 1 for the category of Copyright rules.

Caner designed more than one gamified quiz activity using digital tools, such as Wordwall, Whiteboard.fi, and LyricsTraining, to teach superlatives and comparatives. However, the lesson plan had some problems that should be addressed. Firstly, he stated that the teacher would ask students to do the activities in

a digital coursebook for the main task. However, he did not actually use a coursebook to indicate which activities would be covered. Furthermore, the other learning activities he designed, such as games, do not build on each other well. In other words, the lesson plan needs to be improved to be effectively applied in a classroom. Considering these, he received 2 in the sub-competence of Teaching. Regarding the sub-area of Collaborative learning, his score was 1 because he did not use any digital technologies to foster collaboration and communication among students. In his lesson plan, the teacher was given more control over the activities than students, except for the Whiteboard activity, where students could answer the questions on their own. Although the digital tools would allow the teacher to monitor learners' progress during the session and help learners notice their mistakes through digital quizzes, it would leave little room for self-regulated learning and targeted guidance. Therefore, he received 2 for the sub-competences of Self-regulated learning and Guidance.

As for the area of Assessment, Ege aimed to assess students' understanding of the target grammar structure using Wordwall, which includes different types of questions, such as multiple choice and drag-and-drop questions. Furthermore, in his reflection paper, he emphasized that he could simultaneously monitor students' answers and offer corrective feedback using Whiteboard. Considering these, it could be said that the use of digital technologies met the expectations in the categories of Assessment strategies, Analyzing evidence, and Feedback (receiving 3).

Caner argued that he selected simple tools to give all learners, including those without personal computers, a chance to participate in the session. With this motive, he made sure that the digital tools he integrated were free and compatible with all devices. Although he was aware of some common accessibility issues, such as the

availability of digital devices, while selecting digital resources for his lesson plan, he did not provide any alternatives for those who would have technical issues or need special help during the classroom. Taking these into account, his score would be 2 for the category of Accessibility and inclusion. In his reflection paper, he expressed that digital games are an inseparable part of students' lives. For this reason, he integrated game-based digital tools into the lesson plan to make the learning process more relatable and fun for them. He stated that demotivated students could also participate in competitive games. Considering these, he received 2 for the sub-competence of Differentiation and personalization. Digital tools, such as LyricsTraining and Wordwall, were used in the lesson plan to engage language learners actively; therefore, he received 3 in the sub-competence of Actively engaging learners. There was no digital integration to enhance students' creative productions in English using the target grammar structures, which caused him to receive 1 in the category of Creative engagement with English.

In accordance with the survey results, the analysis of his first lesson plan indicated that Caner was an Integrator (B1). He was able to select digital tools appropriate for the learning objectives, pedagogical approach, teaching context, learners' age, and proficiency level. Moreover, he also met the expectations in the following sub-competences of the DigCompEdu at the beginning of the study: Sharing digital resources, Assessment strategies, Analyzing evidence, Feedback, and Actively engaging learners. He argued that the webinar he attended a week before the data collection period introduced him to the digital tools he used, such as Wordwall and Whiteboard.fi. He underlined that he was able to integrate these digital tools into his lesson, thanks to the webinar. It could be said that he was able to transfer what he learned from that webinar into this lesson plan to some extent.

Although Caner was motivated to use digital tools in ELT, his lesson plan did not meet the expectations in the following categories: Collaborative learning, Copyright rules, and Creative engagement with English. Although he was slightly more competent in the sub-competences of Teaching, Guidance, Self-regulated learning, Accessibility and inclusion, and Differentiation and personalization, he still did not meet the expectations in these areas. In other words, Caner needed to improve his digital competence more in the areas of Teaching and Learning and Empowering Learners.

4.2.6.2 During the treatment

The data obtained from Caner during the treatment mainly consisted of his statements regarding his knowledge, experience, and competence in the area of Digital Resources. Caner noted that he had a folder containing 23 digital tools for his lessons on his computer. He admitted that he created this folder on hearsay and had a superficial knowledge of most of these tools. He reported that the CALL evaluation assignment allowed him to analyze these tools in detail to be able to choose which digital tool to focus on in his evaluation report. He expressed that such an evaluation made him understand how these tools would be helpful for teaching rather than solely assuming that they could be useful in the future. Caner also argued that many digital tools are similar while expressing his opinions about the sub-competence of Selecting digital resources. Thus, he thinks that “it is better to have comprehensive knowledge of fewer tools rather than to have a superficial knowledge of many of them.” When selecting digital resources for his assignments, he considered the following criteria: practicality (e.g., easy to use with simple interface), accessibility (e.g., free), learner group (e.g., age, proficiency level), types of input and output

(meaningful, comprehensible), content (engaging, appealing, fun), interactivity (e.g., multimedia), opportunities for communication and interaction among learners, types of assessment and feedback.

Caner had to select digital tools and design learning materials using them for the MAPP assignment. He underlined that his main concern was to choose digital tools that were free, compatible with all digital devices, and easy to use. His secondary concern was to make sure that the selected digital tools were consistent with one of the objectives of Bloom's taxonomy. In other words, while designing hands-on learning activities, what mattered most to him was the practicality of the selected tools for target teachers, students, and schools.

In terms of the sub-area of Creating and modifying digital resources, Caner expressed that while creating a teaching activity using ThingLink, he made sure that the material was suitable for the teaching context and his target students' age and proficiency level. His primary motivation was to create an engaging, entertaining, comprehensible, and interactive activity for English language learners. He believed that he designed a successful digital resource for learners to use as self-access material. However, he could not be sure whether the activity was successful, as it was not applied to in a real learning setting.

I was very careful not to have more than one word that my target students would not know in the same sentence. Everything is successful on paper, but it must be seen in practice. I cannot know if it really works unless I apply it to a group of 11-year-old-students in a real classroom. (Caner, Excerpt 65, Semi-Structured Interview, December 2020)

He also expressed that the materials adaptation assignment helped him understand that teaching materials must be adapted according to teachers' own teaching context before their use in the classroom. Furthermore, he underlined that making such an adaptation is easier with the opportunities provided by today's technologies.

The disadvantage of ready-made materials is that they are designed for students with a certain proficiency level, cultural background, or country, which makes them not applicable in all teaching contexts. At this point, adaptation becomes a method used by teachers who want to provide their students with more than the original material provides or focus more on different aspects of the material. This assignment taught me that it is easy and accessible for teachers who want to give a quality education to adapt educational resources according to their own plans using today's technological opportunities. (Caner, Excerpt 66, Reflection, December 2020)

Following his positive statements about adapting educational resources, he underlined that he adapted the teaching materials when they were redundant, repetitive, time-consuming, inauthentic, and non-interactive. Thanks to the adaptations he made, he argued that he gave learners more opportunities to communicate with each other and produce creative expressions in English through guided activities that promote higher-order thinking skills. As for the sub-area of Sharing digital resources, Caner argued that he paid attention to the privacy settings while sharing digital resources. He stated that he generally kept the activity settings public so that other teachers and students could also use them for teaching and learning. Likewise, he claimed that he paid great attention to copyright rules and used digital resources if permitted.

Copyright is a huge problem. I would not want my own work to be used by other people just like that. Therefore, I used the video of Animal Planet, as you cannot claim ownership of its resources even if you want to. I generally do not experience problems in terms of copyright rules because I pay attention to the rules while preparing activities using online resources. I only use materials with open licenses and consent, or I do not use them at all. (Caner, Excerpt 67, Semi-Structured Interview, December 2020)

Caner stated that the COVID-19 pandemic accelerated the digitization process of education worldwide. Therefore, he expressed that he wants to be a teacher who could be a part of this transformation in English education as a teacher candidate (see Excerpt 68). He believed that implicit language learning is the best way to learn a language. Therefore, he argued that he could use digital technologies,

such as LyricsTraning, to teach grammar or vocabulary implicitly. His comments related to the sub-competence of Teaching are as follows:

We live in a world where digitalization has become inevitable, and I can say that teaching is one of the professions that requires the digitization process to be completed urgently. Today, K-12 students, who are also known as Gen Z, are digital kids because they are born to technology. While digitalization emphasizes the need for educators around the world to develop and renew their existing education systems by using the technologies that children are familiar with, the need for the complete digitalization of existing education systems has emerged with the global pandemic. Considering all these, we can say that the use of technology in education is now compulsory. We have been observing how K12 education has been handled during the pandemic both in our country and in the world for almost a year. It is possible to say that this digital adaptation process is currently insufficient. (Caner, Excerpt 68, Reflection, December 2020)

I did not learn English by memorizing the rules written on the board. When learned like this, these rules can be forgotten really easily. Students need to learn a language by integrating it into their lives. Digital tools support implicit teaching greatly, as it gives learners a chance to learn languages by watching films, playing games in English, or listening to songs. . . I can design a vocabulary activity via LyricsTraining, where I modify the original lyrics with synonyms. (Caner, Excerpt 69, Reflection, January 2021)

He argued that most of the tools he learned from the course support the sub-competence of Self-regulated learning. He stated that students could associate words using Visuwords instead of rote memorization, and they could remember vocabulary items better thanks to visual input. He also stated that H5P could help learners study for grammar-focused exams, as they could see their own mistakes, assess their performance, and interpret the immediate feedback provided. Considering the sub-area of Collaborative learning, Caner expressed that he did not design collaborative learning activities during the treatment because he did not have enough confidence, experience, and competence in this sub-area. The data analysis also revealed that Caner did not express any opinions about the sub-competence area of Guidance during the course.

For the sub-areas of Assessment strategies and Analyzing evidence, Caner expressed that he could use Whiteboard for formative assessment as it allows teachers to monitor their students' progress in real-time. In the MAPP assignment he completed with his pair, they wrote that teachers could use Nearpod to assess and monitor students' performance with interactive quizzes and the performance reports it generates. As for the sub-area of Feedback, they reported that they could create quizzes using Wordwall or Nearpod and give feedback to their students based on their quiz results.

Regarding the area of Accessibility and inclusion, Caner said that he selected free digital tools compatible with different technological devices in his hands-on tasks to ensure the accessibility of digital resources for his target students. He also reported that he was aware of the affordances of digital technologies for addressing the needs of learners with special needs.

Thanks to the opportunities provided by technology, it can be ensured that English language learners who would have learning difficulties with written lesson materials for various reasons, such as dyslexia and visual impairment, do not fall behind their peers in the classroom. (Caner, Excerpt 70, Reflection, December 2020)

Caner did not express his opinions about planning technology-enhanced lessons that leave room for differentiation and personalization. He claimed that students could use digital tools like LyricsTraining as self-learning materials for this purpose. He mentioned that if learners have difficulty in filling the blanks on LyricsTraining, they can speed up, slow down, pause, or rewind videos. Concerning the sub-area of Actively engaging learners, Caner expressed that he felt competent in using digital tools, such as Wordwall, to design gamified language learning activities that promote problem-solving skills while practicing vocabulary or grammar structures in English. He believed that such games provide both authentic and challenging learning

environments in which learners can actively engage with English and have fun at the same time. In the assignments he worked with a partner, they also stated that students should be encouraged to use other digital tools, such as Canva, Pear Deck, and ThingLink, to present their creativity and presentation skills in English.

4.2.6.3 After the treatment

The intended learner profile of Caner's second lesson was hypothetical seventh-grade students studying at a private school with an intermediate-level proficiency. The expected class size was 20. The target language skill was listening. The lesson objectives were listed as practicing careful and selective listening and drawing inferences according to the given context. The lesson was assumed to be delivered online via Zoom, and students were expected to have their own digital devices, such as mobile phones and tablets. PlayPosit, Padlet, and ESL Lounge were the digital resources integrated into the lesson plan.

The lesson plan begins with a Padlet activity. Students write their favorite movie and what it is about on the shared Padlet page. As students' posts appear on the screen, the teacher asks students some questions about their favorite movies to encourage them to talk about their favorite movies. Then, sharing his screen and computer sound, the teacher makes students listen to three separate audio files in ESL Lounge. After students listen to the files twice, the teacher randomly selects students to answer the questions on the interactive worksheets. Then, the teacher shares the link to a listening comprehension quiz on PlayPosit. Students are asked to answer the questions that appear on the screen while listening. The lesson ends with the completion of the quiz. The teacher wants students to visit ESL Lounge and complete another listening activity as homework.

As for the area of Digital Resources, the analysis revealed that except for the warm-up activity on Padlet, he used digital technologies, such as PlayPosit, to improve students' listening comprehension. In other words, his selection of digital tools was in accordance with the lesson objectives and target language skill (receiving 3). Likewise, he received 3 for the suitability of the selected digital technologies for the teaching context and target learners' age and proficiency level. Although Caner stated in his reflection paper that he adopted TBLT while planning the lesson, the digital tools he selected did not directly support this approach (receiving 2). To illustrate, instead of using technology to help learners work on meaningful and authentic tasks with a specific outcome, he integrated some listening exercises that are unrelated in terms of meaning and content. He provided all the links needed for the activities and adequately explained how these would be shared with students during the class; therefore, his score for the sub-area of Sharing digital resources was 3. Similar to the first lesson plan, he did not attribute the digital resources; therefore, he received 1 regarding the category of Copyright rules again.

In terms of the sub-area of Teaching, he received 2 because he did not adequately plan the use of digital resources, and there was not a smooth transition between tasks. For instance, the audio recordings he selected for the lesson plan were unrelated. Moreover, he did not use digital technologies to encourage collaboration and communication among learners; thus, his score in the sub-competence of Collaborative learning was 1. He stated in his reflection paper that he planned to use the chat box to answer students' potential questions while taking the quiz on PlayPosit. For this reason, his score for the sub-area of Guidance was 2. Similarly, he received 2 in the sub-area of Self-regulated learning for partially using digital quizzes as a tool for self-assessment in the lesson plan.

Concerning the categories of Assessment strategies, Analyzing evidence, and Feedback, Caner received 3 for adequately using digital technologies to assess students' listening comprehension in the lesson plan. To illustrate, while students take the quiz on PlayPosit, the teacher could monitor their progress, and students receive immediate feedback on the accuracy of their answers.

Caner stated that he selected free and easy-to-use digital tools compatible with multiple digital devices for his lesson plan. However, he did not plan any alternatives for students with potential accessibility issues. Therefore, he was given 2 for the sub-area of Accessibility and inclusion. Although integrated video-based digital quizzes into the lesson, all students are expected to complete the activity in the same way. In other words, he did not provide learners with tasks that would allow them to proceed at different paces; thus, he received 2 for the sub-competence of Differentiation and personalization. Also, he used digital tools, such as PlayPosit and Padlet, to facilitate students' active learning. Therefore, he received 3 for meeting the expectations for the sub-competence of Actively engaging learners. As for the category of Creative engagement with English, he received 2 because she did not use digital technologies to encourage learners to produce creative expressions in English, except for the short Padlet task.

When Caners' lesson plans were compared, it was seen that he partially met the expectations in the category of Creative engagement with English after the treatment. Although his level of digital competence was at B2 according to the survey results, the overall score he obtained from the second lesson plan was lower than the first plan. Contrary to expectations, he received lower scores in the area of Digital Resources in his second lesson plan. Although his selection of digital technologies was still appropriate for the lesson objectives, teaching context, and

target learners, he could not meet the expectations for using digital resources that would support the teaching approach adopted. He reported that his lesson plan adopted the TBLT approach. However, the analysis of his reflection paper revealed that he might not have enough knowledge about the key characteristics of TBLT, such as language practice through meaningful and authentic communication. Another explanation for his failure to apply the TBLT approach effectively might be that he does not believe that it is an effective approach in English language education, although it is frequently emphasized in the teaching program. The following excerpts demonstrate that he strongly favors individual learning over collaborative learning as he was also learned English that way:

My lesson plan is entirely individual. I created this lesson plan to be used in online education during the current pandemic. In this situation, I do not believe that collaborative learning is efficient for this grade level. I do not have enough knowledge to achieve my goals using collaborative learning yet. Even before I started my education in this department, I have always preferred individual face-to-face teaching since I believe that it is the best method to convey information from teacher to student. (Caner, Excerpt 71, Reflection Paper, January 2021)

If you asked me to prepare a lesson plan according to a teaching approach that is completely opposite to my view of teaching, I would have a very difficult time, even with the support of technology. I experienced this situation during the semester. For example, I could not design lesson plans based on group tasks. If you ask me to plan a technology-enhanced lesson that includes group tasks tomorrow, I do not know how to create an activity. I do not think that I could do it without experiencing this type of learning. I did not learn English like that, and I did not observe a classroom where students did collaborative tasks. (Caner, Excerpt 72, Semi-Structured Interview, February 2021)

The analysis also revealed that he received the same scores in all sub-competences of the areas of Teaching and Learning and Assessment. Although he managed to maintain his competence in the area of Assessment, he could not make improvements in the sub-area of Teaching. In other words, after receiving the treatment, he was still not competent in successfully planning technology-enhanced

lesson plans. He admitted that despite feeling more confident in using different digital tools for language teaching, he still does not know how to integrate these tools effectively into a lesson.

I feel more competent in using educational tools for teaching English. However, I still am not sure if I am a digitally competent teacher. What I know is to digitize hard copy teaching materials like a verbatim translation because I am not a competent teacher to do more and produce better content. Therefore, I can only digitize ready-made materials like a translator. . . I cannot claim that I am very competent and confident in utilizing technology for teaching because I have never been in a 'physical' classroom. (Caner, Excerpt 73, Semi-Structured Interview, February 2021)

The reason why Caner struggled to design effective lesson plans might be that he did not receive the course that focuses on teaching four main language skills and material development before taking the ENGT416 course. As also stated by Ege, Caner complained about the lack of practical opportunities offered in the teaching program at the university. He believed that if he had more experience in teaching, he would have planned the lessons more successfully, as can be seen from the excerpt below:

Maybe I should criticize our department at this point because I learned a lot theoretically in the provided courses. However, I still do not have enough practical knowledge and experience in terms of teaching English. I need more practice to design better lessons. (Caner, Excerpt 74, Semi-Structured Interview, February 2021)

4.2.7 Summary of the findings and discussion of RQ2

The cross-case analysis revealed that the participants' attitudes towards incorporating technology in English classes were already positive before the study. This finding is in accordance with the previous studies in the literature (Yüksel & Kavanoz, 2011; Merç, 2015; Ozer, 2018; Fathi & Ebadi, 2020, Park & Son, 2020; Liza & Adriyanti, 2020). However, as stated in the earlier studies (So et al., 2012; McGarr & McDonagh, 2021), although they had positive beliefs about utilizing technology for

English education, the lesson plans demonstrated that the participants' prior experience with digital tools for this purpose was limited to the most well-known digital education tools in the market (Guillén-Gámez et al., 2019) or those they were familiar with (Park & Son, 2020). It was revealed that the participants were more motivated to use digital technologies after the treatment, as they could expand their repertoire of technological tools for their future English classrooms.

