DEVELOPING DIGITAL LITERACIES OF PRE-SERVICE EFL TEACHERS THROUGH ENGAGEMENT WITH RESEARCH

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ABSTRACT

DEVELOPING DIGITAL LITERACIES OF PRE-SERVICE EFL TEACHERS THROUGH ENGAGEMENT WITH RESEARCH

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Digital technology has a profound effect on drawing the boundaries of English language teaching (ELT) today. Therefore, for the past few years, Turkey has been initiating to reform teacher education programs in technology-assisted language learning (TALL). Adding two obligatory computer courses in teacher education programs in faculties of education, The Council of Higher Education (1998) aimed to upskill teacher candidates through these courses in developing basic technological skills or using instructional technologies irrespective of their fields of study. Despite this favorable framework, a gap in the literature has been found in relation to Turkish pre-service EFL teachers' digital literacies (DL) to date. Therefore, this study was conducted with a perspective of examining a group of pre-service EFL teachers' practices in relation to their digital literacies. The participants were 24 pre-service teachers of English foreign language (EFL) teachers who took an undergraduate-level course during the 2018-2019 academic year in the Department of Education at Dokuz Eylül University and they were to take 14-week DL training in relation to language teaching. The questionnaires given to the participants in order to determine their perceived knowledge of digital tools, self-efficacy levels in digital literacies and

use of digital tools, beliefs in technology in language teaching and a wide array of documents including reflection papers on articles, reflective papers on practice, field notes and the transcribed data showed that the training helped the participants to develop digital literacies in relation to language teaching especially. More specifically, the data revealed that the pre-service teachers underwent a digital, perceptual, cognitive and attitudinal change in technology infusion into language teaching after the training.

Keywords: Technology-Assisted Language Teaching, Pre-service EFL teachers, Digital Literacies, Technology Integration, Digital Tools

ÖZ

İNGİLİZCE ÖĞRETMEN ADAYLARININ DİJİTAL OKURYAZARLIKLARININ ARAŞTIRMA YOLUYLA GELİŞTİRİLMESİ

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Dijital teknolojinin, bugün İngilizce Dili Eğitimi'nin (İDE) sınırlarını çizme üzerinde derin bir etkisi vardır. Bu nedenle, son birkaç yıldır, Türkiye teknoloji destekli dil öğrenimi konusunda (TDDÖ) öğretmen eğitimi programlarında reform yapmaya başlamıştır. Eğitim fakültelerindeki öğretmen eğitimi programlarına iki zorunlu bilgisayar programı ekleyen Yüksek Öğretim Kurulu (1998) bu dersler aracılığıyla öğretmen adaylarının temel teknolojik becerilerini ya da bölümlerinden bağımsız öğretim teknolojilerini kullanma becerilerini geliştirmeyi hedeflemiştir. Bu olumlu çerçeveye rağmen, literatürde bu zamana kadar İngilizce Öğretmen adaylarının dijital okuryazarlıklarını (DOY) inceleyen bir çalışmanın olmadığı görülmüştür. Bu nedenle, bu çalışma, bir grup İngilizce öğretmen adayının dijital okuryazarlıklarını incelemek amacıyla yapılmıştır. Katılımcılar İngiliz Dili Eğitimi (İDE) bölümünde okuyan 24 tane İngilizce öğretmeni adayından oluşmaktadır ve 14 haftalık dijital okuryazarlık eğitimi almışlardır. Katılımcılara dijital araç bilgisi konusunda öz bildirimlerini, dijital okuryazarlıklarında ve dijital araçların kullanımında öz yeterlik düzeylerini, dil öğretiminde teknolojiye olan inançlarını belirlemek amacıyla verilen anketler ve geniş bir yelpazeyi içeren dokümanları: makale ve dijital araç oluşturma pratikleri üzerine yazdıkları yazılar, araştırmacı notları, yansıtıcı kağıtları ve mülakat transkriptlerinden

elde edilen veriler katılımcıların eğitimden sonra dijital okuryazarlıklarının geliştiğini göstermiştir. Daha spesifik olarak, veriler öğretmen adaylarının eğitimden sonra dil öğretimine teknoloji entegrasyonuna yönelik dijital, algısal, bilişsel ve tutum olarak değişiklik geçirdiğini ortaya koymuştur.

Anahtar Kelimeler: Teknoloji Destekli Dil Öğretimi, İngilizce Öğretmen Adayları, Dijital Okuryazarlık, Teknoloji Entegrasyonu, Dijital Araç

to all children in need

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LIST OF ACRONYMS

CALL	Computer-Assisted/Aided Language Learning
EFL	English as a Foreign Language
ELT	English Language Teaching
ESL	English as a Second Language
ICT(s)	Information Communication Technology/Technologies
MALL	Mobile-Assisted Language Learning
BALL	Book-Assisted Language Learning
PALL	Pen-Assisted Language Learning
RALL	Robot-Assisted Language Learning
WELL	Web- Enhanced Language Learning
NLS	New Literacy Studies
TELL	Technology-Enhanced Language Learning
TESOL	Teaching English to Speakers of Other Languages
TPACK	Technological Pedagogical Content Knowledge
DL	Digital Literacies
CMS	Computer-Mediated Communications
PSTs	Pre-service teachers
RBD	Research- Based Design
VLE	Virtual Learning Environment

Chapter 1

Introduction

There is no doubt that digital technology has profoundly changed the educational setting for the past few years with its merits and posed growing pressure on the nature of teaching (Dudeney et al., 2013; Martin, 2006; Nguyen, 2014; Fitzpatrick & Davies, 2003; Payton & Hague, 2010). Language teaching and learning have also taken its share from this growing influence in the classroom pedagogy (Chapelle, 2003; Eaton, 2010; Krumsvik, 2006); therefore, there has been a parallel growth in the development of courses to prepare language teachers to use the technology (Chapelle, 2009; Hubbard & Levy, 2006; Jefferson & Anderson, 2017). However, there seems to be an unrealized potential of technology-use in second and foreign language classrooms (Dang, 2011; Healey et al., 2018) owing to some reasons, such as inadequate equipment, staff, training, turning a blind eye to the potentials of technology and contextual factors. For example, as reported in a survey by American Council on the Teaching of Foreign Languages, approximately 1300 language teachers emphasized that technology rarely would engage learners in culture learning and interpersonal communication (American Council on the Teaching of Foreign Languages, 2011).

Before delving into detail, it is important to have a closer look into a well-known acronym, CALL and its emerging alternative acronyms. First of all, CALL is defined as "learners learning language in any context with, through and around computer technologies" (Egbert, 2005, p.4). As stated before, alternative acronyms to CALL also came on the stage with the popularity of the Internet. Bush and Terry (1997), for example, coined *Technology Enhanced Language Learning (TELL),* which put the emphasis on the technology the computer provides rather than the computer itself. Another term, *Web Enhanced Language Learning (WELL)* is proposed as the use of the Internet as a medium for instruction in language learning while Warschauer and Kern (2000) put forward *Network-Based Language Learning (NBLL)*. Pettit and Kukulska-Hulme (2007) also coined *Mobile-Assisted Language Learning (MALL)* where learners are engaged in activities mediated by their personal needs and circumstances of use, including those arising from greater mobility and travel (Kukulska-Hulme et al., 2007). Ultimately, *Technology Assisted Language Learning*

(TALL) was proposed by Stanley (2013) where students learn and practice with digital tasks that embody real-life situations. Regarding all the terms, TALL fits best for this study because the study will base on the foundations of Situated Learning in which learners have authentic language learning opportunities; however, the term, CALL is more widely used than TALL at the undergraduate programs.