The main objective of the ENGT416 course was to provide pre-service EFL teachers with a digital toolbox that they would use to enhance the quality of their teaching practices. As can be seen from the excerpts in this section, the participants were able to explain which tools they would use to teach different language skills, such as listening, speaking, grammar, and vocabulary. They also exemplified how digital technologies, such as mobile devices and applications, can help them increase their students' active and creative engagement with English inside and outside the classroom. Similar to Ersanli's (2016) study, the participants also expressed the potential uses of technology, such as increasing learner motivation, making lessons more student-centered, offering opportunities for learning about other cultures, and communicating with natives. The findings suggested that the course was successful in terms of showing teacher candidates possible ways to use digital technologies for different purposes in English lessons. In this way, the participants were able to go beyond using the tools they were already familiar with before the study.

Looking from the perspective of the DigCompEdu framework, the analysis of the data revealed that the participants made noticeable progress in the area of Digital Resources. As for the sub-area of Selecting and creating digital resources, the participants' explanations of their reasons for selecting certain tools for their lesson plans were more related to the factors, such as practicality, at the beginning of the

semester. However, it was identified that the participants paid greater attention to selecting or creating digital resources in accordance with learner profile (e.g., age, proficiency level, and interests), context (e.g., online), learning objectives, and pedagogical approaches during the study. As selecting and creating digital resources considering these factors are stated as competence requirements in this area of the DigCompEdu, it could be said that the participants have become more competent in this respect thanks to the treatment. Besides, the participants' assignments indicated that they took content-specific criteria (e.g., comprehensible input) into account while selecting or evaluating digital resources. Hence, it can be concluded that the participants were also able to assess the potential of digital technologies for teaching English.

The participants expressed that it was the weekly assignments, hands-on tasks, and reflection papers that helped them better connect what they learned from the lectures and workshops to their practical competence of using digital tools for English instruction. In other words, the participants underscored that designing teaching materials (Ersanli, 2016) and writing reflection papers (Sert & Li, 2017) improved their competence and confidence in incorporating digital technologies in teaching and helped them critically assess the shortcoming and affordances of digital technologies for future use (Sert & Li, 2017). In addition, while there was no data on some sub-areas of DigCompEdu, such as Self-regulated learning, in individual assignments, it was observed that the same participants commented on these areas when they worked with a pair. This finding was in line with the previous studies in the literature (Liu et al., 2015; Røkenes & Krumsvik, 2016; Tondeur et al., 2018; Tondeur et al., 2019) in terms of the significance of pre-service teachers' collaborative learning with their peers during teacher training.

Although the assignments gave the participants a chance to use digital technologies to create teaching materials considering lesson objectives and instructional approaches, the analysis of the lesson plans demonstrated that their ability to apply this knowledge into practice varied. A similar finding was reported in the study of Røkenes and Krumsvik (2016). Table 7 demonstrates the total points each participant received from their lesson plans at the beginning and end of the term.

Table 7. Total Scores for the Lesson Plans

Participants	Total points (First lesson plan)	Total points (Second lesson plan)
Nehir	52	62
Damla	50	60
Ege	37	48
Aslı	40	41
Selin	48	47
Caner	47	43

As can be seen from Table 7, while Nehir, Damla, and Ege obtained significantly higher points at the end of the semester compared to their first lesson plans, other participants could not increase their scores. In fact, contrary to expectations, Selin and Caner's scores were lower than their initial scores, while the total score of Aslı's second lesson plan was slightly higher than the first one. More importantly, after the detailed analysis of the lesson plans, it was seen that these participants could not plan lessons according to the lesson objectives or the teaching approach adopted, which was strongly emphasized by the course instructor during the term.

The data collected from the reflection papers and semi-structured interviews showed that Caner, Aslı, and Selin lacked the necessary pedagogical training of ELT as senior students. They were still trying to figure out how to design effective lesson plans since they had not taken the course on teaching English language skills before the ENGT416 course. Put differently, they tried to develop their digital competences along with their pedagogical knowledge during the study. As their lesson plans

indicated, they could not master both at the same time. This finding was also in accordance with the TPACK framework in that educators' digital competence consists of technological, pedagogical, and content knowledge (Mishra & Koehler, 2006). Therefore, to better incorporate technology in their practices, these participants need to have solid pedagogical knowledge related to ELT (Redecker, 2017; Ranieri & Bruni, 2018; Guillén-Gámez et al., 2019). These participants acknowledged their lack of pedagogical knowledge and stated that if they had been assigned more lesson planning tasks during the treatment, they could have enhanced their competence in this regard.

As the findings of the first research question demonstrated, the participants' perceived digital competence at the beginning of the term ranged from intermediate to advanced. The results of the second DigCompEdu survey they took at the end of the term showed that each participant, except for Nehir, moved to the next proficiency stage in the DigCompEdu framework. In other words, their perceived digital competence was at least upper-intermediate, which is in line with the self-evaluations of the participants in Park and Son's (2020) research study. However, the analysis of the lesson plans, assignments, and reflection papers revealed that most participants' levels of digital competence did not meet the expectations in the following sub-areas of the DigCompEdu: Guidance, Collaborative learning, Self-regulated learning, Accessibility and inclusion, Differentiation and personalization. Moreover, some participants had difficulty in planning the use of digital resources for teaching even after the treatment.

It was also found that half of the participants did not develop their competence in providing both immediate and customized feedback through digital tools. Although it was not a separate competence area in the DigCompEdu, students'

knowledge and application of copyright rules were also investigated during the study. Consistent with Averill (2003), some participants in this study, such as Ege, initially believed that teachers could use copyrighted digital resources for educational purposes without attribution. Despite their self-disclosures about their increased awareness of this issue throughout the study, none of the participants, except for Damla, could attribute digital resources properly in the performance tasks. Pre-service teachers' inadequate knowledge about cyberethics was also voiced in earlier studies (e.g., Shin, 2015; McGarr & McDonagh, 2021). The findings above support the previous studies (Engen et al., 2014; Son, Robb, & Charismiadj, 2011; Park & Son, 2020), as there seems to be a discrepancy between the participants' self-assessments of their digital competence and their actual competence in practice.

Another point that should be addressed in this section is the reason why the participants could not develop their competence in the abovementioned sub-areas of the DigCompEdu, such as Accessibility and inclusion. The first possible explanation might be related to the type of assignments they completed during the study. The assignments, such as CALL evaluation and MAPP assignment, explicitly required students to select digital tools and justify their selection referring to their criteria. The lesson plans and other assignments also specifically asked students to design technology-enhanced learning activities, plan their use in a teaching setting, including instructions and learning objectives, justify their selection of digital technologies, and reflect on the role of technology in these activities. In other words, these assignments were directly linked to the areas of Digital Resources and Teaching and Learning. The weekly lectures, reflective questions, and interview questions aimed to encourage students to think about the other areas of the framework and apply what they learned during the study into production. However,

it can be argued that the participants could not transfer their declarative knowledge in these areas to procedural knowledge. Giving the participants assignments directly related to these areas and asking them to write reflective entries about these assignments might help them put their knowledge into practice.

Another explanation for the incompetence of participants in the sub-areas of Empowering Learners, such as Accessibility and inclusion and Differentiation and personalization, might be because of their lack of direct contact with English learners. Similar to Ersanli's (2016) study, the participants of this research were aware that learners have different learning styles, intelligence levels, and interests. Nonetheless, the participants failed to use technological tools adequately in their lesson plans to address the diverse needs of learners, allowing students to progress at different paces. As these plans were designed for a hypothetical student group, the participants could not see the direct impact of technology in making their lessons more differentiated or inclusive. Most of the participants emphasized that they cannot be completely competent or confident in these sub-areas of the DigCompEdu without applying their digital competence in authentic settings with real students. This finding is consistent with the previous studies in the literature (e.g., Sang et al., 2010; Valtonen et al., 2015; Tondeur et al., 2018).

Complaining about the heavy emphasis on theoretical knowledge rather than practical experience in their teacher education program (Coskun & Daloglu, 2010; Altmisdort, 2016; Öztürk & Aydın, 2019), the participants argued that they still lack enough procedural knowledge about English language teaching. In brief, although the lesson plans and other performance tasks were helpful for pre-service EFL teachers to improve their digital competence and procedural knowledge to a certain

extent, they were not perceived as effective as the actual application of these tasks in an authentic classroom environment.

4.3 Findings and discussion of RQ3

The third research question aimed to answer whether and how the participants plan to implement digital technologies into their English lessons in the future. The participants' answers related to the third question were categorized and presented under relevant areas of the DigCompEdu framework.

4.3.1 Digital resources

Regarding the sub-area of Selecting digital resources, the participants expressed that they will primarily pay attention to the age and proficiency level appropriateness of the digital resources for their learner group. They also stated that they plan to assess if a certain digital resource is visually attractive, as they want to draw learners' attention more easily. Concerning the selection of digital tools for teaching, whether a certain tool is accessible and practical for all students, free with a user-friendly interface, and whether it was suitable for target language skills and collaborative work were other selection criteria stated by the participants. Some of the comments of the participants about this sub-area are as follows:

I will analyze if the resource can attract students' attention, and, of course, I will check whether it is appropriate for students' proficiency levels. These two will be my most important criteria. I will also pay attention to the mode of interaction. I mean, from time to time, I also pay attention if students can only work in pairs or groups, or they can also work individually. These things change based on the lesson plan and task dynamics, but I plan to analyze the tools to see if they focus on collaboration and allow collaborative work when needed, or whether students can work anonymously, which is something I really care about during pre-tasks when I want all students to share their ideas and be involved. (Nehir, Excerpt 75, Semi-Structured Interview, February 2021)

I will pay attention to a couple of things. One of them could be age-appropriateness. There are some pedagogical phases that students go through. I will pay attention to these and see if what I select is suitable for their age. I will look at their current levels, and whether their current knowledge is sufficient so that it is neither too high nor too low for their proficiency level and age. . . If it is not suitable for the level, it can demotivate students and hinder learning a lot. Therefore, I think it is very important that the sources are appropriate for the age group. Other than that, I will pay attention to practicality because not every tool can be integrated into classrooms or there may be infrastructural problems. . . Since there are lots of students who cannot access technology in Turkey, it is important to talk about whether it is practical or not, especially in public schools. Apart from that, I will consider the factor of feedback. I mean, I will use a certain digital tool if I can give feedback on it. Otherwise, I can teach something, but if I cannot give feedback, it will be up in the air. Thus, I would check whether I could give feedback using the digital tool. (Damla, Excerpt 76, Semi-Structured Interview, February 2021)

None of the participants explicitly stated they would choose digital resources considering specific learning objectives and context. Furthermore, apart from Nehir and Caner, who emphasized the collaborative learning approach, the participants did not highlight the role of the pedagogical approaches during the selection of digital resources for teaching English. This finding is aligned with the study of Reisoğlu and Çebi (2020), considering that in their study, only three out of 24 pre-service teachers stated they would focus on whether a digital resource is consistent with the teaching method to be applied. The explanation for this finding might be that for pre-service EFL teachers, similar to those studying in different branches (see Reisoğlu & Çebi, 2020), the immediate benefits of technology integration into language teaching, such as practicality, increased learner motivation, attention, and classroom interaction gain more prominence than the consistency between pedagogical approaches and digital resources.

Concerning the sub-area Creating and modifying digital resources, all participants agree that technology has become an indispensable part of students' lives. Therefore, they plan to create digital resources that could attract their students'

attention, increase their motivation to learn English, and make their lessons more interactive and relevant. The participants also pointed out that they plan to create digital resources appropriate for their learner group's age, proficiency level, and target language skills. Some participants' comments related to this sub-area are as follows:

I will use digital tools for creating interactive videos, such as Edpuzzle, PlayPosit, and Nearpod. Interactive videos are like a little bit of everything. Because while watching a video, the listening part is already included. By adding the questions that pop up on the screen, we integrate reading and even writing. Alternatively, I can also use Voki to design listening activities by converting text to speech. (Damla, Excerpt 77, Semi-Structured Interview, February 2021)

I think I can create short, gamified quizzes using Wordwall to attract my students' attention at the beginning of the lesson. I can also use this tool to activate students' background information about the topic of the lesson. (Ashi, Excerpt 78, Semi-Structured Interview, February 2021)

Regarding grammar teaching, instead of teaching grammar explicitly, if it is going to be context-based, we can use technology to introduce grammar in context. For example, H5P was like this. Therefore, I think I can use it for this purpose. (Nehir, Excerpt 79, Semi-Structured Interview, February 2021)

In accordance with the findings for the area of Selecting digital resources, except for Nehir, the participants did not state that they would take applied content-specific pedagogical approaches into account while creating digital resources. Instead, all participants laid more emphasis on learner motivation, attention, and students' age, which are also highlighted in the DigCompEdu framework. However, although the participants expressed that they would pay attention to target language skills, which is a broader objective, they did not explicitly state that they would consider specific learning objectives.

As for the sub-area of Modifying digital resources, the data analysis revealed that the participants plan to use their knowledge to modify digital resources when they are outdated, repetitive, boring, non-interactive, insufficient, unteachable,

inauthentic, and inappropriate for learners' age, proficiency level, personal needs, and learning styles. While explaining why they adapted the materials, the participants emphasized factors related to language teaching and generic teaching pedagogies. Excerpts 80, 81, and 82 present the participants' comments on their plans regarding the adaptation of digital resources in their professional life.

For the time being, I am tutoring an 8-year-old student. I do some research on what she likes, such as films, cartoons, etc. For example, I sometimes find activities about likes and dislikes. Then, I adapt the sentences into the ones including those cartoon characters to draw her interest, or I find a song that includes 15 new words. As I know that we should aim to introduce seven to nine words at most during a session, I crop the video. I think I will continue to adapt materials like this when I start my career as well. (Selin, Excerpt 80, Reflection, December 2020)

I will most probably adapt resources when I start teaching. In my opinion, it is necessary to do so because the materials we are given will never be perfect. Even if they are, they will not be able to cater to students with different learning styles, goals, needs, etc. Thus, we should adapt materials to help our students in the best possible way during their language journey. (Ashi, Excerpt 81, Reflection, December 2020)

I think it will definitely be necessary to adapt resources, especially in the conditions of our country. I realized this fact much better, especially when I examined the foreign language books distributed in state schools. Because in those books, the use of technology and the use of different materials and tools are missing. Instead, there are simple tasks on, for example, listening and writing skills, which are always repetitive. Moreover, in these books, the opportunities of technology are not used much. Students need different and varied input. For instance, the grammar teaching process that seems simple but boring can turn into a more instructive and fun process with the contribution of technology. (Damla, Excerpt 82, Reflection, December 2020)

Consistent with Graham, Borup, and Smith (2012), the findings above indicate that the participants' rationales for technology use in their future classrooms were more related to general teaching strategies (e.g., collaboration, active engagement, interaction) that can be used by other pre-service teachers majoring in different content areas rather than content-specific pedagogies. In other words, while explaining whether and how they plan to select and create digital resources in the future, they heavily focused on general learner characteristics, such as learners' age

and preferences, and general instructional pedagogies, such as motivation and collaboration rather than directly relating their rationales to pedagogical approaches specific to ELT. There were sporadic references to feedback and input variation (Damla, excerpt 76, 82), teachability of vocabulary items (Selin, excerpt 80), and teaching grammar implicitly or explicitly (Nehir, excerpt 79). However, unless they were explicitly asked to explain how they would use digital technologies to teach certain language skills, some participants' justifications for technology integration remained limited to increasing learner motivation, interaction, collaboration, and ensuring accessibility of digital resources. These participants were unable to relate their discussion to language teaching, even when they were specifically asked to do so. This might be due to the fact that these pre-service EFL teachers were still working on their pedagogical content knowledge, despite being senior students.

About the area of Managing, protecting, and sharing digital resources, the participants expressed that they would pay attention to privacy settings while sharing digital resources with their students and use their knowledge to protect important digital data on their computers. The participants' comments exemplifying their opinions about this sub-area are given below:

I know that I need to encrypt a file, such as an Excel file, with a password when entering any information about students. I will pay attention to these things in the future. . . If I do not need the file again, I can also delete it. . . If I am going to share the file with others, I will first ask students' permission, and I will not share it anywhere else. (Nehir, Extract 83, Semi-Structured Individual Interview, February 2021)

In general, I use almost set the privacy settings for all the tools I use. Similarly, all the links I created in the lesson plans are only open to students who can click on the link. I am aware of this issue, and I will be careful about the confidentiality of data in the future. (Caner, Extract 84, Semi-Structured Individual Interview, February 2021)

I prefer to use Google Drive in general since I can restrict the people who can access the content. I can give my students codes so that they can access the content, or I can make it available only to my classes and even generate

personal codes for individuals if needed. (Ege, Excerpt 85, Semi-Structured Individual Interview, February 2021)

Contrary to the findings of Reisoğlu and Çebi (2020), none of the participants explicitly stated that they would follow copyright rules and provide proper references when they share digital resources with their students. This finding shows that the pre-service English teachers in this study kept the privacy rules in mind when sharing digital resources with others, but they did not pay enough attention to copyright rules. This might have resulted from the fact that there was not enough emphasis on copyright issues during the course. The participants still need further training in this sub-area.