Therefore, in this study, CALL will be sometimes interchangeably used as for learning through technology, and it will refer to specifically Ecological CALL (Blin, 2016) rather than the other types of CALL. Ecologic CALL covers some similarities with the principles of Digital Literacies (DL) by focusing on the ecological aspect of language learning in which language cannot be isolated from the practice within which it exists (Bloch, 2018; Hafner et al., 2015; Jones, 2016; Mike, 2019; Sakui, 2018). Remembering the tsunami of terms in relation to language teaching through technology, such as MALL, TALL, TELL, RALL and CALL, I stated that I sometimes used the term CALL. However, this study does not take its roots from the principles of CALL, which will be discussed later in the following sections.

In the light of these terms, no matter which approach can be taken as a framework, it is evident that language teachers play a key role in realizing the potentials of technology-based language learning in classrooms. In fact, they are "the lynchpin around which successful online learning events revolve" (Guichon & Hauck, 2011, p. 188), so a growing number of scholars have started to urge the need for conducting studies on technology training within language teacher preparation programs (Akayoğlu, 2012; Akbiyik & Seferoğlu, 2012; Chapelle, 2003; Groth et al., 2007; Kessler, 2007; McLoughlin, & Lee, 2007; Pop & Giurgiulescu, 2015) because it is essential to provide teacher candidates with a venue where they could be theoretically, pedagogically and technically supported for effective use of digital technology (Arnold & Ducate, 2015). To put it differently, technology-based courses in teacher education programs should enable teacher candidates to create knowledge and promote their critical thinking skills as well as to develop their computer literacies (Anderson & Groulx, 2015; Tsitouridou & Vryzas, 2014) in order to adapt the affordances of digital tools in diverse contexts with reference to language teaching (Pangrazio, 2016).

Such a perspective goes beyond a traditional type of technology training where the main focus is on how to teach English through technology within its safe boundaries because this individualistic and mentalist approach does not add to the

conceptualization of teaching practices as much as desired (Lund & Eiliv Hauge, 2011). Rather, in order to make language teachers realize the potentials of technology integration into language classes with its shortcomings as well as its merits, it is needed to surround teacher-training courses with practices in a transformative pedagogy and collaborative critical inquiry (Skourtou & Kourtis-Kazoullis, 2002) in today's digitally-networked world.

In this vein, what complements prospective English teachers' teaching practices will be to develop their digital literacies, which required them to gain a wide array of macro skills (Hockly, 2007) in order to expand effective technology integration skills rather than sole technical skills (Willis, 2016). Given this, Dudeney et al. (2013) proposed that teachers can enhance their teaching experiences for future classes as long as they tailor their practices and prepare personalized designs supported by technology within diverse practices through the use of digital tools. In short, it is inevitable for future language teachers to develop digital literacies in a world of ever-changing information and knowledge.

Although many authors (Lankshear & Knobel, 2011; Warschauer, 2009) tried to give a precise definition of digital literacies and could not negotiate on a definite one, Meyers et al. (2013) put their ideas on the following approaches: a) acquiring technological skills; b) enriching habits of mind; or c) getting involved in digital practices. On the other hand, what Hafner et al. (2015) preferred among these approaches is the third one; the way language learners are engaged in digital contexts can transform their language learning. Likewise, Godwin- Jones (2015) advocated that English language teachers need to enable students become lifelong learners through online practices because they are the language teachers who will stimulate learners to have the ability to transform knowledge. Given this, if the language teachers are trained on developing the development of digital literacies, they can subsequently contribute to their students' digital literacies development.

As implied above, language teachers are the cake molds, and the digital tools are just a dough pile; unless language teachers can adapt digital tools according to a suitable language teaching pedagogy, students can get lost in a huge tech-overloaded world. Namely, language teachers shape the outcomes of digital practices and accordingly language learning process; therefore, a well-established teacher education program needs to successfully help student teachers develop their digital literacies (Gunter, 2001; Hubbard & Levy, 2006; Jeong, 2017; Shaltry, 2013; Yüksel &

Kavanoz, 2011).

In this vein, as Selwyn (2011) noted, successful use of digital technologies in educational settings requires *concerning external* and *internal imperatives.* External imperatives deal with the need to train students for social life, employment and digital citizenship while internal imperatives focus on the constructive aspect of digital technologies in class. Therefore, this study takes its root from the framework of Digital Literacies (DL) proposed by Dudeney et al. (2013), covering aforementioned imperatives in order to provide discursive platforms for the teacher candidates to gain some major skills to transform their knowledge of technology-supported teaching techniques.

In this sense, it is important to identify the essential macro skills to be embedded in technology-based courses at pre-service teacher education programs in order to develop digital literacies. As shown in Figure 1, Dudeney et al. (2013) conceptualized digital literacies, which the study takes its roots from, by suggesting a set of macro-literacies corresponding to the four main areas:

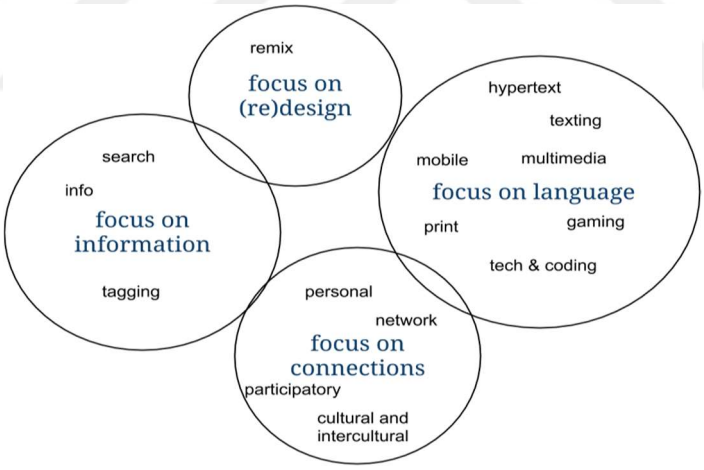


Figure 1. Digital Literacies Framework (Dudeney et al., 2013)

a. Language-based literacies: For Dudeney et al. (2013), these literacies embody the skills to decode online text genres, such as blogs, wikis, or forum as well as the traditional print literacy. The sub- skills of language-based literacies are *'texting literacy'* (the ability to read and create the abbreviated forms used in text messaging or in taking part in real-time online text chat conversations, *'hypertext literacy'* (the ability to navigate and read online texts which contain hyperlinks, *'multimedia*

literacy' (the ability to use visuals and audios), '*gaming literacy'* (the ability to get involved in gaming), *'mobile literacy'* (the ability to effectively use mobile or handheld devices), and '*code literacy'* (the ability to understand basics of coding so as to not be tied to the exclusive use of commercial templates).

b. Information-based literacies: These skills in this literacy type are the ones that help us navigate the flood of digital information provided by the internet, such as '*search literacy'* (the ability to search effectively for information online), *'tagging literacy'* (labeling online materials so they are findable), *'information literacy'* (being able to critically evaluate sources and information), *'filtering literacy'* (knowing how to manage information overload).

c. Connection-based literacies: This type of literacy includes such *'personal literacy'* (the ability to deal with online situations), '*network literacy'* (the ability to communicate with others), '*participatory literacy'* (the ability to create digital content and to contribute to others online) and '*intercultural literacy'* (to be able to understand digital tools from different contexts).

d. (Re-) design-based literacies: It is a macro literacy that incorporates the ability to use, recreate any digital content in innovative ways.

These skills outlined above are the key skills that a 21-century teacher needs to gain (Farooq et al., 2012; Hockly, 2007; Kerin, 2009). Once a teacher is equipped with these skills, the teacher can be considered digitally literate (Dudeney et al., 2013). However, he also adds that although there are some attempts to benefit from such frameworks in order to develop digital literacies, it is sometimes challenging for teachers to know how to operationalize these skills in the classroom (Dudeney et al., 2013; Ferrari et al., 2013). In a similar vein, Hubbard et al. (2006) also stated that training often does not prepare teachers to successfully integrate CALL into their teaching practices. Therefore, teachers in L2 teaching in particular expressed a desire for more and better professional development opportunities for integration of technology (Beaven et al., 2010; Kessler, 2006). In this sense, technology-based courses in language teacher education programs should have a common and expected part of a curriculum (Kessler, 2006) where pre-service EFL teachers could develop literacies in using digital technology insightfully. Therefore, looking at the issue from a global perspective would contribute to reconsider technology integration, leading to gain an in-depth understanding of digital tool use and necessary skills for technology

integration.

Global Perspective: From a wider lens, *Current Trends and Issues in ICT for 21st Century Education* brings together updates from experts around the globe to investigate what the skills and knowledge are that teachers have to gain so as to advocate learners in diverse contexts; what the best ways are to prepare them and how digital technologies are incorporated into the entire program; what the status of Bring Your Own Device (BYOD) throughout the world; and how the other countries are preparing for the educational environment needed in the next several decades (Schrum et al, 2015). Another case is from Norway that proposed and used a research-mediated framework called Professional Digital Competence (PDC) of teachers in teacher education programs. As Lund & Hauge (2011) put forward:

> How is PDC in teacher education different from similar competences in other professional fields of study, such as psychology, pharmacy, law, or engineering? One obvious difference is that, in teacher education, the aim is not solely to educate student teachers as to how to understand and use various emerging technologies that are relevant to the execution of a particular craft or profession. (p. 261)

The rationale behind PDC is that pre-service teachers can make informed judgments about Information and Communication Technology (ICT)-embedded practices based on generic as well as subject-specific norms that are encompassed in the digital artefacts. In short, PDC acts as a framework for the full integration of digital literacies into teacher education programs.

In another case, Virginia Commonwealth University (VCU) with its urban institution of 28,000 students also promotes the use of technology by student teachers in an appropriate way because technology is a vehicle to support diverse student learning issues and as a tool to increase motivation for all students (Murphy et al., 2014).

For Colombia, the Ministry of Education develops a website where an online document is uploaded, *Serie lineamientos curriculares.* The aim of putting this document is to emphasize "new world order" in relation to language and technology and its implications on education (i.e., the impact of European educational systems on the modernization and globalization of Colombia's mass education), focusing on the

teacher technological competencies required to train students through progressive CALL programs; therefore, the national education policy of foreign language education is validated and supported by technology and teacher training resources (Murphy et al., 2014).

The International Society for Technology in Education (ISTE) standards for teachers also proposes a comprehensive digital literacy approach for teacher education programs. According to the standards by ISTE, it is vital for teachers to deepen their practices, encourage collaboration with peers, be critical with the traditional approaches and help students drive their own learning which takes its roots from the following premises; student learning and creativity, digital-age learning and experiences and assessment; digital-age work and learning, digital citizenship and responsibility; and professional growth and leadership.

Local Context: Turkey: On a more local context, Higher Education Council (HEC), which is responsible for designing and monitoring all university-level policies and practices states the knowledge and skills that university students need to acquire in relation to technology use under the heading of "*Communicative and Social Competence"* for the Turkish Higher Education Competency Framework –The 6th Layer (Bachelor Degree) Competencies as follows; "….. to be able to use computer software and information and communication technologies at least required by the field at advanced level according to the European Computer Usage License Advanced" (HEC, 2017). Considering this statement, the threshold level skill may seem enough for university students in different fields of study, but it may not be enough for pre-service EFL teachers as the future of the teachers need to be equipped with digital literacies more than stated in the aforementioned framework in order to develop an appropriate pedagogy for the betterment of language classes through technology. In addition to this, investigating the current technology-based courses in language teacher education programs from different universities in Turkey, I found a considerable overlap among the technology-based course implementations in ELT departments in terms of the following points:

- local policy of each ELT department
- the branches/field of the CALL instructors
- different content flow

- variety of content
- imbalance between theory and practice
- research interests of the instructors giving the course
- the grade when the CALL course is given (some universities offer the course for the second grade EFL student teachers while others launch it in the upper classes)
- no conformity for the prerequisite courses (SLA, Computer Course I, Material Development)
- insufficient EFL student teacher engagement with research in order to reason the hands-on practice
- insufficient authenticity of assessment
- inadequate transparency of and negotiation of evaluation rubric.

Regarding these issues, it is important to draw a detailed frame, by identifying the necessary digital literacies of pre-service teachers, exploring their expectations and needs, challenges and type of support as well as choosing the relevant sources to support the training.

1.1 Statement of the Problem

Creswell (2012) proposes 3 ways of justifying the need to study a research problem; personal experience, workplace experience and research by authors. In this study, the first (the list of diversity in technology training programs) and the third option (literature review by other experts) are used as a combined method to identify the research problem of this study, and they are stated in the introduction part. In other words, the statement of the problem in this study was constructed according the frame proposed by Creswell (2012) (See Figure 2).

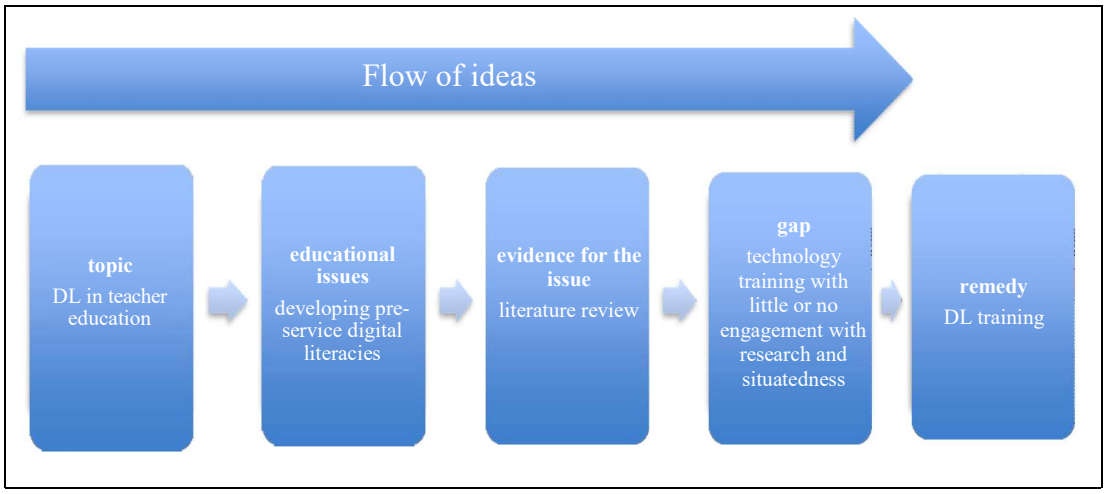


Figure 2. Problem Statement of this Study

There is no doubt that ubiquitous existence of new technology marked the turn of the century in the educational setting (Nguyen, 2014). Digital literacies can be considered crucial for successful participation in this new version of digitalized educational setting (Belshaw, 2015). In formal terms, digital literacies, one of the 21st century skills, refers to the use of the multiple modes of digital media in order to make the meaning from and with texts (Warschauer et al., 2014).