4.3.2 Teaching and learning

Considering the sub-area Teaching, all participants argued that they would use digital technologies to teach English interactively in their future classrooms. They underlined that in addition to preparing interactive videos to teach certain topics using digital resources, such as PlayPosit, they could mostly make their students use digital tools as a part of classroom learning activities. Some participants' comments about this sub-area are as follows:

To improve students' speaking skills, I would design collaborative discussions. While doing this, students can create a mind map. They can start a discussion on what they have read before. I can design a task for students to improve their reading and speaking skills. For this task, I can use mind map tools such as Concept Board, Mural, or Popplet. In general, while drawing on a paper, one person does the whole thing, or the paper stands in front of someone else, and the others just talk. If digital tools are used, anyone can add a branch and write their own thoughts. I think this would be very motivational. In my opinion, students would feel more involved in the lesson. (Nehir, Excerpt 86, Semi-Structured Interview, February 2021)

I can teach students how to use digital tools and expect them to use these tools to do some tasks just like we did in our lessons. I think I will definitely use H5P and Padlet. I think Padlet is very successful, especially for starting

small discussions for students to participate. (Caner, Excerpt 87, Semi-Structured Interview, February 2021)

In harmony with the findings of Røkenes and Krumsvik (2016), excerpt 87 demonstrated that authentic hands-on learning activities as workshops could give pre-service EFL teachers a chance to see the pedagogical potential of digital technologies and help them learn how to implement digital technologies in real classrooms.

As for the sub-area of Guidance, only Ege stated that he would use digital technologies to guide and support his students whenever they need guidance. The following excerpt demonstrates his opinions in this regard:

Teachers can actively communicate with their students using technology. They can create a group via WhatsApp or Google Classroom. This will, of course, make a huge difference. . . You, as a teacher, can step in where students lose their motivation, no matter what time of the day it is. Even when you have classes two days a week, you can guide those students seven days a week instead of only directing them during class hours. (Ege, Excerpt 88, February 2021, Semi-Structured Interview)

In Reisoğlu and Çebi's (2020) study, none of the pre-service teachers expressed any opinions in relation to the sub-competence of Guidance. Considering that only one of the participants in this study stated that he would use his digital competence to support and guide learners, it can be inferred that pre-service teachers did not sufficiently focus on this sub-area during the treatment. The scarcity of data on this sub-area may be due to the fact that this topic was not adequately discussed during the course. An alternative explanation might be that pre-service EFL teachers did not have enough knowledge and experience in this respect.

For the sub-area of Collaborative learning, all participants agreed that they intend to use digital technologies to design collaborative learning activities for language teaching. They underscored the advantages of digital technologies in increasing collaboration and communication among learners in comparison to

traditional language education. Some of the comments of the participants about this sub-area are given below:

Since many students can work on the same file and edit easily, regarding collaborative learning, I always think of Google Docs. Also, digital learning tools, such as Pear Deck, can be used to let two students create a flashcard together. (Aslı, Excerpt 89, Semi-Structured Interview, February 2021)

Especially when we consider online education, compared to traditional, face-to-face education settings, I can group my students and encourage them to work collaboratively using digital tools, such as Google Jamboard or Google Meets, without being restricted to a certain place. (Damla, Excerpt 90, Semi-Structured Interview, February 2021)

I can ask my students to create a brochure using Canva. Students can also do this task traditionally using cardboard. . . but digital tools, such as Canva, allow students to design posters, brochures, and business cards working collaboratively. Thanks to Canva, several people can work on it at the same time. When you want to make a brochure on cardboard, which is a traditional method, no matter how hard students try to participate, one person can design it, and another person can cut and paste it. This way, everyone is given separate tasks. It is like working by taking turns, not collaborative work. Using Canva, many people can do something and edit the brochure as they want. They do not need to wait for their turn, so I think it supports collaborative work more. (Selin, Excerpt 91, Semi-Structured Interview, February 2021)

Regarding the sub-area of Self-regulated learning, all participants expressed that technology allows taking the language learning process out of the classroom. Thanks to this feature, students can manage their own learning. When asked how they would use digital technologies to support such learning, Nehir, Selin, and Ege emphasized that they would utilize digital technologies to help learners create digital portfolios to showcase their work. Similarly, Aslı stated that she could use private Instagram accounts set up for the class and that she could ask students to upload videos regularly to see their progress if they agree to use a private account for this purpose. Looking from a different perspective, Damla, Caner, and Ege said they would provide their students with extra digital learning materials that they can use outside

the classroom as well. The participants' comments related to this sub-area are presented below:

To follow their own progress increases the motivation of the student because even if it is difficult at that moment, looking at their portfolio later will increase the motivation of the students. They may feel like 'I have done these things.' It may be good for the student to prepare a portfolio in this way. Alternatively, if speaking makes students feel better than writing, as a tool, perhaps they can start a vlog channel where they speak rather than a blog. (Selin, Excerpt 92, Semi-Structured Interview, February 2021)

We talked about interactive videos and created one during the course. Using these videos, students can adjust their own pace, rewind, and make progress as they want. Therefore, I think it becomes easier for them to manage their own learning. . . I would especially use such videos in the future. (Damla, Excerpt 93, Semi-Structured Interview, February 2021)

Students can create flashcards by adding images and audio using digital tools. They can learn pronunciation while learning vocabulary. I plan to use Memrise. Lately, I prefer to use Quizlet more. . . They are quite helpful in grasping knowledge and recalling words. (Ege, Excerpt 94, Semi-Structured Interview, February 2021)

Reisoğlu and Çebi (2020) reported that only one pre-service teacher majoring in Computer Education said he would use digital technologies for self-regulated learning in their studies. In this study, on the other hand, the data revealed that all participants plan to benefit from digital resources to support their students' self-regulated learning. As can be seen from excerpts 92, 93, and 94, the concept of self-regulated learning is limited for some pre-service EFL teachers in this study to self-study using digital tools outside the learning session to compensate for their lack of knowledge in certain topics. However, for others, it is a way for learners to monitor their progress through digital portfolios and vlogs. Although the second group seems to have a deeper understanding of the concept, it can be said that the prospective English teachers in this study were aware of the potential of digital resources for self-regulated learning. Moreover, they want to use digital technologies for this purpose in their professional life.

4.3.3 Assessment

Considering the sub-areas of Assessment strategies and Analyzing evidence, the analysis demonstrated that the participants plan to assess their students' language skills, such as speaking and writing, through digital tools. They also pointed out that they would analyze digital evidence of student performance and progress, such as exam results, audio, and video recordings, while assessing their students' knowledge and skills. Some of the comments of the participants about this sub-area are as follows:

The advantages of technology are, needless to say, very different regarding assessment. Depending on the tool we use in assessment, we can analyze very different things that we cannot see at the exact moment traditionally. I think this is very effective, especially in assessing speaking. We cannot hear what every student is talking about or how they speak in the traditional way, but now every kid knows how to record in breakout rooms. In this way, I think it is much easier for teachers to follow the students' progress. (Nehir, Excerpt 95, Semi-Structured Interview, February 2021)

The fact that automated feedback can be generated using tools like Wordwall and H5P, and being able to learn exactly what students lack without reading the paper one by one improves teachers' skills in giving feedback in terms of both quality and content. . . These tools also provide statistical information, such as '70% of the class answered this question correctly while 30% gave an incorrect answer to a question' . . . I think that I can automate everything I can and provide individual feedback, if necessary, as a voice recording or by having a one-on-one meeting with the student privately. (Caner, Extract 96, Semi-Structured Interview, February 2021)

If we ask a reading comprehension question using Kahoot, each student will answer the question on the platform. It can be a multiple-choice question, or it can be open-ended. You can see the answers given by each student there in seconds. You can also see how many percent of them answered the questions correctly, what percent of them chose a different distracter, how well the text was understood, how involved the students were in the lesson, how well they read the text, whether they paid attention to the text with the questions that tested their attention. In this way, I can get the impression of the whole lesson more easily. (Ege, Excerpt 97, Semi-Structured Interview, February 2021)

As for the sub-area of Feedback and planning, the data revealed that all participants plan to benefit from digital technologies to provide detailed, timely, personalized, and varied feedback to their students on their assignments. Also, some participants

highlighted that they would also use digital tools that offer immediate feedback to inform students about their performance easily. The participants also reported that they aim to support peer feedback through digital technologies to encourage students to learn from each other during their language learning journey. Excerpts 98, 99, and 100 illustrate some of the comments of the participants about this sub-area:

Imagine that I want to assess students' pronunciation and intonation in a speaking class. Normally, if I use traditional methods, they will most probably make a presentation, and I will listen to them while they are making their presentations as much as I can. If I want to pronounce certain words again, they might pronounce them differently, or they can get stressed. Therefore, when I use a digital tool like VoiceThread, it helps save time in the classroom and gives the teacher more chances to offer feedback, as the teacher can listen to students several times. Looking from the perspective of students, since the teacher will write the feedback as a reply to the students' work or as a message, this will not lower their self-confidence. Otherwise, students might say, 'I was going to do it better, but I was stressed in front of my friends.' In this respect, providing feedback using digital tools is better. (Selin, Extract 98, Semi-Structured Interview, February 2021)

When we integrate technology, we can give instant feedback. We have seen this in many applications. H5P was one of them. For example, there is a multiple-choice question. Students can click and receive instant feedback at that moment. In other words, if they made a mistake, it would be like 'Look here!' or 'You did this right.' I think technology makes feedback very effective. Varied feedback can also be given. Teachers can give feedback by recording their voices. On Padlet, for example, I can give a task for each group or individual to publish their output there. There is also a personalized response section on Padlet. . . I can give detailed feedback there. . . Peer feedback can also be applied. Padlet is a good example for this as well. I would build a system where students give feedback to each other if I integrate technology. (Damla, Extract 99, Semi-Structured Interview, February 2021)

Considering feedback, teachers cannot offer feedback to all students one by one in the classroom environment. I think it is very effective for homework too. When we use technology, it becomes much easier for us to achieve these. I think technology offers more diverse opportunities for feedback because teachers can monitor their students' development, and students can monitor their progress as well. For this purpose, I plan to use apps like Google Classroom or Padlet as a teacher. (Nehir, Excerpt 100, Semi-Structured Interview, February 2021)

4.3.4 Empowering learners

With regard to the sub-competence of Accessibility and inclusion, it was revealed that all participants plan to store digital resources on different topics to ensure that all learners can easily access them. Nevertheless, none of the participants, other than Caner, underscored the inclusion of learners with special needs in classrooms thanks to technology, which is a part of this sub-area. Some of the participants' opinions on this issue are given below:

Technology offers a lot of advantages in terms of accessibility. Under non-digital conditions, you are limited to one textbook that costs between 250 TL - 300 TL. Now, you, as a teacher, have the chance to compile a variety of digital resources on different topics. . . Especially when it comes to learners with special needs, no two students are the same. They can have very diverse needs. There are tools designed with this in mind. I think they will be very useful. (Caner, Extract 101, Semi-Structured Interview, February 2021)

Digital technologies allow us to access resources easily. There are a lot of resources in other branches as well, but in terms of language teaching, everything produced in the target language is indeed lesson material for you. This can be a vlog recorded by a person or a blog post and articles written by others. Therefore, compared to other subjects, using digital resources is more effective for language teaching. Otherwise, I must bring resources, such as books, to the class, and students will be limited to what I can bring to the classroom, but the internet offers a wide range of resources for students. (Selin, Extract 102, Semi-Structured Interview, February 2021)

Concerning the sub-area of Differentiation and personalization, the participants stated that they would particularly implement digital technologies into their classes to offer options while assigning tasks to their students or giving them feedback based on their interests, personalities, and learning types. Compared to the study of Reisoğlu and Çebi (2020), where there was no pre-service teacher who expressed an opinion about this sub-competence, the participants in this study were aware of the potential of educational technologies to cater to the diverse needs of language learners. Here are some of the comments of the participants regarding this sub-area:

. . . For example, the lesson is on air pollution, and we read or watch something related to this topic. After that, as a post-task, I can offer options,

and they can do it differently. For example, I can say, ‘You can write a reflection about air pollution using Google Docs and share it with me.’ . . . I can also share other platforms like Vyond or Voki, where they can make animation videos. In this way, students with more visual intelligence can do it more easily. I can tell them to create a video that summarizes what they have learned. In other words, when they have access to such digital tools, it is highly possible for them to do very different things. For instance, those who have higher visual intelligence can create an animation video, while others can express themselves better by writing using Google Docs. I can provide such opportunities to students. (Ege, Excerpt 103, Semi-Structured Interview, February 2021)

When we give feedback, technology makes it more diverse, instead of just saying ‘Good job!’ or ‘Well done!’ I consider providing feedback through a voice recording tool or offering more detailed feedback. I can adjust this to the diverse needs of students. If a student is an auditory learner, I can offer feedback as a voice recording. This might be an example or a solution. For instance, since learners learn from each other and make progress, and as it is more effective than learning from a teacher, I can address the different needs of students, especially social and psychological needs, with the integration of group assignments and gamification. (Damla, Excerpt 104, Semi-Structured Interview, February 2021)

If we know how to use technology, it is a highly effective way to reach different students, especially those with high-affective filters, who are shy and demotivated. There is an application called Mentimeter that allows being anonymous. I think we can make shy students more involved in the lesson using such applications through which students can express their ideas anonymously. Likewise, there are applications like ChatterPix and Sock Puppets. These are applications based on making different objects talk. I think these will be good for shy students. (Aslı, Excerpt 105, Semi-Structured Interview, February 2021)

For learners with special needs, we can allow them to make progress at their own pace using H5P or Voscreen. As a teacher, you need to wait for the students who lag behind or keep up with those progressing faster than others. However, by using digital materials and platforms, you enable students to progress at their own pace to a certain extent. (Caner, Excerpt 106, Semi-Structured Interview, February 2021)

As excerpt 106 shows, Caner was the only participant who commented on using digital technologies to address the needs of students with special needs. Considering that he was again the only student who expressed any opinions about how to ensure the accessibility of digital resources for learners with special needs in language classes, it can be deduced that his awareness of this issue has increased more than the

other participants. The rest of the participants did not seem knowledgeable enough to benefit from digital technologies in their professional lives to ensure that all students could access learning resources. In consideration of these, this study demonstrated that more attention should have been paid to this topic during the training.

Regarding the sub-area of Actively engaging learners, all participants stated that they plan to use digital technologies to enhance learners' active and creative engagement with English through interactive, hands-on learning activities and games. They expressed that through such games, learners can compete with each other, have fun while learning, and be more motivated to be involved in their language learning process. Some of the comments of the participants can be seen from the following excerpts:

Instead of asking my students to create a poster using pen and paper, I can ask them to use Canva to create it by using its different features. . . The biggest reason why I want to use such tools in my lessons is that they allow students to be involved in the learning environment and interact with each other by doing that. I think such tools will increase learner motivation and interaction. (Nehir, Extract 107, Semi-structured Interview, February 2021)

Especially for younger learners, when you use gamification, lessons become very interesting, as gamification works with a reward system. Young students like to be rewarded. Since the gamification system is already based on incentives and rewards, I plan to use games in my lessons. (Caner, Extract 108, Semi-structured Interview, February 2021)

The findings above are consistent with the study of Akayoglu et al. (2020). In their study with the pre-service EFL teachers in Turkey, the participants expressed they could teach English using digital tools to support learner engagement, motivation, participation, autonomy, and creativity. By doing so, similar to what the participants of this study emphasized, they stated that students could be provided with a better environment for language learning.

To summarize, in parallel with previous studies (Kuo, 2008; Yüksel & Kavanoz, 2011; Hismanoglu, 2012; Schmid & Hegelheimer, 2014; Ozer, 2018; Park

& Son, 2020), the pre-service EFL teachers in this study had strong beliefs about the importance of technology in ELT, and their attitudes towards integrating technology into their future classes were quite positive. Contrary to the earlier studies (Tondeur et al. 2016; Fathi & Ebadi, 2020), the participants in this case study expressed that they feel more confident and competent in incorporating technological tools in their professional life after taking the course.

The participants reported how they plan to apply their digital competence to their teachings in light of all areas of the DigCompEdu framework. Although there was at least one student who expressed their opinions for each sub-area, it should be addressed that the majority of the participants need more training on how to guide and support their students through technology. Likewise, the fact that the participants did not bring up the issue of copyright rules while using and sharing digital resources revealed their need for further training in this regard. As discussed in the literature before (e.g., Shin, 2015; Karatay & Hegelheimer, 2021), pre-service teachers might use inauthentic instructional materials or avoid using digital technologies altogether in the absence of such training. Furthermore, it is apparent that these pre-service EFL teachers still did not feel knowledgeable and confident about utilizing digital resources to be more inclusive towards language learners with special needs in their professional lives as in-service teachers.

Another significant finding reached through the third research question is that when the participants were asked to explain what they would consider while selecting and creating digital resources after taking the course, instead of giving answers directly related to ELT, such as providing authentic language input in line with specific learning-teaching objectives, their answers were more related to

practicality, accessibility, and general teaching pedagogies, such as collaborative learning, active student engagement and interaction.

Based on the findings of the second research question, it can be understood that the participants were able to explain whether and how technology integration makes a difference in language teaching. Despite their increased knowledge and development in content-specific digital competence at the end of the term, the participants did not sufficiently emphasize the gains of using digital resources to teach English in their future classrooms. This finding might indicate that they became more aware of the potential of digital technologies for ELT after taking the course. However, while explaining their criteria for selecting and designing digital resources for their future classrooms, learner-centered factors (e.g., motivation, engagement, and participation) outweighed subject-specific factors. Put differently, it can be inferred that making the language learning process as enjoyable, interesting, engaging, and motivating as possible for their students through technology was their priority. In parallel with Graham et al. (2012), this finding might also imply that these pre-service EFL teachers still need more time to establish a stronger connection between what they have learned from the course and their content-specific knowledge and experience.

4.4 Findings and discussion of RQ4

The goal of the fourth question and its sub-question was to investigate whether and how the participants could transfer their digital competence to teaching practicum and their reflections on their use of digital technologies in macro teachings. Before presenting the results of the fourth question, the teaching contexts where the participants carried out their macro teachings are explained in this part to give the

reader an idea of the participants' experiences before teaching practice. The participants' self-disclosures indicated that they were disappointed in not completing their teaching practicum face-to-face due to the COVID-19 pandemic. Contrary to Sariçoban's (2016) findings, the participants did not develop positive attitudes towards their professions during teaching practicum. They stated that they had a different practicum experience than they had imagined, as the teaching practices had to be carried out online. Consistent with Sepulveda-Escobar and Morrison (2020) and Kosar (2021), the participants argued that they could not fully experience teaching during online practicum because they were not in real classrooms.