Digital literacies, therefore, can enhance students' academic, social and civic engagement through encouraging students to practice with the emerging technologies (Lee, 2002). Therefore, first of all, teachers as pivotal players in education should be equipped with the same kinds of digital literacies practices in order that they can prepare their students to participate in this digitalized society within relevant pedagogies (Facer & Owen, 2004; Hubbard, 2006; Park & Son, 2009).

In this sense, in school contexts, teachers are expected to be digitally literate in order to have students gain the skills and knowledge that they will need to do well in a workplace dominated by technology (Pianpatti, 2001). Therefore, in order to meet this need, it is urgent to expand the ways of how digital literacies should be embedded into the language learning and teaching; and it possible through accommodating CALL courses where teacher candidates can be provided with the opportunities to develop their digital literacies in relation to language learning and teaching. By this way, it is also possible to ease the unrealized potential of technology in second and foreign language classrooms (Healey et al., 2007).

However, previous studies on technology-based training for teaching have focused on the following primary topics. Some studies have examined the barriers of

CALL implementation in teacher education (Constantino, 2014; Dashtestani, 2012; Ertmer, 1999; Gilakjani, 2015; Overbaugh & Lu et al., 2008). Other put the emphasis on the efficacy of one-shot CALL course approach (Hegelheimer, 2006; Peters, 2006). Some other studies focused on the issues like perspectives and skills, characteristics of EFL teachers in ICT and some practical applications with in-service EFL teachers (Haines 2015; Liu & Kleinsasser, 2015; Nguyen, 2014; Rahimi & Yadollahi, 2011; Wong & Benson, 2006).

In relation to digital literacies, some other studies dealt with introducing digital literacies and use of web-based tools for language learning purposes (Gabaudan & Nocchi, 2018; Hafner, 2014; Mısır, 2018), presenting a collection of studies where digital competence and digital literacy are used in higher education research (Spante et al., 2018), identifying the challenges related to digital literacies for teacher training and professional development programs (Hauck & Kurek, 2017; Yang & Huang, 2008), creating an online and on-site learning for student teachers to practice digital literacy (Lopez & Perea, 2017; Mills & Chandra, 2011), comparing the perspectives of prospective Turkish language teachers and prospective computer technologies teachers (Özden, 2018), investigating digital literacy practices of in-service EFL teachers (Cote & Brett, 2018; Davidson, 2009; Juurakko-Paavola et al., 2018; Nguyen, 2014; Sorte, 2018). However, no research within a systematic analyses has been done to investigate whether and how digital literacies of pre-service EFL teachers can be promoted through DL- embedded technology courses.

In this sense, although there are some attempts to make provision for the development of digital literacies of pre-service teachers, it is hard for teachers to practice how to accommodate these literacies to the classroom setting (Dudeney et al., 2013). Given this, Hockly (2012) states that this insufficiency results from teachers who have received little or no training in how to use technology in a principled manner in teacher education programs. In a similar vein, Kessler (2006) also claimed that formal language teacher preparation programs largely neglected to equip their graduates with the related knowledge and skills they need to enter today's technologically advanced language classrooms.

Accordingly, Hubbard (2006) claims that the future of language teaching through technology is tightly interwoven with the future of language teacher education because the pre-service teachers are the pivotal players who will choose the appropriate technological tools and make informed-decisions about the appropriate

digital materials that language learners were to encounter in their learning environment. Accordingly, we need to raise future teachers' awareness of the multiple digital literacies because they will be the eminent figures who are to cope with the power relations they will face in today's highly politicized and highly contentious curricular struggles (McPeherson, 2007).

1.2 Research Questions

This study aims to investigate a group of pre-service teachers' digital practices in a situated context and seeks to answer the following main research questions as well as the sub-questions:

1. Is there a difference between the level of self-reported knowledge of pre-service EFL teachers about digital tools before and after the DL training?
2. Is there a difference between the self-efficacy level of pre-service EFL teachers
    a. in digital literacies before and after the DL training?
    b. in using digital tools before and after the DL training?
3. Is there a difference between the level of pre-service EFL teachers' beliefs about teaching through technology before and after the DL training?
4. How did pre-service EFL teachers' digital literacies change after the DL training?

1.3 Significance of the Study

The current study is assumed to provide a sound basis for the existing teacher education literature in several ways because it aims to investigate the impetus of the 14-week DL training on a group of pre-service EFL teachers through hands-on practices and engagement with research unlike the conventional technology training programs in teacher education where pre-service teachers are mainly trained on the desolated use of technologies without pedagogical reasons or barely have chance to reflect on their digital practices.

Firstly, as well as the practical sessions supported by theory discussions on SLA, pre-service teachers should be encouraged to create and implement those digital products for their future learners through making demoing to the other pre-service teachers in the training. For this reason, it is obvious that the pre-service teachers in the training will improve in terms of practical skills after the training where they will

be engaged in digital practices at different levels; using, creating and evaluating different digital materials and sources.

Secondly, the current study will provide insightful knowledge about how pre-service teachers may benefit from such a theoretically oriented integration of digital tool training program. During the training, the pre-service teachers will not only engage in using, creating and evaluating digital tools but also discussing and writing reflection papers on a variety of assigned articles focusing on the digital tools to be practiced in class. Therefore, these reflective practices in the training might give them a wider and deeper perspective of how theoretical knowledge can have pedagogical impact on their learning and development.

Thirdly, as the participants in the training will be freshmen, I believe that once they learn the theoretical knowledge and practicing digital tools at the very beginning of the undergraduate teacher education program, they may find ways to reflect, reshape and reuse these practices in the other subject-matter courses with their already-gained experiences on technology integration into language teaching.

The fourth significance will be related to me as the researcher as this 14-week intensive training provided me with a deeper understanding of the salient characteristics of how to construct a well-designed training on technology integration into language teaching.

The last and the most distinctive significance of the study lies at the type of the syllabus used for this training. In ELT departments in Turkey, the training on the integration of digital tools into language teaching is given either within a context-insensitive frame or it is provided through a course-book driven or a topic-driven approach. In the first scene, As Kılıçkaya (2013) noted that courses on technology integration are offered to all students in the faculties of education without requiring them to integrate educational technologies into their subject matter, such as foreign language teaching. In the second one, the training in such courses proceeds through the subordination of a course-book driven approach where the digital literacies component are added to the pre-existing syllabus as an external unit or a topic-driven approach where the digital literacy activities loosely fit the topics. Noticing this situation, this training in the current study is based on the premises of a digital- literacies driven approach where it allows the trainees to practice with the tasks on how to use digital literacies as a basis for the syllabus, as suggested by Dudeney et al. (2013). Therefore, I developed a new syllabus for DL training.

There are several unique characteristics that make this study original:

1. There is no currently conducted research on embedding digital literacies practices into a CALL course that requires the prospective teachers to integrate them into their subject matter, which is English language teaching. Therefore, it is the first attempt to investigate the upshots of research-mediated training on developing digital literacies of pre-service EFL teachers.
2. Pre-service EFL teachers and the administration should be conscious about possible preconceptions about technology and its infusion to teacher education programs in order to make the most of the instructional tools in real classrooms (Rakıcıoğlu-Soylemez & Akayoğlu, 2019). Therefore, the input session in the research was based on the premises of Situated Learning framework where the teacher candidates have a chance to practice and reflect on what they have learned in order to conceptualize their future practices. For example, the trainees were asked to create their digital products for hypothetically diverse contexts covering the aim of the tool, students with different language proficiency levels and backgrounds. In addition, the trainees were asked to reflect on how to accommodate their digital products if they were to encounter some constraints such as lack of time, experience, learners with low technological and linguistic competence. This goes parallel with what Egbert (2002) suggests, by emphasizing the importance of Situated Learning. Situated learning can be very invaluable in considering the realities of actual practice (Levy & Hubbard, 2006) as in Turkey pre-service teachers find very little chance to transform what they learned in technology integration in teaching practicum and take insufficient amount of technology-oriented feedback in relation to language teaching and consequently they had scarcely find a space reflect on what they read and how they integrate.

Therefore, this study does not only focus on the actual digital practices of pre-service teachers but also their conceptualization of language teaching through digital materials in order to provide evidence to the authorities in foreign language teacher education.

1.4 Theoretical Framework

A core consideration in training pre-service teachers in technology-supported language teaching necessitates a careful design where they can adapt dynamically to the changing situations (Doughty & Long, 2003; McNeil, 2013; Tripp, 1993). Therefore, situated learning has been put forward as a potential model to address this need (Chao, 2006; Egbert et al., 2002; Egbert, 2006; Hanson-Smith, 2006; Kessler & Plakans, 2008). Situated learning techniques can be implemented in various ways; some researchers draw implications from its premises to theorize the contributions of community of practices (CoPs) and interactions in the field settings while others attempt to build authentic contexts that embody critical features of situated learning environments (Bax, 2003; Clancey, 1995; McNeil, 2013).

In CALL teacher education, situated cognition (Brown et al., 1989; Lave & Wenger, 1991; Pamuk, 2012) is also considered a highly effective model because it allows for the usability of knowledge and skills deriving from instruction. If *knowing-what* and *doing-how* are separated in CALL instruction through an isolated way rather than a contextualized instruction, it would be inevitable for student teachers to experience difficulty in applying what they have learned, and most importantly rationalize their practices in their future classes. In this vein, a situated learning perspective provides learners with authentic opportunities through which they can participate in ways of thinking and doing that are defined by specific cultures (Brown et al., 1989; Huang et al., 2011; Lubin & Ge, 2012). For this reason, situated learning will serve the best as a guiding framework in studies of teachers learning (McNeil, 2013).

Regarding that practices in technology-supported language learning are implemented in a fairly isolated from the real classroom experiences in teacher education programs (Akbıyık & Bulut, 2008); however, this is the rich tapestry of EFL teacher education. Therefore, many pre-service teachers in these programs express their insufficiency with the realities of language teaching and unpreparedness to challenge and transform institutional dynamics of technology (Cattani, 2002; Hargreaves, 1994). A language teacher can be *a bad song on Monday morning* on a day while a strong *vitamin* for another day (Nikitina & Furuoka, 2008). For this reason, the training designed to develop teachers' digital literacies was implemented according to the principles of Situated Learning, by providing the trainees with an authentic

context, modeling and the opportunity to practice in different roles (Herrington & Oliver, 2000).

1.5 Summary

This chapter gave a brief introduction to the whole study in relation to the focus and the rationale of the thesis. Identifying the research problem was described in detailed with specific reference to Creswell (2012). Also, it shed light on the former and the current situation of the research topic at the local and global context. A research which is not based on a theoretical or conceptual framework can cause readers to catch the underlying elements of the researcher's aims in conducting the research (Adom et al., 2018). Therefore, at the end of the chapter, the theoretical construct, *Situated Learning* which frames the research design of this study was explained in order to give a clear picture of the philosophical and methodological bases of this research, as suggested by Grant and Osanloo (2014).

Chapter 2

Literature Review

2.1 Introduction

This chapter begins with the key concepts of digital literacies in relation to language teaching and learning. Then it will go on with why language teachers and learners need digital literacies at school. Later, it will include studies focusing on the benefits of digital materials from the English teachers' perspectives and the factors that form the basis of teachers' choices in technology integration. Later, the chapter will examine a huge body of research centering on a variety of frameworks developed for technology integration in language teacher education.

2.2 Key Concepts

As the first section of the literature review, some key concepts and relevant issues will be explained in order to reveal how digital literacies ingrained in the traditional pillars of literacy.

2.2.1 New Conceptualization of Literacy. Not surprisingly, rapid revolutions in the communication field have dramatically changed how literacy is viewed (Beckhingam & Nguyen, 2012; Hobbs & Co Rio, 2016; Hyland, 2019; McGrew et al., 2018; Tafazoli et al., 2017). Although literacy used to be defined as the ability to de-codify and deduce meaning from written language, it can no longer be defined as solely reading, writing, speaking and listening to written resources (Churchill, 2009; Dudeney & Hockly, 2016; Tour, 2015). With the boom of digital technology, traditional literacy has also evolved from a plural notion into multiliteracies at different levels and uses (Cloonan, 2010; Cope & Kalantzis, 2000; Hobbs, 2016; Horlescu, 2017; Smythe, 2011). In other words, The Digital Age challenged the traditional concept of literacy bringing its emerging skills and demands in the field of education as well.

2.2.2 Digital Literacy and Digital Literacies. While digital literacy in the preceding decades referred to the ability to read and understand hypertextual and media texts (Bawden, 2008), it continued to extend its semantic multitude of conceptions to larger and deeper sense (Belshaw, 2011; Jones & Hafner, 2016; Smythe,

2011). Although there has been resistance to the precise definition of the term (Meyers et al., 2013), some of the scholars agreed on the multi-mediated nature of information (Lanham, 1995; Lankshear & Knobel, 2003; Pool, 1997).

Glister (1997) was the first to have introduced the term as "the ability to understand and use information in multiple formats from a wide variety of sources when it is presented via computers", by placing a considerable emphasis on mastering ideas instead of acquiring technical skills through critical thinking. This aspect of literacy has become a common point for the other perspectives on digital literacy (Belshaw, 2011; Guikema & Williams, 2014; Lankshear & Knobel; 2006). Accordingly, Hauge and Payton (2010) also heightened the importance of the critical engagement with information in terms of assessing the credibility and reliability, as shown in the following diagram.