Mentor teachers in practicum schools have a significant role in pre-service teachers' development of digital competence, considering that they act as role models by setting an example of how ICT can be integrated into teaching (Røkenes & Krumsvik, 2016). However, in accordance with Merç (2015), the findings of this study indicated that mentor teachers failed to be good role models to pre-service EFL teachers, as they did not adequately use educational technologies for teaching. Except for Nehir, who claimed that she observed some technology-enhanced learning sessions, all participants described the lessons they observed as monotonous, without any technology integration. They stated that student participation was minimal in online lessons because their mentor teachers strictly followed the form-focused activities in their textbooks rather than giving the learners a chance to communicate with each other in English. They argued that their mentor teachers were not competent in using digital technologies. For some participants, the reason their mentor teachers did not utilize technology in their lessons was that they did not want to step out of their comfort zone. The participants' comments about their mentor teachers and practicum schools are as follows:

Technology was never integrated into the lessons I observed. No attention was paid to student participation. My mentor teacher was obviously not digitally competent, or maybe he did not prefer to use technology because it required extra workload or planning time. Since there was no use of technology, student participation was restricted to just turning on the microphone and answering the questions. No application was used even for warm-up activities. Although it was a great opportunity that the lessons were carried out online, technology was not used in any way. Usually, when you want to integrate technology into a face-to-face lesson in the classroom, some students might see it as a forced task, or some might consider it unnecessary. However, now there is a need to use technology in lessons. Teachers could have improved themselves using technology, and students would have become more familiar with digital applications during the pandemic. These applications would have been used to draw learners' attention to the lesson, and students' participation would have been monitored through technological tools. Nevertheless, none of these happened in any of the lessons I observed. My mentor teacher did not even share a YouTube video. The PDF file of the coursebook was shared with the students, and it was read aloud as if they were in the classroom. (Ege, Excerpt 109, Semi-Structured Interview, February 2021)

My mentor teacher was definitely not digitally competent. I had to teach him how to share his screen or make someone co-host. In the lessons I observed, cameras and microphones were always turned off, and students' use of chat was disabled. The teacher shared his screen, and they just talked about the book. It was not pleasant for me to observe the lessons. I doubt it was enjoyable for the students because only some students participated in the activities. (Caner, Excerpt 110, Semi-Structured Interview, February 2021)

I feel so sad about my practicum experience. If we were in a typical classroom environment, we would have a chance to see a lot of things. In the lessons I observed, the cameras and microphones were turned off, and a few students were just writing to the chat box. They are using an application called Perculus, and there were no breakout rooms. It was a huge problem that my mentor teacher did not share any multimedia. They just followed the coursebook by doing the same fill-in-the-blanks exercises all the time. If you ask me, the students were really bored during the lessons. It was also boring for me to observe these lessons. (Aslı, Excerpt 111, Semi-Structured Interview, February 2021)

I do not think that my mentor teacher is digitally competent. She did not use anything other than the textbook in the lessons I observed. For example, I was so surprised to see that she turned on her camera and put a real whiteboard behind her and wrote some sentences on it instead of sharing her screen and using the whiteboard on Zoom. She assumed that her students could see what was written on the board, but they could not. I noticed that she was not aware that she could use Zoom's annotation feature or breakout rooms. I taught her how to use these features. Perhaps she did not see the need to change her teaching style in online education; therefore, she did not try to learn what Zoom offers for teachers. However, I believe teachers

should be trained to learn how to use digital technologies. (Selin, Excerpt 112, Semi-Structured Interview, February 2021)

I think my mentor teacher was not competent in using digital technologies. She just used an interactive coursebook and asked students to do the activities according to the given order. I think that the online education period was highly problematic for high schools. The cameras were not turned on in any of the lessons I observed. Turning on the microphones was optional too. Under these circumstances, only two or three students participated in the lessons. The teacher strictly followed the coursebook, and I did not observe any pair or group-work activities. Students did not work collaboratively, and the mode of interaction was limited to 'teacher to student' and 'student to teacher.' (Damla, Excerpt 113, Semi-Structured Interview, February 2021)

My mentor teacher is interested in educational technologies, but I do not think she has much knowledge about them. She used a few digital resources. In general, they use Google Classroom and Google Jamboard in their activities. There was not much variation, but of course, she uses technology. (Nehir, Excerpt 114, Semi-Structured Interview, February 2021)

Parallel to Öz's (2015) study, the pre-service EFL teachers in this study expressed that they could not receive enough support from their mentor teachers during their teaching practice, as the mentors mainly preferred lecture-based teaching. Although the transition to distance education made the use of technology in teaching mandatory, their mentor teachers did not benefit from digital technologies to enhance the quality of their English lessons. This situation had a negative impact on the participants' development of digital competence because they could not see the link between the course and the real teaching environment they observed.

As the participants were not happy with how lessons were delivered in their practicum schools, all participants expressed that they would integrate digital tools into their macro teachings next semester to make their lessons more interactive and engaging during the interviews conducted in the first term. However, they were worried that student participation in the lessons enriched with technological tools would not be high. They also thought that they would have classroom or time management problems since students were not introduced to these tools in their

regular lessons before. With these in mind, they still argued that they would definitely put what they learned from the course into practice in their macro teachings. The participants' statements about their plans for their macro teachings are presented below:

I will definitely incorporate technology in my lessons but, since the students have never experienced such a thing before, they will probably be very confused, and the majority of them may not participate in the activity. However, I will still do it because the students did not speak at all in the lesson I observed. Only two or three students participated, and it was not clear whether the others were in front of the computer screen, as they were not asked to turn on the cameras. Of course, I will choose the digital tools that match my lesson objectives. (Ege, Excerpt 115, Semi-Structured Interview, February 2021)

The biggest problem I will face will be student participation. I will probably lose a lot of time waiting for students to do the tasks. However, I believe that I can use the tools that I learned from this course to design fast and effective activities. (Caner, Excerpt 116, Semi-Structured Interview, February 2021)

I think we will probably have difficulty in student participation in our lessons because they are very used to being passive. I will definitely do my best to use digital tools to draw their attention to the lessons, but right now, I do not know how successful I will be at this. We will see it next term. (Ashi, Excerpt 117, Semi-Structured Interview, February 2021)

Since students are not familiar with using digital technologies in their regular lessons, I think they will have trouble using them when they are introduced. To overcome these difficulties, I got permission from the teacher to teach unofficial teachings before my official lessons by using the tools I plan to integrate into my macro teaching so that it would be easier for the students to use them in my lessons. I will try not to choose very complex tools so that they do not cause too much difficulty for students because we have limited time. (Selin, Excerpt 118, Semi-Structured Interview, February 2021)

I want to use the digital tools we learned and practiced during the course, especially for grammar, listening, reading lessons, or homework. In online education, motivating students to speak can be a big challenge, especially for high schools, because they do not turn on their cameras or even microphones. I would have a hard time integrating technology for speaking lessons. (Damla, Excerpt 119, Semi-Structured Interview, February 2021)

Of course, I want to use digital technology in my macro teachings, and I know that I should. I will try to use many different sources. But if I use a new tool, I feel a little worried about handling any issues that may arise during the lesson. Besides, my mentor teacher expects me to integrate different tools

into my macro lessons because we talk a lot about these with her. (Nehir, Excerpt 120, Semi-Structured Interview, February 2021)

Tondeur et al. (2018) emphasized that there might be a discrepancy between pre-service teachers' attitudes towards the use of technology in education and their practical applications. Likewise, this study showed that despite their positive attitudes towards using digital technologies in their macro teachings, not all participants integrated digital technologies they learned from the course into their lessons. Table 8 demonstrates the digital tools the participants used in their macro teachings.

As can be seen from Table 8, Ege only used PowerPoint presentations, including two YouTube videos in his macro teachings. In other words, his lessons were in the form of teacher-centered lectures where only volunteer students answered the questions written on the slides. It could be said that he planned and delivered his lessons like his mentor teacher, whom he criticized harshly in the first term.

Caner's implementation of digital technologies in his macro teachings was mostly restricted to self-access materials designed as supplementary resources. In other words, he did not design H5P quizzes (see Table 8) to be delivered during the learning session. He implemented an interactive Wordwall quiz in only one of his lessons. However, instead of asking students to take the quiz by themselves, he shared his screen, and volunteer students raised their hands to answer the questions. Put it differently, although he attempted to incorporate a gamified quiz, the way the activity was completed was still quite teacher centered. He reported that he did not have time to start the Padlet activity through which students would have been actively producing the target language. Although his third macro teaching was planned to be more student-centered, he could not deliver the lesson effectively.

Table 8. Summary of the Digital Tools Integrated into Macro Teachings

	First macro teaching	Second macro teaching	Third macro teaching	Fourth macro teaching
Nehir	PowerPoint (presentation), YouTube (authentic input), Google Classroom (sharing lesson materials), Google Drive (file sharing), Spiral (group discussion), Mentimeter (self-reflection)	PowerPoint (presentation), Google Classroom (sharing lesson materials, discussion, assigning homework), Pixlr (photo editing tool)	PowerPoint (presentation), Mentimeter (creating word cloud), Google Classroom (sharing lesson materials)	N/A (She designed only three lessons for the practicum course.)
Damla	Nearpod (interactive presentation with built-in activities)	Nearpod (interactive presentation with built-in activities)	N/A (She designed only two lessons for the practicum course.)	N/A (She designed only two lessons for the practicum course.)
Aslı	Google Drive (sharing resources), Nearpod (interactive presentation with built-in activities), Kahoot (gamified quiz)	Nearpod (interactive presentation with built-in activities), Padlet (writing a short paragraph)	Nearpod (interactive presentation with built-in activities), Wordwall (gamified interactive quiz)	N/A (She designed only two lessons for the practicum course.)
Selin	PowerPoint (presentation), YouTube (authentic input), Padlet (virtual bulletin board), Voki (creating speaking avatars), Canva (creating brochures), Mindmaps.app (creating mind maps)	PowerPoint (presentation), Wordwall (gamified interactive quiz), PlayPosit (interactive video quiz for listening comprehension, Padlet (short creative writing activity)	N/A (She designed only two lessons for the practicum course.)	N/A (She designed only two lessons for the practicum course.)
Caner	H5P (quiz & supplementary material)	H5P (quiz & supplementary material)	Wordwall (gamified interactive quiz), Padlet (virtual bulletin board)	N/A (He designed only three lessons for the practicum course.)
Ege	PowerPoint (presentation)	PowerPoint (presentation), YouTube (pre-activity)	PowerPoint (presentation), YouTube (warm-up activity)	PowerPoint (presentation)

Caner expressed that the students were still passive during the learning session, apart from a few volunteers. In brief, both Ege and Caner admitted that they could not transfer their digital competence and what they learned from the course to their macro teachings.

The rest of the participants stated that they applied digital technologies into their lesson plans as much as possible, given the realities of the online education period. Both Aslı and Damla created interactive presentations using Nearpod. These participants used the same platform to design and deliver built-in activities, such as drag-and-drop and fill-in-the-blanks. Although the delivery of the presentation was teacher-led, especially the use of the Collaborate board feature of Nearpod increased the role of student input during the session, as all students were asked to produce English sentences actively in real-time. Aslı also implemented other technological tools in her lessons, such as Kahoot and Padlet, to increase learner participation and active engagement.

Selin was able to design lesson plans consisting of learning tasks that built well on each other and had meaningful outcomes. Compared to other participants' lesson plans, her plans for the practicum course were more student-centered. She managed to integrate various digital tools into her lesson for different purposes. For instance, she used Padlet, Voki, Canva, and other tools to facilitate her students' written and oral productions in English. Furthermore, she also used PlayPosit and Wordwall to monitor students' activity and performance during the lesson.

As for Nehir, she created technology-enhanced lesson plans for her macro teachings. Since her mentor teacher frequently used Google Classroom for sharing lesson materials and assigning tasks, she preferred to use this learning platform in her lessons, knowing that her students were already familiar with it. She also used

different digital tools, such as Mentimeter, Spiral, and Pixlr, to increase students' active participation in the classroom. In general, her lesson plans were successful in terms of increasing students' communication and collaboration among each other through guided tasks. The following sections detail the reflections of the participants on their macro teaching experience. Firstly, the challenges the participants faced regarding the participants the use of technology in macro teachings are presented. Then, the opportunities listed by the participants will be explained.

4.4.1 Challenges of technology use during teaching practicum

The participants reported the challenges they faced in planning and implementing English lessons enriched with digital technologies, which caused one of them to give up entirely on the idea of utilizing technology in his lessons, except for PowerPoint and YouTube. The problems related to the transition from a CALL-based teaching course to pre-service EFL teachers' own classes were also reported by Fathi and Ebadi (2020) in the Iranian context. However, unlike the Iranian pre-service EFL teachers, the participants of this study did not state that they lacked the confidence and competence needed for using digital technologies in practice. Instead, the challenges they listed were mainly linked to the emergent online teaching practicum during the COVID-19 pandemic. In addition to the challenges, some participants also emphasized the opportunities digital technologies offered to them during their macro teachings. Table 9 summarizes the challenges and opportunities the participants voiced in the spring term.

Table 9. Challenges and Opportunities of Using Technology in Macro Teachings

Challenges	Opportunities
• Demotivation of students and pre-service EFL teachers in online classes during COVID-19 pandemic • Classroom management • Lack of student-teacher rapport • Students' limited access to digital devices • Limited class time • Ownership of the classroom	• Increased Active Student Participation • Differentiation • Monitoring and feedback

4.4.1.1 Demotivation of students and pre-service EFL teachers in online classes during COVID-19 pandemic

While explaining why they did not use digital technologies in their macro teachings as they planned in the fall term, Ege and Caner reported that student participation in the lessons they observed was noticeably low, and the students' lack of motivation demotivated them as well. These participants' comments related to their lack of motivation in their online practicum teachings are as follows:

One cannot teach a class with three or four students. For technology-enhanced activities, peer or group work, or at least whole-class discussion, is needed. You would not plan such activities for one or two students. Imagine that I designed an activity using digital tools, and in this activity, students are divided into groups of three or four. It would not work during the lesson. Those in the meeting room would act as they were not there because they do not want to make an effort. For example, in my lessons, I called the students by their names and said, 'Please say yes or no to me if you are here, or I will assume you are not here.' They said nothing. It means they were not there. If they were there, they would at least say yes or write in the chat box that they were there but could not speak at that moment. I also told them they should write in the chat box if they were there, but they did not even do that. Thus, I lose my motivation to teach when such things happen. (Ege, Excerpt 121, Semi-Structured Interview, May 2021)

First, I thought about transferring most of the activities that I had to cover in the lesson to a digital platform. I considered turning them into a quiz show, but I was not very motivated. Only two students participate, and they do the activities by taking turns. Even if I sent them a digital quiz, they probably

would not do it. I mean, I was planning to design such an activity, but I was demoralized and decided not to do it. (Caner, Excerpt 122, Semi-Structured Interview, May 2021)

Some participants who could use digital tools in their macro teachings also underscored the impact of low participation of their students on how they planned and delivered their lessons. To put it more specifically, Selin stated that although she wanted to implement various digital tools into her lessons, she tended to use simpler tools, considering that students would not participate in more complex tasks.

While planning the lesson, I cannot be sure whether students can understand the task or want to participate. If I could be sure that they would participate, I would use different digital tools, but I could not be sure if they would participate in digital tasks. I know a great number of things about educational technologies, but I continue to use simple things, thinking that students would not do the activities in my mind. (Selin, Excerpt 123, Semi-Structured Interview, May 2021)

Selin's statements above revealed how the low participation of the students in the previous lessons demotivated her during the lesson planning stage. She expressed that she could not fully demonstrate her digital competence in practice. Likewise, Aslı reported that although she was excited at the beginning of her lesson, seeing that only half of the students joined the Nearpod presentation demotivated her during her first macro teaching.

In my first macro teaching, I asked students to go to Nearpod using the link I provided. There were 20 students in total, but sadly only half of them joined my Nearpod presentation. This situation inevitably caused a problem for me because I could not achieve my goal. Some students were left behind. However, I think there is not much I can do about this during the online education period. (Aslı, Excerpt 124, Semi-Structured Interview, May 2021)

As participants stated above, the online teaching practicum experience was demotivating for the pre-service EFL teachers and their students. According to Caner, his students were generally quiet during online lessons because of the normalization of technology use in teaching during the pandemic. He argued that in a physical classroom environment, the fact that students could use their technological

tools in a lesson occasionally, regardless of the activity, was enough to attract their attention. However, as students had to spend the whole day in front of a computer during the online teaching period, the idea of using technology for learning tasks was not as exciting as before for them. Excerpt 125 demonstrates his opinions about his students' lack of motivation during macro teachings:

If I were teaching in a classroom, I would definitely be more motivated. For example, the reason I did not design a Kahoot activity is that I do not know which devices the students have access to. If we were in a physical classroom environment, all students would probably have mobile phones. It would be very interesting for them to use their mobile phones at school to do such activities. Even the permission to use their mobile phones at school would be enough to draw their attention. However, using technology in lessons is not as attractive as it used to be. Before the pandemic, it was an entertaining activity for students, but now they have to use technology. (Caner, Excerpt 125, Semi-Structured Interview, May 2021)

As the excerpts above demonstrated, it can be concluded that the low participation of students in online classes had a great effect on the motivation of teacher candidates to use digital technologies in their lessons. The fact that their students did not actively participate in the learning activities demotivated most participants both in the lesson planning period and during the delivery of the lesson.

4.4.1.2 Classroom management

Ege reported that not being able to make students do the technological tasks would undermine his authority as a teacher in the eyes of their students. Therefore, he believed that if students did not follow his instructions, he would not manage the classroom in an online environment. He argued in excerpt 126 that managing the classroom during the implementation of digital tasks would be easier in a physical teaching environment. However, as the lessons were delivered online, he did not want to take this risk.