Figure 3. Components of Digital Literacy (Hague & Payton, 2010)

Cross-literacy within a multiple perspective has been on the rise in conceptualizing digital literacy. However, Gee (2001) argued that the autonomous model of literacy in the sociocultural perspective acknowledges that practices of reading and writing cover the elements of some skill and as well as the techniques. From a sociocultural perspective, there is not just *literacy* (Perry, 2012). Lanskhear and Knobel (2006) further highlighted that there are many qualitatively different social practices of reading and writing, and many different conceptions of what is involved in reading and writing. There are a great number of cultural *ways* in which people read

and write, namely, there are many kinds of *literacies* (Leander, 2006).

Echoing Lanskhear and Knobel (2006), Belshaw (2012) also proposed the notion of *digital literacies*, which are made up of eight essential elements, namely, cultural, cognitive, constructive, communicative, confident, creative, critical, and civic literacy. With respect to the social aspects of digital literacy, Gilster's (1997) conceptualization also implies that it is more than a skillset, but the relevant usage of the skills in one's life.

The general consensus among these researchers, as Eshet-Alkalai (2004) points out, appears to be that digital literacy goes beyond the mere ability to operate a device and encompasses a variety of complex cognitive, motor, sociological, and emotional skills necessary for effective functioning in digital environments (Cardoso & Steiner-Khamsi, 2017; Creely & Tour, 2019; Elola & Oskoz, 2017).

In this sense, it can be deduced that pluralism is a more recent trend towards conceptualizing digital literacy. As an example, in a notable work that was an outcome of his earlier study in 2011, Belshaw (2012) proposed a different frame of digital literacies, composed of eight essential elements, namely, *cultural, cognitive, constructive, communicative, confident, creative, critical, and civic literacy*.

Overall, from the discussions so far, it can be concluded that the notion of digital literacies is markedly a technology-independent phenomenon that requires constructing one's own pathways (Turner, 2014) in order to reliably achieve the expected outcomes of educational settings with the help of technology (Briggs & Makice, 2011). In this sense, compared to the skills to succeed in CALL, developing digital literacies in relation to language teaching and learning necessitates engaging in practices in a more diverse context based on multiple discourses, which will be discussed in the following section.

2.2.3 Digital Literacies versus Computer Assisted Language Learning. All through the history of CALL, despite its supporters, some scholars have questioned the field as being highly technology-led at the expense of theory, research and pedagogy (Egbert & Hanson-Smith, 2007; Salaberry, 2001). On the other hand, some others have also criticized the field for being too related to education in general rather than focusing on the specific qualities of language learning (Hubbard, 1987; Murray, 2005).

Although the terms digital literacies and CALL are interchangeably used, some

of the proponents of digital literacies scholars such as Jones (2016) calls for a need to distinguish from the study of digital literacies and from that of CALL, the phenomenon which has influenced the field of applied linguistics for the past two decades. CALL is the earliest term used in language teaching, so it is directly related to the metaphor of just computer as an instructional tool in class (Murray, 2005).

More specifically, language learning in the 21st century has evolved as a result of the reforms in the communication area triggered by digital technologies (Kitade, 2015; Nguyen, 2014). Therefore, language learning at this century goes beyond at the level of grammar and lexis and includes a new body of communicative competency consisting the ability to establish knowledge through online platforms and design multimodal texts that integrate visual, aural, textual and into traditional literacies by digital technologies for collaborative meaning-making (Godwin- Jones, 2015; Hafner et al., 2013). Despite the fact that some researches have undervalued the strengths of introspection and self-assessment so as to frame and polish teaching practices (Bustamante & Moeller, 2013), learning through collaborative tasks has also been viewed a beneficial technique for reinforcing introspection and making student teachers get feedback and suggestions from their classmates (Arnold & Ducate, 2015).

In addition to knowing how to combine the target language with other modes of communication to make meaning which constitutes an important part of language learning within a digital literacies framework (Tour, 2015), digital literacies researchers share a common perspective of language learning as a sociocultural process, which views reading, writing, and communicating as situated, goal-oriented and inextricably tied to their contexts (Hockly et al., 2017).

Additionally, as Jones (2016) remarks that digital literacies and CALL touch language learning and technology from different pages as their basic foundations about technology, language and language learning are somehow diverse. First of all, digital tools and the Web 2.0 tools are viewed as delivery mechanisms for language learning materials or developers of language learning activities in the CALL framework; on the other hand, the user of digital technologies is viewed as a learner whose engagement with technology is disputed in terms of mostly cognitive processes of learning (Martin, 2006; Nambiar et al., 2012; Wylie et al., 2018). Secondly, Kohn (2018) adds that language is often nominated as a distinct and solely linguistic system of meaning making by most of the CALL opponents. Thirdly, CALL goes on to increase a kind of

'container' metaphor related to other modes of classroom instruction; for example, the process of learning is 'contained' within physical or virtual spaces, times, and domains of activity (John, 2018).

On the other hand, digital literacies view digital tools and the Internet as environments in which people experience in different social practices (Creer, 2018; Gee & Hayes, 2011; Kalman et al., 2013; Kim, 2016; Lam & Kramsch, 2003) while the users of computer are viewed as social players associated practices with themselves. They are regarded as participating individuals in social groups in diverse ways that gradually afford fuller opportunities to take part in social groups (Tso, 2019). To put it differently, learners' computer engagement is not viewed as a way of encouraging language learning. Instead, it concerns how language learning serves the purpose for developing learners' participation in different real world social practices through technology (Dudeney & Hockly, 2016).

Moreover, in the digital literacies paradigm, language is thought as one of the many resources that social actors use to display themselves to be proficient members of their society as information and literacy practices are constructed in a social process (Belcher & Hirvela , 2001; Chun et al., 2016; Lee et al., 2019). Conceptualization of language in thisparadigm often defies traditional labels like English or French because the language people use in digital literacy practices usually involves unsteady hybrids or remixes of codes, modes, and voices used in innovative ways (Dudeney et al., 2013; Hinkelman; 2018; Oakley et al., 2017; Sugiharto, 2018).

A digital literacies framework based on the premises of New Literacy Studies supports that learning a language, specifically in the digitalized world transcends mastering a set of abstract skills (Jones, 2016). It also goes beyond the unquestionable insistence on the communicative aspect of language teaching where language learning occurs when it is learned within a contextualized environment; therefore, language cannot be separated from the social practice in which it is utilized (Barkhuizen, 2016; Byram & Wagner, 2018; Chapelle & Voss, 2016; Dogancay-Aktuna & Hardman, 2017; Yazan, 2019).

Studies on digital literacies mostly center on literacies rather than language learning. As discussed before, literacies embody participation in socially situated practices in ways that help social actors to unfold their existence so as to be skilled members of societies. Brown (2017) notably declares that engaging in social practices

always means more than just making meaning. It also refers to actions, such as 'doing' things, 'relating' to others, 'being' a certain kind of person (Beetham et al., 2012). This does not mean that language learning is not as important as engaging in social practices.