If you, as a teacher, cannot make your students do a technological activity, and when the students see that you cannot implement the activity, they would question your authority. If students leave the online meeting room, I cannot do anything. I did not want to face such a problem. Therefore, I just used some slides, knowing that only one or two students would participate. . . If I were teaching in a face-to-face classroom, I would definitely use technology. In a physical learning environment, I could involve all the students in the lesson by using the smart board in the classroom, even if my students had no access to personal technological devices. More importantly, my students would not leave the classroom. (Ege, Excerpt 126, Semi-Structured Interview, May 2021)

When choosing digital tools for her macro teachings, Damla said that she preferred to use Nearpod and designed the learning activities within this tool, believing that she would not have problems implementing it in her lessons. Otherwise, she thought that she could not quickly handle any problem that might arise in her lessons and that she would lose control of the class in the meantime. Therefore, she used only Nearpod instead of integrating different digital tools into the same lesson.

When there is a problem during the lesson, I cannot think of anything right away, and I lose my control. For instance, I was observing a peer's lesson, and she had a problem in the breakout rooms. She adapted the task very quickly by opening a Google Document and directing everyone there. However, I think I cannot act that fast, concerning technology. Therefore, I stayed in my comfort zone and did not take any risks. If I was just going to design a lesson plan, I would take that risk. However, I did not want to take risks in my macro teachings because I was in control of 30 students. . . I was very comfortable during the Nearpod tasks because I used this tool and designed learning activities while taking the course. (Damla, Excerpt 127, Semi-Structured Interview, May 2021)

The problems raised related to the issue of classroom management were not restricted to the lesson planning stage. Selin expressed that only some students followed the instructions and completed their tasks using Canva, MindMeister, or Voki during her first macro teaching. The others made different excuses for not doing the task, and she could not find a way to include them in the lesson.

While creating technology-enhanced learning tasks for my lesson and planning their use before delivering them, I wondered whether I could

manage the class during the macro lessons. This thought prevented me from integrating more different digital tools into my macro teachings. (Selin, Excerpt 128, Semi-Structured Interview, May 2021)

As it was an online class and only two people turned their cameras on, I could not see what they did. Only five of them created projects and presented them. The rest, 15 students, were present but ‘absent.’ I could not control them whatsoever. For this reason, I texted them using the chat box. I talked to them, but some said they were tired, some said they were having breakfast. I could not deal with them. (Selin, Excerpt 129, Reflection, June 2021)

In brief, the participants reported the difficulties they encountered regarding classroom management and the use of digital technologies in online teaching practice. These challenges were reported to be discouraging in terms of integrating different digital tools into lessons not only at the planning but also at the implementation stages of the participants’ macro teachings. This finding is consistent with Ersin, Atay, and Mede’s (2020) study, where pre-service EFL teachers expressed their concerns about classroom management in online teaching. Since they could not see what their students were doing in online lessons, teacher candidates could not find a way to overcome this problem.

4.4.1.3 Lack of student-teacher rapport

Ege and Caner repeatedly complained about the lack of student-teacher rapport in online lessons. Compared to the face-to-face teaching practicum experience that could allow pre-service teachers to bond with their students, the participants practiced teaching without seeing their students’ faces in online classes. While some students did not turn on their cameras because their school did not allow them due to privacy issues, some preferred to “hide behind their cameras” (Flores & Gago, 2020, p. 3), as turning on their cameras was optional. Since teacher-student interaction is a key component of effective teaching (Hamre et al., 2013), the lack of this interaction was demotivating for the participants. These participants stated that delivering

technology-enhanced lessons was not easy in such an environment. Their comments related to this challenge are given below:

In my last macro teaching, I taught in a class that I attended for the first time. The students did not know me. I briefly introduced myself and started the lesson. This is not a model that would work. When the practicum is face-to-face, you can sit in the classroom, students can see you, and you can have a conversation with them at recess time. That way, you can establish a bond, have a rapport with students. There is no such thing now. How effective would it be if someone came, introduced himself on an online platform for two minutes, and then tried to teach something? While my mentor teacher was lecturing, I attended the session and delivered my lesson in between his lessons like a commercial break. Thus, I did not see the need to use digital technologies. (Ege, Excerpt 130, Semi-Structured Interview, May 2021)

We should all acknowledge the pandemic situation and how it affected every single functioning part of humanity. However, acknowledging this fact did not justify all the setbacks I have experienced during my practicum. . . The [school] administration . . . decided to forbid the students from opening their webcams for identity safety concerns, which I personally believe was the main reason for the disinterest from students. This decision caused me to make more than a hundred observations without seeing any student, alienated from the classes I observed. . . I do not feel like this practicum has prepared me enough in terms of being a teacher, and having no teacher-student interaction was so demoralizing. (Caner, Excerpt 131, Reflection, June 2021)

As can be seen from excerpts 130 and 131, not being able to see students and establish a student-teacher bond caused these participants to think that they could not practice being real teachers. Therefore, they claimed that they could not put their actual digital competence into practice in their online macro teachings.

4.4.1.4 Students' limited access to digital devices

Another concern raised by Ege and Caner to explain why they could not use digital technologies as they wanted in their macro teachings was related to the limited access of students to digital devices. They stated that most students joined online classes with their mobile phones. For this reason, they thought that their students could not participate in hands-on activities requiring them to use computers. These

participants argued that they tried to keep their lessons as simple as possible so that everyone could be involved in the lessons.

If my practicum school was a private institution, I would know that my students' economic conditions were better, and I would try to plan more challenging tasks for students. However, I know that half of these students do not have access to personal computers. I observed that they could not prepare the presentations needed for their class projects. I could not push the limits in such an environment. I kept my lessons simple, considering the majority of the students. (Caner, Excerpt 132, Semi-Structured Interview, June 2021)

Most students join the lessons with their mobile phones. I could not be sure if they could open another tab to do the assigned activity while using Microsoft Teams. Also, I do not know who has a personal computer and who does not. This would cause problems in activities that require students to join with their computers. (Ege, Excerpt 133, Semi-Structured Interview, May 2021)

Agreeing with Caner and Ege regarding students' limited access to digital devices, Selin reported that she paid attention to selecting digital tools compatible with mobile phones. She underlined that she would reflect her digital competence better in her macro teachings if her students had personal computers.

In my unofficial teachings, there was a Kahoot activity. Students who attended the lesson on their mobile phones had to switch between the tabs. They looked at the questions in one tab and clicked the answer in another tab. It was difficult for them, so I decided not to use it again. I chose the tools that allow students to do activities with their mobile phones while still listening to me on Zoom. Also, some students joining the lesson with their mobile phones cannot clearly see what I show them while I share my screen. As I considered these while planning my macro teachings, I could integrate digital tools into my lessons to some extent. That was the best I was able to do. (Selin, Excerpt 134, Semi-Structured Interview, May 2021)

As can be seen from excerpts 132, 133, and 134, these participants were conscious of the realities of their students and the teaching environment, which has a significant impact on how pre-service teachers implement technology in practice (McGarr & McDonagh, 2019). Considering these, Caner designed supplementary materials that can be worked on with mobile devices using H5P. Similarly, Selin tried to choose digital tools that students could use with their mobile phones in her lessons. Ege was the only participant who did not attempt to overcome this challenge in any way.

In short, the fact that students' access to technological devices in online education is generally limited to their mobile devices affected the way teacher candidates use technology during teaching practicum. This finding is consistent with the study of Sepulveda-Escobar and Morrison (2020). Their study indicated that pre-service EFL teachers in Chile became more aware of the digital divide between students during their online teaching practice. In their study, the participants also argued that they learned to be more empathetic towards students' digital backgrounds while planning and delivering lessons due to the COVID-19 pandemic. Their attitudes towards the students' limited access to digital devices were more positive as they learned how to design lesson plans with these limitations in mind. On the other hand, the participants of this study perceived these accessibility problems as a challenge rather than a learning opportunity, which demotivated them in their macro teachings.

4.4.1.5 Limited class time

The duration of the macro lessons was 30 minutes in state schools while it was 40 minutes in private schools during the study. The participants stated that the allocated time was challenging for them to integrate digital technologies into their teachings efficiently. Their statements about the limited class time are as follows:

With the latest changes, the allocated time for each lesson was reduced to half an hour in state schools. It is a very short time for integrating technological tasks into lessons because the organization and discussion parts of the tasks take a long time. (Caner, Excerpt 135, Semi-Structured Interview, June 2021)

The duration of lessons is 40 minutes in my practicum school. Last semester it was 60 minutes. Now it is very difficult to use different digital tools in 40 minutes. I was able to use two different tools effectively in 60 minutes, but now I had to reduce it to one. (Nehir, Excerpt 136, Semi-Structured Interview, June 2021)

My lesson was supposed to take 50 minutes [with the extra time requested from the mentor teacher], yet it took an hour and five minutes with closure. It was mostly due to the timing in the main and post-activities. The students stated that they needed more time to submit their work on Padlet (Aslı, Excerpt 137, Reflection, May 2021)

Aslı asked to have an extra ten minutes for her macro teachings from her mentor teacher before starting the lesson. However, as can be seen from excerpt 137, she had to extend her lesson while delivering it to allow her students to complete the Padlet task. These findings confirm the research study of Kuru Gönen (2019) in that pre-service EFL teachers think that classroom hours are insufficient for effective technology integration. Thinking that the duration of the lesson was not enough, Damla and Selin took permission from their mentor teachers and prepared two macro lessons of 80 minutes instead of four lessons of 40 minutes each. They stated that they were able to provide the students with enough time to do the tasks on digital platforms, thanks to the extra time they requested. It can be concluded that the participants needed more time than the allocated lesson time to use digital technologies better in their macro teachings. However, it can also be argued that they still might not be competent enough to plan the use of digital technologies for their macro teachings by making the best use of the class time.

4.4.1.6 Ownership of the classroom

While Damla and Selin were completely free to choose which topic to focus on in their macro teachings, Ege, Caner, and Nehir reported that they had to follow the curriculum of their practicum schools. In comparison to the findings of Tondeur et al. (2017), the participants' mentor teachers did not encourage them to integrate digital technologies into their practice. For instance, Caner emphasized that his

mentor teacher preferred him to follow the coursebook, and as he was not the regular teacher of the class, he argued that he had to do as he said.

For the first lesson, my mentor teacher told me that he would prefer if I followed the curriculum, as he did not want to fall behind. He also stated that I could do extra activities if I had more time later. However, he explicitly told me that he expected me to cover the contents of the coursebook first for my second macro teaching. He also showed what he would cover after my lesson and expected me to continue with the activities in the book if I had some time left. I tried to prepare my lesson plans without overstepping my boundaries as a teacher trainee. But, by doing that, I restricted myself to the extent of copying him. (Caner, Excerpt 138, Reflection, June 2021)

Although Damla chose the topics of her macro teachings and the type of learning activities, she stated that she had to select digital tools that the students could easily use. She highlighted that if she were teaching them regularly, the students would already be familiar with the tools, as she would use them regularly in her classes. Moreover, she expressed that if she were their class teacher rather than a trainee, she would freely choose which tools to use in her lesson and design more challenging tasks, assuming that the student participation would be higher.

I believe that I was able to integrate technology into my macro teachings. Nevertheless, if that class were my own class, I could probably tell them which digital tools to sign up for and how to use these tools in my previous lessons, as I would spend more time with them. For now, I need to use simple digital tools that I can easily explain to the students how to use so that they can understand the task and start doing it immediately. If I had my own class, I would use a variety of digital tools because my students would already know how to use them. . . Students participate more in different learning activities when you attend a class regularly because they see you as a normal teacher rather than a trainee teacher. (Selin, Excerpt 139, Semi-Structured Interview, May 2021)

The findings above are consistent with the study of Goktepe and Kunt (2020) in that these pre-service EFL teachers did not feel like the owners of their practicum classes. Some of them had to teach their lessons according to their mentor teachers' expectations, as their mentors had the authority over them. Contrary to the findings of Busher, Gündüz, Çakmak, and Lawson (2015), these teacher candidates expressed

that they could not feel like a real teacher, as they could not decide how the lessons would be designed and delivered. These participants believe that they can teach as they want when they have their own classrooms. That being said, Caner criticized himself for being too hesitant to find a middle ground with his mentor teacher in planning the lessons in a creative way that would fit the curriculum. Excerpt 140 shows his opinions about following his mentor's instructions:

The participation in both my lessons and mentor teacher's lessons was discouragingly low, with only two or three students actively participating, which can also be interpreted as I did nothing extra to peak student interest. I should criticize myself for being timid. I believe that I could have been more creative without overstepping my boundaries and going against the curriculum my mentor teacher followed. I should have taken the initiative towards that. (Caner, Excerpt 140, Reflection, June 2021)

In summary, the participants did not want to take risks and preferred to utilize simple tools that could be more easily managed during the lesson in order to use the lesson time efficiently. They emphasized that they demonstrated their digital competence only partially in their macro teachings. Some argued that they could integrate digital technologies into their classes more effectively if they were given a chance to deliver more lessons during practicum. In that case, students would be more familiar with using technologies for learning, and the participants would also gain more confidence in time and classroom management during the application of technology-enhanced learning tasks.

Since the participants did not have detailed knowledge about students' levels of digital competence and their access to digital devices or the internet, they decided to integrate digital tools that were practical and compatible with different digital devices. The participants also claimed that since students' cameras were turned off and the number of students who participated in the discussions was low, they could not bond with them as they would in a physical classroom environment. They were

demotivated because they could not build a rapport with their students as they wished. Another challenge faced by some participants was to follow the curriculum of their practicum schools, which restricted the way they planned their macro teachings. The challenges mentioned above prevented them from using digital technologies as they wanted.

4.4.2 Opportunities of technology use during teaching practicum

4.4.2.1 Increased active student participation

The participants who implemented digital tools in their macro teachings pointed out that student participation was higher in their lessons than in the regular classes they observed. They highlighted that technology-enriched learning tasks encouraged the silent students to be more active during the learning session. The participants' comments about the role of digital technologies in increasing students' active engagement with English are presented below:

I created a drag-and-drop vocabulary activity using Wordwall. It was more like a game. The silent students also participated in this activity. I realized that they actually wanted to speak in English, but they were shy. The game format helped me increase student participation in the lesson. (Selin, Excerpt 141, Semi-Structured Interview, May 2021)

I used the Collaborate board feature of Nearpod so that I could see everybody participate. Otherwise, if the activity is just based on speaking, only a few students participate actively. The others remain silent and receptively listen to their friends, or they answer your question only when you call their names. Therefore, I integrated technology into my lesson. I think the students were definitely more active, and I was able to see almost the whole class participating simultaneously. Using technology helped me increase student participation (Damla, Excerpt 142, Semi-Structured Interview, May 2021)

There were fifteen students in my last macro teaching session, and almost everyone participated in the Padlet task, which was about describing their favorite movie. If I had not used Padlet and asked students to answer my question orally, maybe most of these students would not have participated at all. I believe they would have been more passive. (Aşlı, Excerpt 143, Semi-Structured Interview, May 2021)

I think the use of digital technologies increased student participation in my lessons visibly. I realized that I heard some students' voices for the first time in my macro teachings. These students were generally silent in their regular English lessons. (Nehir, Excerpt 144, Semi-Structured Interview, June 2021)

These participants underscored that most students were relatively passive in the classes they observed, and only some volunteer students participated in the in-class tasks. They argued that these students more actively participated in digital learning tasks than in their mentor teachers' lessons. They believed that the student participation rate would not be high without technology integration. These findings supported the findings of Fathi and Ebadi (2020) and Kuru Gönen (2019). In their studies, the participants also stated that the use of technology increased students' participation, interaction, and motivation in classes during their field experience.

4.4.2.2 Differentiation

Consistent with the study of Kuru Gönen (2019), some participants stated that the integration of digital technologies allowed them to involve students with different learning styles or needs in their lessons. They pointed out that they allowed different types of learners to be engaged in the learning tasks they preferred by providing them with different task options. They stated that the incorporation of digital technologies into macro teachings also helped their students produce both written and spoken language output. The participants reported that they were able to address learners' different needs to some extent in this way.

Students who love playing games liked the idea of creating characters using Voki, and they preferred to choose that option. Those who like expressing themselves with words chose the mind mapping tools, or students who think visuals are important preferred creating a brochure using Canva. . . There was a student in the class who never participated in the lessons I observed. For the post-task, I gave them three options, one of which was writing an alternative ending to Titanic, and his post was the longest in the class. I felt like I gave him a chance to participate in a way that he felt more comfortable with. (Selin, Excerpt 145, Semi-Structured Interview, May 2021)

I added options to some activities in my macro teachings. For example, they could edit their work using Pixlr or Google Classroom. Since our time was limited, some students completed the task via Google Classroom while others used Pixlr, as they found it more enjoyable. (Nehir, Excerpt 146, Semi-Structured Interview, May 2021)

I tried to involve all students in the lesson as much as possible. I noticed that my mentor teacher covered the activities in the textbook in such a way that students only answered the questions orally. When all of these activities are done like this, only five or six students are active during the lesson. For this reason, I tried to design activities in which students could also submit written responses. This way, I tried to find the balance in the type of activities so that everyone could participate in the lesson in some way. (Aslı, Excerpt 147, Semi-Structured Interview, June 2021)

As the excerpts above suggest, the participants were aware of the potential of digital technologies in enabling students to complete a learning task in diverse ways with a common goal. According to these participants, the differentiation of some learning tasks helped them increase learner motivation and participation in learning tasks that required language output. Having stated that, it should also be emphasized that since the participants could not interact with students closely in a real classroom setting, they tried to adjust the needs of students who actively participated in the classroom, or they designed their lessons considering what their students might need in online classes. It would be unrealistic to assume that they could cater to each student's needs in an online class setting, where student participation was remarkably limited.

4.4.2.3 Monitoring and feedback

According to the participants, another benefit of using digital tools in their macro teachings was to monitor students' activity and performance and offer feedback during the lessons. Similarly, in Kuru Gönen's (2019) study, the participants appreciated the help of technology in providing learners with immediate feedback.

The participants of this study claimed that it would not be possible for them to monitor students' language productions without digital technologies.

I added a fill-in-the-blanks activity to Nearpod, and thanks to technology, everyone could work on the same activity simultaneously. I do not know if I could do the same activity as effectively in a face-to-face classroom because I was able to see students' scores in real-time and provide them with feedback. For example, if I used printout materials in a face-to-face teaching environment, I probably would not be able to give such instant feedback. I would not see how well the students did at that moment. I could see how fast and accurate students were, so I think technology helped me a lot in this respect. (Damlı, Excerpt 148, Semi-Structured Interview, May 2021)

Maybe if we were in a classroom environment, I would not be able to observe and monitor each student's activity specifically. As I was able to join breakout rooms in online lessons held on Zoom, I managed to monitor their progress. (Aşlı, Excerpt 149, Semi-Structured Interview, June 2021)

Google Classroom is like a digital portfolio. Students could analyze both their works and other groups' works during and after the class. It was also quite helpful for me as a teacher to monitor what they uploaded on Google Classroom. (Nehir, Excerpt 150, Semi-Structured Interview, June 2021)

As Nehir voiced in excerpt 150, integrating digital technologies into her macro teachings enabled her to monitor her students' productions. It also gave learners a chance to monitor the performances of themselves and their peers. Agreeing with the other participants, Nehir emphasized that using digital tools, such as Google Classroom and Mural, helped her tremendously in monitoring learners' activity and performance while working on learning tasks.

Teaching practicum is a valuable process for pre-service teachers (Graves, 2010), in addition to being a significant component of the teacher education programs (Darling-Hammond, 2017). With that being said, teaching practice is the most challenging process for pre-service teachers during teacher training (Ferrier-Kerr, 2009). Consistent with the study of Sepulveda-Escobar and Morrison (2020), the findings of this study revealed that pre-service EFL teachers did not believe that the online teaching practice prepared them enough for the challenges they would face

in a face-to-face classroom, such as behavioral issues. However, they also noted that the COVID-19 pandemic and online teaching placement brought distinctive challenges.

Although the challenges reported by the participants outweighed the opportunities overall, some participants were also thankful for the opportunities digital technologies offered during this period. They argued that incorporating technology into their macro teachings enabled them to overcome some of the difficulties of online teaching practice, such as the lack of active student participation. Furthermore, they had the chance to apply what they learned from the course into an authentic teaching context. Their first-hand experience seemed to be helpful for the participants because some of them were able to design their lessons by keeping different types of learners in mind, which was one of the competence areas they struggled with during the treatment in the fall term.

CHAPTER 5

CONCLUSION

This chapter summarizes the findings of the study in relation to the research questions. The pedagogical implications and limitations of the study are presented to the reader at the end of the chapter.

5.1 Summary of the findings

The current study primarily investigated the impact of a technology-enhanced language teaching course on the digital competence development of Turkish pre-service EFL teachers. The research questions generated for this study aimed to capture the participants' development based on their self-reports (e.g., surveys, reflection papers, semi-structured interviews) and performance tasks (e.g., lesson plans, assignments, in-class hands-on tasks). By doing so, the researcher attempted to detect whether the participants' perceptions of their own competences and their digital competences in practical tasks were in accordance. The findings of the study were also supported by a follow-up study exploring the effect of the technology-enhanced language teaching course on the digital practices of the participants during their practicum experience.

In the light of the survey and semi-structured interviews, the first question sought to answer the participants' digital competence levels before and after the treatment from the perspective of the DigCompEdu framework. A further question asked at this point was the DigCompEdu areas in which the participants improved the most and least at the end of the study. The second research question intended to describe the participants' digital competence development in practice throughout the

study based on the performance tasks and their reflections on their progress. The aim of the third question was to answer whether and how the participants plan to transfer their digital competence to their future classrooms when they become in-service teachers. The fourth research question explored whether and how the participants benefited from their digital competence training in their macro teachings during teaching practicum. Finally, the participants' reflections on the challenges and opportunities of implementing technology into their macro teachings were investigated.

Data analysis for the first question showed that the participants' digital competence levels at the beginning of the study ranged from B1 (Integrator) to C1 (Leader). In other words, the participants reported that they could integrate digital tools into their lessons to varying degrees with their existing knowledge. The survey conducted at the end of the study suggested that all participants, apart from Nehir, whose initial score corresponded to the C1 level, moved on to the next level of competence. Put differently, the participants' self-reports pointed out that they were either Experts (B2) or Leaders (C1) in terms of utilizing digital technologies for language teaching. The data gathered from the semi-structured interviews also confirmed the survey results, as the participants felt more digitally competent after the treatment. The analysis of the survey and interviews also revealed that while the majority of the participants believed they developed more in the areas of Digital Resources and Teaching and Learning, they felt that they had less progress in the areas of Assessment and Empowering Learners. To put it more precisely, they expressed that they need more training to learn how to develop completely digital exams, provide learners with immediate and customized feedback using digital tools,

and create differentiated learning activities that are accessible to all students, including those with special needs.

Concerning the second research question, the data analysis revealed that the participants already had positive attitudes towards incorporating technology into English language teaching before the study. However, the digital tools they integrated into their lesson plans were limited to some well-known applications in the market at the beginning of the semester. Findings revealed that the participants particularly developed in the area of Digital Resources during the study. They not only expanded their repertoire of digital tools but also increased their theoretical knowledge and understanding regarding the areas of DigCompEdu thanks to the performance tasks and reflection papers. In other words, the participants were able to explain the potential uses of digital technologies for English lessons, such as providing authentic and comprehensible input and assessing language skills. It was also identified that they managed to develop a critical attitude while selecting and creating digital resources by paying attention to several factors, such as the match between selected technology, learner profile, and teaching context. On the other hand, most participants' use of digital tools in the sub-areas of Guidance, Collaborative learning, Self-regulated learning, Accessibility and inclusion, Differentiation and personalization, and Copyright rules could not meet the expectations.

Throughout the study, it was observed that the development of digital competence is a complex process, and not every participant could transfer what they learned from the course to their lesson plans in the same way. Although the data gathered from the participants' self-reports suggested that their level of digital competence reached either B2 or C1 after the training, the analysis of the lesson

plans indicated that half of the participants were still not competent in designing digital learning tasks that are appropriate for the lesson objectives or pedagogical approach. This finding was critical because it confirmed the earlier studies stating the mismatch between participants' self-reports and their digital practices (Son et al., 2011; Engen et al., 2014; Park & Son, 2020). What these participants had in common was that they did not take the course focusing on teaching language skills, a course built on language teaching pedagogy, which was expected to be taken before the ENGT416 course. This finding suggested that building solid pedagogical content knowledge is a must for the effective use of technology for instructional purposes.

As for the third research question, the analysis of the semi-structured interviews and reflection papers demonstrated that the pre-service EFL teachers in this study plan to integrate digital technologies into their future English classrooms. They stated that the course increased their competence and confidence in using technology for their future professional practices. While explaining how they plan to make use of their improved digital competence as in-service teachers, the participants referred to all areas of the DigCompEdu in general. Nonetheless, there was a noticeable lack of emphasis on the sub-competences of Guidance, Copyright rules, and Accessibility and inclusion in the data. This finding might suggest that the course provided did not prepare the participants enough for their future careers in terms of being attentive towards cyberethics and learning how to use digital tools to increase the accessibility of lessons for learners with special needs and to guide learners inside and outside the classroom.

One of the major findings of the study related to the third question was that although the focus of the provided course was explicitly on technology-enhanced English language teaching, the participants' justifications for selecting and creating

digital resources for their lessons in the future were not directly related to the subject matter, apart from a few instances. Instead, their remarks mostly were in relation to generic pedagogical concerns, such as increasing learner motivation and engagement during learning sessions. A possible explanation for this situation might be that they did not have strong pedagogical content knowledge that would be expected from senior students. Also, since these teacher candidates were not directly in contact with students in an authentic learning environment, it is highly likely they had difficulty connecting their content and technical knowledge. Therefore, it was concluded that some participants still need to develop their content-specific digital competences despite their visible development in certain sub-areas of the DigCompEdu framework.

The data collected to answer the fourth research and its sub-question showed that the majority of the participants felt frustrated about their online teaching practicum experience and how their mentor teachers delivered online classes. They reported being motivated to change the dynamics of the teacher-centered online lessons they observed in their macro teachings, thanks to technological tools. However, the analysis of the lesson plans and reflection papers indicated that not all participants sufficiently transferred their digital competence into their macro teachings. The participants listed the factors that prevent them from using technological tools more efficiently in their macro teaching as follows:

- Demotivation of students and pre-service EFL teachers in online classes during COVID-19 pandemic
- Classroom management
- Lack of student-teacher rapport
- Students' limited access to digital devices

- Limited class time
- Ownership of the classroom

Those who could utilize digital tools in their macro teachings argued they tried to put their digital competence into practice as much as they could under the challenging conditions of online practicum. They were grateful for the opportunities provided by technological tools to make their lessons more interactive and engaging for their learners. The opportunities related to their use of technology in macro teachings were presented below:

- Increased active student participation
- Differentiation
- Monitoring and feedback

Overall, the present research study contributed to the literature by reporting pre-service EFL teachers' digital competence development both during coursework and teaching practicum through the data collected from self-report and performance-based instruments from the perspective of the DigCompEdu framework. The content-specific educational technology course was successful in providing future candidates with a digital toolbox that can serve as the basis for further professional development in the future. In line with the previous studies in the literature (Mishra & Koehler, 2006; Redecker, 2017; Ranieri & Bruni, 2018; Guillén-Gámez et al., 2019), this study highlighted the importance of solid pedagogical knowledge in building digital competence of pre-service EFL teachers during teacher education.

As also stated by Lee and Lee (2014), it was concluded that despite being useful in helping student teachers establish a connection between theoretical and procedural knowledge, lesson planning tasks might not be as effective as actual teaching practices with real students to narrow the gap between theory and practice.

In other words, in the absence of practical teaching experience in authentic teaching contexts, it is not realistic to expect student teachers to develop a significant digital competence. Finally, confirming the findings of Park and Son (2020), it was identified that whether and how pre-service EFL teachers apply their digital competence during macro teachings was affected by both internal factors, such as motivation, and external factors, such as limited class time. The current study suggests that the development of digital competence of pre-service EFL teachers is a multi-faceted, complex process that needs to be closely monitored, guided, and supported by both teacher educators and mentor teachers.

5.2 Implications of the study

This study offers pedagogical implications for pre-service EFL teachers, teacher educators, and policymakers in the realm of education. As Park and Son (2020) stated, pre-service teachers are expected to be better equipped to utilize technology in their classrooms compared to the past. The need for training pre-service EFL teachers who can effectively incorporate digital technologies into teaching to support learning objectives has become much more evident with the outbreak of the COVID-19 pandemic. However, as the relevant literature and terminology are constantly in a state of flux, assessing prospective teachers' digital competence development can be challenging and complex. Therefore, the DigCompEdu framework and the rubric developed in this study to evaluate the lesson plans can shed light on the critical components of the concept of digital competence for teachers. Although the rubric is still open to improvement, it sets an example that can be adapted to different educational settings. Both the framework and the rubric can be used by teacher educators as analytical lenses when assessing the development of digital competence

of pre-service English teachers. In the same way, mentor teachers can also benefit from them while evaluating teacher candidates' macro teaching lesson plans. Likewise, pre-service EFL teachers can also assess and reflect on their digital competences in the light of the framework and rubric provided.

Supporting Engen et al. (2014), this study showed that pre-service teachers' self-reports of their digital competence levels and their actual proficiency might differ. Therefore, teacher educators and researchers should go beyond assessing pre-service EFL teachers' digital competence development based on their self-perceptions. Instead, hands-on tasks should be designed carefully and analyzed before and after the treatment to have a deeper understanding of whether and how pre-service EFL teachers improve their digital competence during teacher education. Such an evaluation can also provide insights into the areas pre-service EFL teachers develop the most and least after taking a technology-enhanced English language teaching course.

This study presents implications regarding the potential changes in the curricula adopted in teacher education institutions. Teacher candidates in this study did not make progress in all areas of the DigCompEdu framework equally. Since digital competence is a complex phenomenon, including different areas, it may not be realistic to assume that pre-service EFL teachers can be competent in all areas after taking a single course. Therefore, instead of offering teacher candidates one-shot courses focusing on content-specific educational technologies, separate courses on different aspects of teachers' digital competence, such as Empowering Learners and Assessment, can be offered in teacher education programs. Considering that the participants of this study developed the least in these areas, pre-service teachers should be shown how technology can be used in undergraduate courses focusing on

special education and assessment of language skills. When expected to use technology in such courses, teacher candidates can get ample opportunities to engage in collaborative, hands-on tasks regarding these areas of digital competence to be more prepared for their professional lives. When separate courses cannot be offered due to the factors related to university contexts, such as financial problems and lack of necessary academic staff (Öztürk & Aydın, 2019), it is important to design a course in a way that all areas of the DigCompEdu framework, including copyright rules, are addressed equally. During such one-shot courses, student teachers should be given various assignments directly related to each area of the DigCompEdu.

The outbreak of the COVID-19 pandemic and emergency remote teaching have forced teachers to use technology at least as a tool to continue teaching. However, seamless integration of technology into education may not be possible without robust pedagogical knowledge related to teaching in the digital era. This study showed that the pre-service EFL teachers with solid pedagogical and content knowledge were able to create lesson plans aligned with learning objectives and teaching approaches, while others had difficulty in achieving the same task even after the treatment. This finding implies that pedagogical knowledge is a must for a technology-enhanced English teaching course to contribute to pre-service EFL teachers' development of digital competence.

To increase pre-service language teachers' pedagogical knowledge of ELT, they should be given more opportunities to design and deliver technology-enhanced English lessons as well as reflect on their competences during teacher education. Otherwise, for some pre-service EFL teachers, declarative knowledge may not turn into procedural knowledge through lesson plans or other hands-on tasks. For this reason, as suggested by Tondeur et al. (2015), digital competence training of student

teachers should be perceived as a whole and paid enough attention in earlier years of teacher education. Put it differently, potential uses of technology in education should be demonstrated to prospective teachers throughout the teacher education program from the first year onwards, rather than waiting for them to acquire a substantial digital competence through a single course in their senior year. This can be achieved through all academicians' modeling of technology use and utilization of digital technologies in different undergraduate courses from the very beginning to the end of teacher education. For teacher educators at universities to set an example for teacher candidates in using technology effectively in their lessons, they must be competent enough in this regard, which will require them to receive training in this field as well.

Since technology integration in teaching practicum was not required, pre-service EFL teachers in this study did not consider the coursework as a preparation for the practicum. Although encouraged by some mentor teachers and university supervisors, the use of technology is not a must in macro teachings. Therefore, only the pre-service EFL teachers who were motivated attempted to put their knowledge and skills received from the course into practice during their macro teachings. This study revealed that the optional use of technology in macro teachings supports the idea of technology as a supplementary resource to make classes more entertaining and engaging rather than a core component of teaching. Hence, technology integration in English education should not be seen as an add-on during teacher practicum to support prospective teachers' digital competence development in an authentic teaching environment with real students.

As Tondeur et al. (2017) stated, practicum experience has the most critical impact on pre-service teachers' ICT competences. The findings of this study suggested that mentor teachers' attitudes towards educational technologies and the

participants' decisions about whether and how to integrate technology into their macro teachings were related. Nevertheless, the participants were not supported enough by their mentor teachers during teaching practice. They neither modeled the use of technology nor encouraged students to incorporate technology into their macro teachings. In order for teacher candidates to receive such guidance, assistance, and support, mentor teachers should also have a certain level of digital competence. However, it was seen that mentor teachers at practicum schools were not competent enough to offer such assistance. This could be explained by the fact that most mentor teachers were caught unprepared concerning the use of technology in their lessons with the rapid transition to online education due to the COVID-19. To further develop pre-service EFL teachers' digital competence, mentor teachers' digital competence should also be improved significantly. For this purpose, digital competence training targeting the in-service teachers can be offered systematically. After such training, mentor teachers can increase their competences and be better role models for teachers of the future.

To conclude, pre-service EFL teachers' assessment of digital competence development should not be limited to the coursework. Good examples of technology use should be modeled both in teacher education programs and practicum schools. Consistent with the studies of Park and Son (2020) and Ozer (2018), this study suggests that pre-service EFL teachers should be offered ongoing feedback and support, particularly during teaching practicum, to establish the link between theory and practice better. To achieve this goal, as also recommended by Schmid and Hegelheimer (2014), universities and practicum schools should collaborate better to support the development of prospective teachers' digital competence. In the absence of such collaboration, guidance, and assistance, digital technologies would only be

used by highly motivated pre-service teachers during teaching practicum. The rest would start teaching in real classrooms without gaining first-hand experience in terms of delivering technology-enhanced lessons. In this case, teacher education institutions cannot fully prepare teacher candidates for the classrooms where the integration of technology has become more prevalent all around the world.

5.3 Limitations of the study and recommendations for further research

This study has some limitations that should be addressed. The data was collected from six pre-service EFL teachers studying at a state university in Turkey. Therefore, the researcher does not intend to generalize the findings of the study. Although the number of students was enough for a case study to be conducted, further studies with more participants in a different setting could be designed to have a better understanding of the impact of a technology-enhanced English teaching course on teacher candidates' development of digital competence. Also, the analysis of the data demonstrated that the participants did not explicitly state whether they attended webinars related to the use of educational technologies in language classrooms. As the duration of the study was long, the participants may have participated in such short online events over the seven-month period. Therefore, the lack of data on the participants' exposure to other potential online events should be treated as a limitation. Another limitation of this study is that the critical peer could only analyze the data gathered through lesson plans. However, the researcher could not find another critical peer to analyze the rest of the data collected through reflection papers and interviews, as the data were quite lengthy. The help of a critical peer for the analysis of the data obtained through these sources could have increased the reliability of the findings of the study.

This study has offered insight into whether and how pre-service EFL teachers could transfer what they have learned from the course to their macro teachings through the data gathered from the lesson plans, reflection papers, and interviews. However, since each practicum school had different policies during the online education period, the researcher could not observe the participants' macro teachings. Therefore, further research is needed to observe how well student teachers could deliver their lesson plans. Moreover, no data was gathered from mentor teachers or students at the practicum schools in this study. Their comments would have strengthened the findings of the study further. Similar studies, including the opinions of the participants' mentor teachers and students, could be carried out in the future to analyze pre-service EFL teachers' development of digital competence from a broader perspective.