Rather, the skeleton of digital literacies studies is that language learning involves proficiency in particular social practices, such as Facebooking, Instagramming, Tweeting, memeing and gaming of various kinds (Pangrazio, 2016). Language learning requires learners to be competent at communicating in a foreign language incorporating multiple modes and media of communication that embraces new sets of faces and constraints on what can be achieved through the language. In this sense, the reforms in the operational environment described above pose growing pressures to re-think and re-design language learning environments (Jalkanen & Laakkonen, 2012; Jenlink, 2019; Kellner, 2001; Liaw, 2019; Thorne, 2013).

There is then more interest in the literacies students use in their life worlds and then bring into the classroom and how these literacies interact with more formal processes of learning than using technology to reinforce the pedagogies with a pre-digital mindset of the formal syllabus (Crum, 2019; Parris & Estrada, 2019). Realizing the aforementioned need of learners, it can be seen that Ecological CALL opponents (Garret, 1991; Lafford, 2009) attempted to re-visit the traditional CALL in order to keep abreast of the fluidity of technology.

2.2.4 Ecological CALL. Considering the aforementioned discussion, some opponents of digital literacies view the paradigm of digital literacies to be in sharp contrast with a conventional form of CALL (Egbert et al., 2007; Salaberry, 2001). Yet, this study follows an ecological CALL rather than a traditional view of CALL (Blin, 2016; Lafford, 2009), and therefore uses the two terms, digital literacies and CALL interchangeably.

Blin (2016) in her study emphasizes the role and contribution of the ecology metaphor transferred from the natural sciences to Second Language Acquisition (SLA) research. For this reason, the metaphor is employed to emphasize the relationship between psychological, social and environmental aspects of SLA (Lam & Kramsch, 2003).

Scrutinizing Jones's concept of digital literacies and Blin's ecological perspective of CALL, it can be said that they make the use of the notion proposed by

van Lier (2008) to reconceptualize language and language learning. Both of the partitives hold a view of language as part of larger meaning-making resources that encompass the body, cultural- historical artefacts, the physical environment, in short, all the affordances that the physical, social, and symbolic worlds have to propose (Cook, 2016; Johnson, 2009; Lantolf, 2000) within a strong emphasis on the context. 'Language does not exist in a vacuum' (van Lier, 2004, p. 55), and being competent in a foreign language does not mean containing a store of linguistic structures, rules, words and phrases (Johnson & Golombek, 2016).

In a nutshell, digital literacies (Hafner 2012; Jones 2016) and ecological CALL (Blin, 2016) are common in a way that van Lier's (2008) concept of language as an issue of composing, co-creating, sharing, and exchanging meanings across speakers, time and space instead of group of skills in an isolated form or an abstract code to be achieved. From the ecologist perspectives framed by van Lier (2008), language cannot be boiled down to mere words, spoken or written, or to a stable system that can be characterized in terms of its inner structure and components nor can it be deprived or separated from the various ways of communicating and making sense of the world that we use. Namely, mimics, expression and movement cannot be deprived of the verbal message, and meaning- making cannot be decreased to syntax or lexical constructions (Lee, 2019).

Considering the social dimension of the language teaching and technology use, pre-service teachers leave their undergraduate programs with little or no training in technology integration into language teaching (Angeli & Valanides, 2005; Dudeney & Hockly, 2007; Egbert & Thomas, 2001; Hubbard, 2008; Jeong, 2017; Kay, 2006; Kessler, 2006; Koehler & Mishra, 2009; Niess, 2005). In this sense, it is vital to embody teachers' spirit, potentials and opinions while designing technology training with the intention of raising consciousness about technology implementations (Dashtestani, 2014; Kessler, 2018; McDougald, 2013).

2.3 Benefits of Digital Materials in English Language Teaching: Teacher Perspectives

In the landscape of language teaching, although teachers' technology use changes critically in terms of tool choice, adaption of material and instructional goals, they agreed on the merits of its integration into the class (Başal, 2015; Fitzpatrick &

Davies, 2003; Kılıçkaya, 2019; Suwannasom, 2010). Alkash and Al-Dersi (2013), as a very basic example, noted the use of *PowerPoint* as the most popular digital tool in the classroom to take the advantage of multimedia such as graphs, movies and tables through Slideshow. On the other hand, Çelik (2012) suggested the use of Interactive White Board as a tool to promote student engagement in foreign language teacher education programs. Sinclair (2000) underlined the role of World Wide Web in its potential to bring a wide array of modes linked with learning opportunities. He also remarked that it provided multiple ways of communicating through visual, textual and symbolic channels.

There are a great number of the scholars who recently centered on the use of blogs by English language teachers in class (Chun et al., 2016; Quallaf & Al-Mutairi, 2016; Pascual, 2019; Reinhardt, 2019; Son, 2018; Song, 2019; Tseng & Yeh, 2019; Yakut & Aydin, 2017) and the use of wiki (Huessein, 2019; Ma, 2019), the use of virtual worlds (Coultas & Booth, 2019; Mendez & Florez, 2018; Shazali & Hashim, 2018; Shi et al., 2018) as instructional tools to promote student engagement, collaboration and knowledge creation and concluded that most of the teachers benefitted from using both of the tools in terms of widening their perspectives and increasing their use in the class.

In addition, Farooq and Soormro (2004) investigated how English teachers' evaluation of technology influenced teaching and learning. Based on the data gathered from one-hundred English teachers, the study revealed clear evidence that most of the teachers were aware of the benefits of technology and its uses in education.

Another positive finding about teachers' perspectives on the infusion of technology into English language instruction was reported by Ding et al. (2019). Through a multiple case research design with the 12 secondary EFL teachers, the authors tried to find out teachers' beliefs about digital tools and their teaching practices. The findings of the study informed that the English teachers valued technology in English language teaching instruction; moreover, the teachers used similar digital tools in order to support different types of teaching practices according to teachers' content specific pedagogical beliefs.

Other positive findings are narrated in Brown's (2004) study which aimed to explore teachers' evaluation of the impact of the Internet on teaching and learning. Having analyzed three sets of data from questionnaires, follow-up interviews and case studies, he noted that the teachers gained the skill of adjusting the Internet according to

their teaching beliefs and succeeded to transform their pedagogical practices.

The other benefit of technology integration into language teaching is its openness to real-life. Park and Son (2009) conducted a study with a group of EFL teachers in Korea to explore teachers' beliefs about technology. The teachers stated that language teachers should take the advantage of technology use in English language instruction as it exposes language learners to a variety of inputs and therefore enhances students' learning capabilities in real-life contexts (Park & Son, 2009).

Another study in the literature emphasized that use of digital materials also shifted the focus from a tightly teacher-centeredness to more student-centered learning approaches (Peterson, 2001), and this fostered learners autonomy (Johnson, 2001) because such approaches embody more self-directed professional action, practicing alternative tasks, inquiry-based learning opportunities and reflective practices, which helps learners direct their own learning strategies (Beatty, 2013; Ghorbani & Golparvar, 2019; Lai, 2011; Lan, 2018; Luke, 2006; Shadiev & Hwang, 2018; Web & Doman, 2019).

Additionally, many studies centered on the focus shifting from the traditional story to the digital story, and they highlighted the following merits identified by the English language teachers; fostering intercultural competence, increasing learners' engagement and encouraging dynamic use of language (Griffiths, 2019; Pham et al., 2016; Thang et al., 2015; Tokmak et al., 2019).