This study focused on the development of Turkish pre-service EFL teachers' digital competence over seven months in the last year of their teacher training. As more longitudinal studies are needed in the literature, further studies could be conducted to find out whether and how the participants could integrate digital technologies into their classes as professional practitioners. If the participants fail to maintain their digital competence in their own classes, the reasons behind this lack of transfer could be explored to gain a better insight into the challenges that in-service EFL teachers face while designing and delivering technology-enhanced English lessons. In this way, the participants' transition from teacher training to professional careers could be investigated to identify the extent to which they could sustain their levels of digital competence acquired during the study. Finally, similar longitudinal studies can also be conducted with pre-service and in-service teachers of other

subject domains. Such studies can offer valuable information for teacher education programs in the world.

Despite the limitations addressed below, this thesis contributed to the literature by reporting pre-service EFL teachers' digital competence development during coursework and teaching practicum through the data collected from self-report and performance-based instruments from the perspective of the DigCompEdu framework.



APPENDIX A

COURSE STRUCTURE

Weeks	Topics Covered	Sample Digital Tools and Applications Introduced	Assignment/ Hands-on Activities
1	Introduction to the course		
2	Materials evaluation and development in ELT	Padlet, Menti.com	The DigCompEdu Survey Lesson plan development and written reflection (Individual)
3	Principles of digital materials development		
4	CALL evaluation and materials development	TED-Ed, Duolingo, Memrise, British Council, EnglishCentral	CALL Evaluation (Individual)
5	Integration of technology in class (Bloom's Taxonomy, SAMR Model, ASSURE Model)	The Padagogy Wheel	Materials Adaptation (Group work)
6	Materials design using mobile technologies	ThingLink, Gimkit, Quizziz, Kahoot!	Creating a teaching activity on ThingLink (Pair work)
7	Using visuals in ELT	Canva, Popplet, EdPuzzle, PlayPosit, Formative, Nearpod	Creating a poster using Canva (Pair work) Creating an interactive video (Group work)
8	Digital materials for teaching vocabulary and grammar materials	H5P, Grammar, Brainscape, Anki App, Quizlet, VisuWords	Worksheet design using H5P based on an ELT textbook (Individual)

Weeks	Topics Covered	Sample Digital Tools and Applications Introduced	Assignment/ Hands-on Activities
9	Reading Skills	Lucidchart, Popplet, MindMeister, Miro, Conceptboard, Mindomo	Creating a visual organizer using (Pair/group work)
10	Web 2.0 and Writing Skills	Wikis, Weebly, Google Docs, BookCreator	MAPP assignment: First set (Pair work)
11	A/synchronous Communication	GoogleHangouts, Skype, YouTube, Zoom	
12	Listening Skills	LyricsTraining, Voscreen, EnglishCentral, Podcasts	
13	Speaking Skills and Pronunciation	Voki, VoiceThread, Flipgrid, Vyond, Animaker, Elsa Speak	MAPP assignment: Second Set (Pair work) VoiceThread Activity
14	Wrap up & Closure		Skill-based CALL Lesson Plan (Individual) The DigCompEdu Survey

APPENDIX B

PARTICIPANT INFORMATION AND CONSENT FORM

Research Support Institution: Boğaziçi University

Name of the research: A Case Study on the Development of Turkish Pre-Service Teachers' Digital Competence

Project Manager: Senem Yıldız

E-mail:

Phone:

Name of the Researcher: Gizem Canbulat

E-mail:

Dear Pre-Service EFL Teacher,

Gizem Canbulat, a student at the Graduate School, Boğaziçi University, Foreign Language Education Department is conducting a research study for her Master Thesis entitled “A Case Study on the Development of Pre-Service EFL Teachers' Digital Competence.” The purpose of this study is to investigate the digital competencies of pre-service EFL teachers in Turkey. We invite you to participate in this study that aims to assess the digital competence development of pre-service EFL teachers. We would like to inform you about the research before your decision.

If you agree to participate in this research, you will be asked to fill in an online survey regarding your current digital practices and your attitudes towards the use of digital resources for instructional purposes. The same survey will be filled in at the beginning and at the end of the semester.

Secondly, during the semester you will be asked to prepare teaching tasks and write reflective entries after the completion of these tasks. The lesson plans that you

prepare for your practicum course will also be analyzed, with your permission. The aim of these tasks will be to monitor your application of your digital competences.

Finally, one-on-one interviews will be held at the end of the course and after your macro teachings to hear your opinions regarding your digital competence development during the study. These interviews will be held on Zoom, and with your consent, your voice will be recorded by the researcher for further data analysis.

You are encouraged to ask questions or raise concerns at any time about the design of the study or the methods that are used. Please contact me at any time using the e-mail address or telephone number listed above.

This research is carried out for a scientific purpose and the confidentiality of the participant information is taken as a basis. The data obtained in this research will be used to write a qualitative research report, which will be read by my advisor and submitted to the Thesis Committee. In this study, we would like to emphasize that all your personal information will be kept confidential, and pseudonyms will be used instead of your real names. Although direct quotes from the assignments, interviews and the reflections may be used in the report, your name and other identifying information will be kept anonymous. The data obtained from this research can also be used in scientific presentations or publications without specifying real names and the identity of the participants.

The participants in this study will not be offered any material reward or money. The participants will be offered five extra credits for the course ENGT416. We want to emphasize that you are free not to participate in this study. In general, the study does not include questions that may cause distress. However, you have the right to withdraw from the study at any time. When you choose to withdraw from the study all information you provide (including the recordings) will be destroyed and

omitted from the final paper. In case you withdraw from the study, you will not be given additional five credits, but your course grade and performance will not be affected positively or negatively.

If you would like to receive additional information about the research project, please contact Gizem Canbulat (e-mail:) or Assoc. Prof. Senem Yıldız (e-mail:). In addition, you may also contact the Ethics Committee for Master and PhD Theses in Social Sciences and Humanities (INAREK/SOBETIK). Mail:

If your address and phone number change, we ask you to let us know.

If you agree to participate in this research project, please sign this form and hand it in to the researcher.

By signing this consent form I certify that
(print full name here), I have read the text above and completely understood the scope and purpose of the study, and the responsibilities that I have as a participant. I had the opportunity to ask questions about the study. I understand that I can leave this project whenever I want to and without having to state any reason and if I leave it, I will not encounter any negativity.

Under these circumstances, I agree to participate in the research without any pressure. I do not want to receive / have received an instance of the form (in this case the researcher stores this copy).

Participant's Name-Surname:.....

Signature:.....

Date (day/ month/ year):...../...../.....

Researcher's Name-Surname:.....

Signature:.....

Date (day/ month/ year):...../...../.....

APPENDIX C

LESSON PLANNING TASK INSTRUCTIONS

Design a technology-integrated lesson plan that includes pre-, main, and post-tasks.

Make sure that your lesson plan includes the following:

- Target students (Grade & Age)
- Target school (Private/ State)
- Target skill
- Topic/theme
- Students' background knowledge
- Lesson objectives
- Allocated time
- Technological tools & resources
- Necessary materials
- Types of tasks (individual, group work, pair work)
- Assessment
- Feedback
- Homework

APPENDIX D

REFLECTION QUESTIONS FOR LESSON PLANS

1. How did you choose your target students? How does technology help you teach the target skill to your target students?
2. Why did you focus on the target skill that you chose for this lesson plan? How does technology help you teach the target skill?
3. What teaching theory or theories does your lesson plan adopt? Explain.
4. How did you choose the technological tools in your lesson plan? What were your criteria?
5. In your lesson plan, did you create a digital resource for your students? If yes, how will you make it available for learners? Who can see these materials?
6. In your lesson plans, do you think the designed tasks allow collaborative learning? If yes, how?
7. How active your students are in your designed lesson plan? Please explain it with reference to relevant tasks.
8. How does technology help you assess students' work, provide feedback, and offer help to your students?
9. While preparing your lesson plan, did you pay attention to learners with special needs, interests, proficiency levels, or access to digital resources? If yes, explain it with reference to relevant tasks. If not, explain why you did not pay attention to these.
10. Would you make any changes in your lesson plan if you were going to write this lesson plan again? If yes, what would you change? Why?

APPENDIX E

THE DIGCOMPEDU CHECK-IN SURVEY

DigCompEdu Survey

Part 1. How do you currently assess your digital competence? Assign a level of competence from A1 to C2, where A1 is the lowest and C2 the highest level.

I am probably a(n)

- ☐ Newcomer (A1)
- ☐ Explorer (A2)
- ☐ Integrator (B1)
- ☐ Expert (B2)
- ☐ Leader (C1)
- ☐ Pioneer (C2)

Part 2. Please consider where you stand in view of the following long-term goals. The answer options are organized by increasing level of engagement with digital resources. Please choose the option that best reflects your current practice.

Area 1: Professional Engagement

1. I systematically use different digital channels to enhance communication with students and fellow academics (e.g., emails, blogs, the department's website, Apps)

- ☐ I rarely use digital communication channels
- ☐ I use basic digital communication channels (e.g., e-mail)
- ☐ I combine different communication channels (e.g., e-mail and class blog or the department's website)
- ☐ I systematically select, adjust and combine different digital solutions to communicate effectively
- ☐ I reflect on, discuss and proactively develop my communication strategies

2. I use digital technologies to work together with colleagues inside and outside my educational organization

- ☐ I rarely have the opportunity to collaborate with other academics
- ☐ Sometimes I exchange materials with colleagues (e.g., via e-mail)
- ☐ Among colleagues, we work together in collaborative environments or use shared drives
- ☐ I exchange ideas and materials, also with academics outside my organization, (e.g., in an online professional network)
- ☐ I jointly create materials with other academics in an online network

3. I actively develop my digital teaching skills

- ☐ I rarely have the time to work on my digital teaching skills
- ☐ I improve my skills through reflection and experimentation
- ☐ I use a range of resources to develop my digital teaching skills
- ☐ I discuss with peers how to use digital technologies to innovate and improve educational practice.
- ☐ I help colleagues in developing their digital teaching strategies.

4. I participate in online training opportunities (e.g., online courses, MOOCs, webinars, virtual conferences)

- ☐ This is a new area that I have not yet considered
- ☐ Not yet, but I am definitely interested
- ☐ I have participated in online training once or twice
- ☐ I have tried out various different online training opportunities
- ☐ I frequently participate in all kinds of online training

Area 2: Digital Resources

1. I use different internet sites and search strategies to find and select a range of different digital resources

- ☐ I only rarely use the internet to find resources
- ☐ I use search engines and resource platforms to find relevant resources
- ☐ I evaluate and select resources on the basis of their suitability for my learner group
- ☐ I compare resources using a range of relevant criteria (e.g., reliability, quality, fit, design, interactivity, appeal)
- ☐ I advise colleagues on suitable resources and search strategies

2. I create my own digital resources and modify existing ones to adapt them to my needs

- ☐ I do not create my own digital resources
- ☐ I do create lecture notes or reading lists with a computer, but then I print them
- ☐ I create digital presentations, but not much more
- ☐ I create and modify different types of resources
- ☐ I set up and adapt complex, interactive resources

3. I effectively protect sensitive content (e.g., exams, students' grades, personal data)

- ☐ I do not need to do that, because the department takes care of this
- ☐ I avoid storing personal data electronically
- ☐ I protect some personal data
- ☐ I password protect files with personal data
- ☐ I comprehensively protect personal data (e.g., combining hard-to-guess passwords with encryption and frequent software updates)

Area 3: Teaching and Learning

1. I carefully consider how, when and why to use digital technologies in teaching, to ensure that they are used with added value

- ☐ I do not or only rarely use technology in class
- ☐ I make basic use of available equipment (e.g., digital whiteboards or projectors)
- ☐ I use a variety of digital strategies in my teaching
- ☐ I use digital tools to systematically enhance teaching
- ☐ I use digital tools to implement innovative pedagogic strategies

2. I monitor my students' activities and interactions in the collaborative online environments we use

- ☐ I do not use digital environments with my students
- ☐ I do not monitor student activity in the online environments we use
- ☐ I occasionally check on them and their discussions
- ☐ I regularly monitor and analyze my students' online activity
- ☐ I regularly intervene with motivating or corrective comments

3. When my students work in groups or teams, they use digital technologies to acquire and document evidence

- ☐ My students do not work in groups
- ☐ It is not possible for me to integrate digital technologies into group work
- ☐ I encourage students working in groups to search for information online or to present their results in digital format
- ☐ I require students working in teams to use the internet to find information and present their results in a digital format
- ☐ My students exchange evidence and jointly create knowledge in a collaborative online space

4. I use digital technologies to allow students to plan, document and monitor their learning themselves (e.g., quizzes for self-assessment, ePortfolios for documentation and showcasing, online diaries/blogs for reflection)

- ☐ Not possible in my work environment
- ☐ My students do reflect on their learning, but not with digital technologies
- ☐ Sometimes I use, for example, quizzes for self-assessment
- ☐ I use a variety of digital tools to allow learners to plan, document or reflect on their learning
- ☐ I systematically integrate different digital tools to allow learners to plan, monitor and reflect on their progress

Area 4: Assessment

1. I use digital assessment formats to monitor student progress

- ☐ I do not monitor students' progress
- ☐ I do monitor students' progress regularly, but not with digital means
- ☐ Sometimes I use a digital tool (e.g., a quiz, to check on students' progress)
- ☐ I use a variety of digital tools to monitor student progress
- ☐ I systematically use a variety of digital tools to monitor student progress

2. I analyze all data available to me to timely identify students who need additional support

“Data” includes students' engagement, performance, grades, attendance; activities and social interactions in (online) environments;

“Students who need additional support” are students who are at risk of dropping out or underperforming; students who have learning disorders or specific learning needs, students who lack transversal skills, e.g. social, verbal or study skills.

- ☐ These data are not available and/or it is not my responsibility to analyze them
- ☐ I only analyze academically relevant data (e.g., performance and grades)
- ☐ I also consider data on student activity and behavior to identify students who need additional support
- ☐ I regularly screen all available evidence to identify students who need additional support
- ☐ I systematically analyze data and intervene in a timely manner

3. I use digital technologies to provide effective feedback

- ☐ Feedback is not necessary in my work environment
- ☐ I do provide feedback to students, but not in digital format
- ☐ Sometimes I use digital ways of providing feedback (e.g., automatic scores in online quizzes, comments or “likes” in online environments)
- ☐ I use a variety of digital ways of providing feedback
- ☐ I systematically use digital approaches to provide feedback

Area 5: Empowering Learners

1. When I create digital assignments for students I consider and address potential digital problems (e.g., equal access to digital devices and resources; interoperability and conversion problems; lack of digital skills)

- ☐ I do not create digital assignments
- ☐ My students do not have problems with using digital technology
- ☐ I adapt the task so as to minimize difficulties
- ☐ I discuss possible obstacles with students and outline solutions
- ☐ I allow for variety, e.g. I adapt the task, discuss solutions, and provide alternative ways for completing the task

2. I use digital technologies to offer students personalized learning opportunities (e.g., I give different students different digital tasks to address individual learning needs, preferences, and interests)

- ☐ In my work environment, all students are required to do the same activities, irrespective of their level
- ☐ I do provide students with recommendations for additional resources
- ☐ I provide optional digital activities for those who are advanced or lagging behind
- ☐ Whenever possible, I use digital technologies to offer differentiated learning opportunities
- ☐ I systematically adapt my teaching to link to students' individual learning needs, preferences, and interests

3. I use digital technologies for students to actively participate in classes

- ☐ In my work environment it is not possible to actively involve students in class
- ☐ I do involve students actively, but not with digital technologies
- ☐ When instructing, I use motivating stimuli (e.g., videos, animations, cartoons)
- ☐ My students engage with digital media in my classes (e.g., electronic worksheets, games, quizzes)
- ☐ My students systematically use digital technologies to investigate, discuss and create knowledge

Area 6: Facilitating Learners' Digital Competence

1. I teach students how to assess the reliability of information and to identify misinformation and bias

- ☐ This is not possible in my subject or work environment
- ☐ I occasionally remind them that not all online information is reliable
- ☐ I teach them how to discern reliable and unreliable sources
- ☐ I discuss with students how to verify the accuracy of information
- ☐ We comprehensively discuss how information is generated and can be distorted

2. I set up assignments which require students to use digital means to communicate and collaborate with each other or with an outside audience

- ☐ This is not possible in my subject or work environment
- ☐ Only on rare occasions are my students required to communicate or collaborate online
- ☐ My students use digital communication and cooperation mainly among each other
- ☐ My students use digital ways to communicate and to cooperate with each other and with an external audience
- ☐ I systematically set assignments that allow students to slowly expand their skills

3. I set up assignments which require students to create digital content (e.g., videos, audios, photos, digital presentations, blogs, wikis)

- ☐ This is not possible in my subject or work environment
- ☐ This is difficult to implement with my students
- ☐ Sometimes, for diversion and motivation
- ☐ My students create digital content as integral part of their study
- ☐ This is an integral part of their learning and I systematically increase the level of difficulty to further develop their skills

4. I teach students how to behave safely and responsibly online

- ☐ This is not possible in my subject or work environment
- ☐ I inform them that they have to be careful with relaying personal information online
- ☐ I explain the basic rules for safely and responsibly acting in online environments
- ☐ We discuss and agree on rules of conduct
- ☐ I systematically develop my students' use of social rules in the different digital environments we use

5. I encourage students to use digital technologies creatively to solve concrete problems (e.g., to overcome obstacles or challenges emerging in the learning process)

- ☐ This is not possible with my students, in my work environment
- ☐ I rarely have the opportunity to foster students' digital problem solving
- ☐ Occasionally, whenever an opportunity arises
- ☐ We often experiment with technological solutions to problems
- ☐ I systematically integrate opportunities for creative digital problem solving

Part 3: Background information

1. Are you...?

- ☐ male
- ☐ female
- ☐ prefer not to say

2. What is your age?

- ☐ under 25
- ☐ 25-29
- ☐ 30-39
- ☐ 40-49
- ☐ 50-59
- ☐ 60 or more
- ☐ prefer not to say

3. Including this academic year, for how many years have you been involved in teaching?

- ☐ 1-3
- ☐ 4-5
- ☐ 6-9
- ☐ 10-14
- ☐ 15-19
- ☐ 20 or more
- ☐ Prefer not to say

4. In which of the following subject areas do you teach?
Multiple answers are possible

Health sciences

Language/Literature

Mathematics or computer science

☐ Law

☐ Humanities

☐ Other

☐ Economics

☐ Arts

☐ I do not teach

☐ Engineering

☐ Natural sciences

☐ Prefer not to say

5. What is the main profile of the students you teach?
Multiple answers are possible

- ☐ undergraduate students with no previous professional career
- ☐ graduate students with no previous professional career
- ☐ adult students full-time
- ☐ adult students part-time
- ☐ Other
- ☐ Do not know
- ☐ Prefer not to say

6. How long have you been using digital technologies in teaching?

- ☐ I have not yet used digital technologies in teaching
- ☐ Less than 1 year
- ☐ 1-3 years
- ☐ 4-5 years
- ☐ 6-9 years
- ☐ 10-14 years
- ☐ 15-19 years
- ☐ 20 years or more
- ☐ Prefer not to say

7. What percentage of the courses you teach are online or distance courses

- ☐ 0-10%
- ☐ 11-25%
- ☐ 26-50%
- ☐ 51-75%
- ☐ 76-100%
- ☐ Prefer not to say

8. For what percentage of teaching time have you used digital technologies in class in the past 3 months?

- ☐ 0-10%
- ☐ 11-25%
- ☐ 26-50%
- ☐ 51-75%
- ☐ 76-100%
- ☐ Prefer not to say

9. Which digital tools have you or your students already used for teaching and learning?

- ☐ Presentations
- ☐ Online learning environments
- ☐ Digital posters, mind maps, planning tools.
- ☐ Watching videos / listening to audios.
- ☐ Interactive apps or games
- ☐ Digital quizzes or polls
- ☐ Blogs or wikis
- ☐ Prefer not to say
- ☐ Creating videos / audios
- ☐ I have not yet used any digital tools in class
- ☐ Other

10. How would you describe yourself and your private use of digital technologies?

	strongly disagree	disagree	Neither agree nor disagree	agree	strongly agree
I find it easy to work with computers and other technical equipment.					
I use the Internet extensively and competently					
I am open and curious about new apps, programs, resources					
I am a member of various social networks					

11. How would you now, after responding to the questionnaire, assess your digital competence? (A1: lowest and C2: highest level)

- ☐ I am probably a(n)
- ☐ Newcomer (A1)
- ☐ Explorer (A2)
- ☐ Integrator (B1)
- ☐ Expert (B2)
- ☐ Leader (C1)
- ☐ Pioneer (C2)

Retrieved from <https://ec.europa.eu/eusurvey/runner/DigCompEdu-H-EN>



APPENDIX F

SEMI-STRUCTURED INDIVIDUAL INTERVIEW QUESTIONS FOR THE FIRST SEMESTER

1. What does it mean to be a digitally competent teacher to you?
2. Do you consider yourself as a digitally competent pre-service EFL teacher after taking this course? Have you experienced any changes in your confidence in using digital tools for language teaching compared to the beginning of the semester?
3. How do you feel about integrating technology in your teaching? Have you experienced any changes in your attitude towards technology integration in English teaching this semester?
4. Do you think the integration of digital devices and resources makes a difference in language teaching? How does it make a difference?
5. In what areas of digital competence (Digital Resources, Teaching and Learning, Assessment, Empowering Learners) do you think you improved after taking this course?
6. In what areas of digital competence (Digital Resources, Teaching and Learning, Assessment, Empowering Learners) do you think you need more training?
7. After taking this course, what are the things you will pay attention to while selecting, modifying, and creating digital resources for language teaching?
8. Which digital tools or applications you learned during the course are you planning to use in your language classrooms? How would these tools help you teach English language skills, such as reading, speaking, writing, listening?

9. Do you think you would use technology to teach grammar and vocabulary to your students? What digital tools are you planning to use to teach grammar and vocabulary? How would these tools help you teach grammar and vocabulary?
10. Do you think you can combine your pedagogical knowledge of ELT with technology integration in your technology-enhanced materials and lesson plans? If yes, how?
11. After taking this course, how will you store, share digital resources, and protect sensitive content?
12. Do you think technology has advantages over traditional methods in addressing learners' diverse needs? If yes, after taking this course, how would you address learners' diverse needs in your language classes using technology?
13. Do you think the integration of digital resources in teaching increases learner motivation and active engagement? If yes, how would you use technology to increase learner motivation and active engagement in your language classes?
14. Do you think digital tools facilitate collaborative learning compared to traditional methods? If you think it does, how would you facilitate collaboration among students in your language classes with digital tools?
15. Do you think giving feedback through technology has any advantages over traditional methods? Do you think you would use technology to give feedback to your students? Which tools would you use for this purpose?
16. Do you think technology helps learners manage their own learning? Do you think you would use technology to help your learners manage their own learning? If yes, how would you use technology for this purpose?

17. What do you think about the technology-enhanced language teaching course (ENGT416) in terms of your digital competence development as a pre-service EFL teacher?

18. How would you assess your practicum observation experience in terms of digital competence? Did you observe any technology integration in your practicum classes?

19. Do you think you can integrate digital tools into your macro teachings next semester? Can you think of any challenges in integrating technology into your teaching next semester based on your observations?



APPENDIX G

SEMI-STRUCTURED INDIVIDUAL INTERVIEW QUESTIONS FOR
TEACHING PRACTICUM

1. Do you think your mentor teacher is digitally competent? What makes him or her a digitally competent or digitally incompetent teacher?
2. Did your mentor teacher encourage you to use technology in your teaching practices?
3. Did the ENGT416 course help you in preparing your practicum lessons? If so, in what ways did this course help you in your teaching practice?
4. Do you think you were able to implement digital technologies in your practicum teaching seamlessly? Do you think using technology made a difference in your English teaching practice? If so, how?
5. What went well in your teaching in terms of implementing digital technologies in your lesson?
6. What were the challenges you faced regarding the implementation of digital technologies into your teaching?
7. What did you pay attention to while selecting, creating, or modifying digital resources and tools for your lesson?
8. Were you able to involve every student in the class during the activities? Were there any students with special needs or limited access to digital resources? How did you deal with these challenges?
9. Were your students actively engaged during your lesson? Did technology help you foster the learners' active engagement with English? If yes, how?

10. Did you use technology to address learners' diverse needs in your lesson? If yes, what tools did you use for this purpose? How successful were you in addressing your students' diverse needs using technology?
11. Did you use technology to provide feedback to the learners? What tools did you use for this purpose? Do you think you successfully used technology to give feedback to your students?
12. Did you use technology to increase communication and collaboration among your students? What tools did you use to do this? How successful were you in using technology to improve collaboration and communication among your students in English?
13. Did you pay attention to copyright issues while preparing your lesson plans?
14. In general, do you think you could reflect what you learned from the ENGT416 course and your digital competence in your macro teachings?
15. How can the ENGT416 course be revised to help you more in your practice teaching experience?

APPENDIX H

ASSESSMENT RUBRIC FOR LESSON PLANS

Areas of DigCompEdu	Sub-competences	4 (Exceeds expectations)	3 (Meets Expectations)	2 (Partially Meets Expectations)	1 (Does Not Meet Expectations)
AREA 2: DIGITAL RESOURCES	Lesson objectives and target language skill(s)	Designed/modified digital resources /selected digital tools are strongly in line with the lesson objectives and target language skill(s).	Designed/modified digital resources /selected digital tools are in line with the lesson objectives and target language skill(s).	Designed/modified digital resources /selected digital tools are somewhat in line with the lesson objectives and target language skill(s).	Designed/modified digital resources /selected digital tools are not in line with the lesson objectives and target language skill(s).
	Context	Designed/modified digital resources /selected digital tools are quite appropriate for the context.	Designed/modified digital resources/selected digital tools are appropriate for the context.	Designed/modified digital resources/selected digital tools digital resources are partially appropriate for the context.	Designed/modified digital resources/selected digital tools are not appropriate for the context.
	Age	Designed/modified digital resources /selected digital tools are quite appropriate for the target students' age.	Designed/modified digital resources/selected digital tools are appropriate for the target students' age.	Designed/modified digital resources/selected digital tools digital resources are partially appropriate for the target students' age.	Designed/modified digital resources/selected digital tools are not appropriate for the target students' age.

AREA 2: DIGITAL RESOURCES	Proficiency level	Designed/modified digital resources /selected digital tools are quite appropriate for the target students' proficiency level.	Designed/modified digital resources /selected digital tools are appropriate for the target students' proficiency level.	Designed/modified digital resources/selected digital tools digital resources are partially appropriate for the target students' proficiency level.	Designed/modified digital resources/selected digital tools are not appropriate for the target students' proficiency level.
	Pedagogical approach/ methodology	Designed/modified digital resources / selected digital tools strongly support the adopted pedagogical approach/methodology.	Designed/modified digital resources/selected digital tools support the adopted pedagogical approach/methodology.	Designed/modified digital resources/selected digital tools partially support the adopted pedagogical approach/methodology.	Designed/modified digital resources/selected digital tools do not support the adopted pedagogical approach/methodology.
	Sharing digital resources	How the pre-service teacher shares digital content with target learners (e.g., providing necessary links or codes, using an online platform for sharing resources) is optimally explained in the instructions.	How the pre-service teacher shares digital content with target learners is adequately explained in the instructions.	How the pre-service teacher shares digital content with target learners is partially explained in the instructions.	How the pre-service teacher shares digital content with target learners is not explained at all in the instructions.
	Copyright rules	Copyright rules are respected and correctly applied for all resources requiring attribution (e.g., the pre-service teacher is aware of the copyright rules and attributes all open digital resources properly).	Copyright rules are respected and applied correctly for some resources that require attribution (e.g., the pre-service teacher is aware of the copyright rules and attributes some open digital resources properly).	Copyright rules are somewhat respected but not applied correctly (e.g., the pre-service teacher is aware of the copyright rules but cannot attribute open digital resources properly).	Copyright rules are not respected or applied correctly (e.g., the pre-service teacher is not aware of the copyright rules).

AREA 3: TEACHING & LEARNING	Teaching	The pre-service teacher optimally plans the use of digital resources and tools to implement them in teaching (e.g., the lesson plan is optimally applicable).	The pre-service teacher adequately plans the use of digital resources and tools to implement in teaching.	The pre-service teacher inadequately plans the use of digital resources and tools to implement in teaching. (e.g., the lesson plan is not ready to be implemented in a classroom).	The pre-service teacher fails to plan a lesson plan including digital resources and tools (e.g., there is no digital tool that is used to enhance teaching and learning).
	Collaborative learning	The digital technologies in the lesson plan are used optimally to maximize collaboration and communication among target students (e.g., using digital technologies effectively to enhance collaboration and communication throughout the lesson).	The digital technologies in the lesson plan are used adequately to enhance communication and collaboration among students (e.g., using digital technologies effectively to enhance collaboration and communication in at least one task).	The digital technologies in the lesson plan are used partially to enhance collaboration among target learners (e.g., the use of digital tools to enhance collaboration and communication is highly limited).	Digital technologies are not used to enhance communication and collaboration among target learners (e.g., digital technologies used in the lesson plan do not enhance communication and collaboration among target learners).
	Guidance	The digital technologies in the lesson plan are used optimally to provide timely and targeted guidance (e.g., foreseeing learners' needs for guidance and cater for them e.g., frequently asked questions, tutorial video).	The digital technologies in the lesson plan are used adequately to provide timely and targeted guidance to target students to assist them inside and/or outside the classroom (e.g., using collaborative digital environments (e.g., Moodle, Google Classroom), and	The digital technologies in the lesson plan are used partially to provide timely and targeted guidance to target students and to assist them inside and/or outside the classroom.	Digital technologies are not used at all to provide timely and targeted guidance to target students and to assist them inside and/or outside the classroom.

AREA 3: TEACHING & LEARNING			monitoring their behavior and providing individual guidance and support as needed.		
	Self-regulated learning	The digital technologies in the lesson plan are used optimally to support and foster self-regulated learning and reflection on learning progress (e.g., planning, information retrieval, documentation, reflection, self-assessment).	The digital technologies in the lesson plan are used adequately to support and foster self-regulated learning (e.g., student's blogs, e-portfolios, audio and/or video recordings).	The digital technologies in the lesson plan are used partially to support and foster self-regulated learning.	Digital technologies are not used at all to support and foster self-regulated learning.
AREA 4: ASSESSMENT	Assessment	The digital technologies in the lesson plan are used optimally to support different assessment strategies, such as formative, summative, peer assessment (e.g., games, digital quizzes, e-portfolios).	The digital technologies in the lesson plan are used adequately to support formative or summative assessment.	The digital technologies in the lesson plan are used partially to support formative or summative assessment.	Digital technologies are not used at all in the lesson plan to support formative or summative assessment.
	Analyzing digital evidence	The digital technologies in the lesson plan are used optimally to monitor learners' activity, performance, and progress in the class by	The digital technologies in the lesson plan are used adequately to monitor learners' activity, performance, and progress in the class	The digital technologies in the lesson plan are used partially to monitor learners' activity, performance, and progress in the class.	Digital technologies are not used at all to monitor learners' activity, performance, and progress in the class.

AREA 4: ASSESSMENT		generating, selecting, and analyzing digital evidence (e.g., digital quiz results, video / audio recordings).			
	Feedback	The digital technologies in the lesson plan are optimally used to provide targeted (e.g., based on students' mistakes) and timely feedback to learners based on the evidence gathered from the digital technologies (e.g., quiz results).	The digital technologies in the lesson plan are used adequately to provide targeted and timely feedback to learners.	The digital technologies in the lesson plan are used partially to provide targeted and timely feedback to learners (e.g., feedback is partially based on the evidence gathered from the digital technologies).	Digital technologies are not used at all in the lesson plan to provide targeted and timely feedback to learners.
AREA 5: EMPOWERING LEARNERS	Accessibility and inclusion	With the digital technologies used in the lesson plan, it is aimed to involve all students in the classroom, including those with special needs. Potential accessibility issues are considered and responded to provide alternatives for those with special needs or limited access to digital resources/devices.	With the digital technologies used in the lesson plan, it is aimed to involve most students in the classroom (excluding those with special needs), and the learning tasks are designed in a way that those with limited access to digital resources/devices can also be included in the lesson.	With the digital technologies used in the lesson plan, it is aimed to involve some students in the classroom (e.g., those with special needs or limited access to digital resources/devices can only be included in certain tasks, such as pair work in classrooms).	With the digital technologies used in the lesson plan, it is not aimed to involve all students in the classroom (e.g., the pre-service teacher does not provide alternatives for those with special needs or limited access to digital resources/devices).

AREA 5: EMPOWERING LEARNERS	Differentiation	The digital technologies in the lesson plan are optimally used to address learners' diverse needs (e.g., providing learners with different paths to learning, enabling learners to progress at different levels and paces, considering over-and under-achievers.)	The digital technologies in the lesson plan are used adequately to address learners' diverse needs (e.g., providing learners with different paths to learning).	The digital technologies in the lesson plan are used partially to address learners' diverse needs.	Digital technologies are not used at all in the lesson plan to address learners' diverse needs.
	Actively engaging learners	The digital technologies in the lesson plan are used optimally to enhance learners' active engagement with English (e.g., engaging games, searching for information, hands-on, authentic activities, activities that require critical thinking, problem-solving).	The digital technologies in the lesson plan are used adequately to enhance learners' active engagement with English (e.g., engaging games).	The digital technologies used in the lesson plan are used partially to enhance learners' active engagement with English.	The digital technologies used in the lesson plan do not enhance learners' active engagement with English.
	Creative engagement with English	The digital technologies in the lesson plan strongly support learners' creative engagement with English (e.g., producing a creative task in English, such as stories, posters, videos, etc.)	The digital technologies in the lesson plan adequately support learners' creative engagement with English (e.g., creative expressions)	The digital technologies in the lesson plan partially support learners' creative engagement with English sufficiently.	Digital technologies are not used at all in the lesson plan to enhance learners' creative engagement with English sufficiently.

APPENDIX I

ETHICS COMMITTEE APPROVAL

Evrak Tarih ve Sayısı: 23/11/2020-234

T.C.
BOĞAZİÇİ ÜNİVERSİTESİ
SOSYAL VE BEŞERİ BİLİMLER YÜKSEK LİSANS VE DOKTORA TEZLERİ ETİK İNCELEME
KOMİSYONU
TOPLANTI TUTANAĞI

Toplantı Sayısı : 9
Toplantı Tarihi : 19/11/2020
Toplantı Saati : 13:00
Toplantı Yeri : Zoom Sanal Toplantı
Bulunanlar : Prof. Ebru Kaya, Prof. Dr. Fatma Nevra Seggie, Dr. Öğr. Üyesi Yasemin Sohtorik İlkmen
Bulunmayanlar : Prof. Dr. Özlem Hesapçı Karaca

Gizem Canbulat
İngiliz Dili Eğitimi
Sayın Araştırmacı,
"Pre-Service EFL Teachers' Digital Competence: A Case Study in Turkey" başlıklı projeniz ile ilgili olarak yaptığımız SBB-EAK 2020/42 sayılı başvuru komisyonumuz tarafından 19 Kasım 2020 tarihli toplantıda incelenmiş ve uygun bulunmuştur.

Bu karar tüm üyelerin toplantıya çevrimiçi olarak katılımı ve oybirliği ile alınmıştır. COVID-19 önlemleri kapsamında kurul üyelerinden ıslak imza alınmadığı için bu onam mektubu üye ve raportör olarak Yasemin Sohtorik İlkmen tarafından bütün üyeler adına e-imzalanmıştır.

Saygılarımızla, bilgilerinizi rica ederiz.

Dr. Öğr. Üyesi Yasemin
SOHTORİK İLKMEN
ÜYE

e-imzalıdır
Dr. Öğr. Üyesi Yasemin Sohtorik
İlkmen
Öğretim Üyesi
Raportör

SOBETİK 9 19/11/2020

Bu belge 5070 sayılı Elektronik İmza Kanununun 5. Maddesi gereğince güvenli elektronik imza ile imzalanmıştır.

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