Other higher forms of digital materials like blogs and wikis, the use of personal learning environment (PLE) in today's world in a burgeoning digital age are highly preferred by language teachers (Coultas & Booth, 2019; Godwin- Jones, 2015; Liu et al., 2015; Vieluf & Göbel, 2019). With the help of PLEs, language learners have the opportunity to create their own personal way of practicing and achieve their aims, which is compatible with their daily life (Farr & Murray, 2016; Panagiotidis, 2012).

In short, the above part of the literature review revealed a strong evidence that English language teachers in diverse contexts acknowledged the profound impact of technology on language teaching and learning. Therefore, full collaboration among policy-makers, ELT researchers, practitioners and technical experts must be sustained in order to actualize digital inclusion into the field (Chapelle, 2007) and eliminate the barriers that the teachers experience in practice (Lim & Khine, 2006). Effective use of digital materials in language teaching is markedly related to the challenges that the language teachers experience (Correos, 2014; Kopcha, 2012), which may prevent them

from developing digital literacies and leading to a decrease in self-efficacy in technology use. Conversely, for example, a language teacher with a high level of self-efficacy in technology may contribute to the actual use of technology in class (Kent & Giles, 2017). Therefore, it is important to identify factors that might affect teachers' success at technology integration in teaching.

2.4 Factors Impacting English Language Teachers' Use of Digital Materials

Studies on what impacts technology-aided language instruction indicate that teachers' attitudes, school facilities, prior teaching experiences with technologies, and most critically, teachers' own digital literacies, are among the most important teacher-relevant determinants (Aslan & Zhu, 2015; Ertmer, 2005; Prinslo & Walton, 2008) among the countless factors.

Firstly, a vast amount of scholars indicated that attitudes that teachers hold in regards to technology as an instructional tool impacts their technology use within the classroom (Almekhlafi & Almeqdadi, 2010; Dang, 2009; Dogoriti, 2010; Domingo & Gargante, 2016; Hur et al., 2016; Kopinska, 2013; Liu, 2009; Myers & Halpin, 2002; Raman & Yamat, 2014; Şahin et al., 2016; Tsou et al., 2006; Yavuz, 2005). Watson (1998) noted that the development of teachers' positive attitudes is a milestone for both enriching technology integration and easing their resistance to computer use because teachers' technology use and application are considerably relevant with their attitudes (MacArthur & Malouf, 1991). Therefore, as long as teachers hold positive attitudes towards technology, they tend to have a desire to integrate it into class more (Domingo & Gargante, 2016). Conversely, the adverse effect can also be observed; if they have negative attitudes owing to prior experiences or pre-conceived prejudices, this can result in a decrease in their use of technology in the classroom (Şahin et al., 2016).

As similar with the previous research, Kersaint (2003) also remarked that teachers with positive attitudes towards technology are more willing to accommodate it as an instructional tool. This is also supported by Kumar et al. (2008) who noted that teachers' use of digital materials is apparently impacted by their attitudes they hold. Echoing the previous scholars, Parra (2012) suggested that it was possible to figure out whether some teachers with positive disposition towards educational use of digital materials would take the advantage of the DL training at the outset.

These findings are consistent with another study in my research country where English is in a foreign language context. Harmandaoglu-Baz (2016) in an attempt to discover what could form the basis of teachers' tendency to use technology in class found that having positive attitudes towards the integration of technology in language teaching and learning are more inclined to transfer their technology knowledge and skills into the classroom (Chapelle, 2003; Cradler et al., 2002; Hernandez-Ramos, 2005; Mayo, et al., 2005); therefore, it is important to reveal the attitudes of teacher candidates towards technology in order to make them ready to implement digital materials in class (Alkan & Erdem, 2010; Isman & Dabaj, 2004; Liton, 2015).

Another emerging finding as a factor affecting teachers' use of technology in class is self-efficacy. This finding is important because a teacher's perceived self-efficacy level is a dominating factor in teachers' decision in using technology (Hill et al., 1987). In other words, self-efficacy has insistently been detected as a major indicator in technology use (Sure, 2009). A similar expression was revealed by Pendergast et al. (2011) who capitalized that a teacher's self-efficacy has a deep connection to the overall impact and level of effectiveness in technology use (Kumar et al., 2008; Paraskeva et al., 2008); therefore, examining self-efficacy related to technology is a useful indicator of teacher education programs' effectiveness in helping teacher candidates implement instructional technologies (Moore-Hayes, 2011). In other words, it is apparent that teachers' use of computers for teaching has been correlated with their beliefs in their ability to do so (Paraskeva et al., 2008). In this sense, in order to implement digital materials into teaching practice, teachers should perceive themselves as self-efficacious at its use (Albion, 2001; Yerdelen-Damar, et al., 2017).

In addition to self-efficacy, motivation also has a profound effect on teachers' technology integration (Lam, 2000; Nguyen, 2012; Sanchez & Hueros, 2010). Robertson & Al-Zahrani (2012) remarked that increasing pre-service teachers' training intechnology will help them raise their motivation, and in turn their use of technology. Through conducting action-research with 20 EFL teachers, Parra (2012) found that the teachers moved from a rather technophobic position, in which technology is considered strange and difficult to a technophilic posture where the advantages of technology are appreciated. More importantly, the findings also revealed their tendencies to recognize the importance of appropriate instruction in technology for teachers and students in order for them to use it effectively (Parra, 2012). From asimilar standpoint, Abdullah

et al. (2013) in an attempt to identify the relationship between the motivation and teachers' computer use explored that most of the English teachers are highly motivated towards technology integration into teaching and also used education technologies in the actual practice.

As well as the internal factors, the literature also highlighted external factors, suchas time limit, rigidity of curricula, technical support and managerial effects as the barriers to teachers' use of technology (Eristi et al., 2012; Huang et al., 2019; Rahimi & Yadollahi, 2011; Segni & Davidson, 2019; Siefert, 2019; Uerz, 2018). Similarly, Baek et al. (2008) aimed to explore factors affecting teachers' decisions about using technology in the class and discovered the following factors: responding to external requests and others' expectations, promoting attention, using the basic functions of technology, relieving physical fatigue, class preparation and management, and using the developed versions of technology.

Another factor which is a major contributor to teachers' digital material integration into class is appropriate technology training (Salyzyn, 2005). Empirical evidence from the research highlighted that subject-specific technology training can promote a teacher's self-efficacy, in return having a positive effect on technology integration in the class (Hartell et al., 2015; Hill et al., 1987; Tsitouridou & Vryzas, 2004). As for a specific example, technology training such as master-level courses can increase teachers' technology integration (Willis et al., 2016) because teachers' views are constructed by the training they have received (Tsitouridou & Vryzas, 2004). In line with the previous research, technology-based student teaching practices can also raise pre-service teachers' self-efficacies, and in turn furthering their technology use within their classroom (Han et al., 2017).

The exponential growth of research shows that professional development is another factor which forms the basis of teachers' decision about technology use (Brinkerhoff, 2006; Cannon et al., 2011; Cremeers, 2012; DeSantis, 2013; Kabakci, 2009; Levin & Wadmany, 2008; Montallebzadeh, 2005; Ritzhaupt et al., 2012). As digital literacy has become an integral part of English language teaching owing to the changing role in English, context-based professional development opportunities are highly needed in order to change teachers' perceptions and foster their desires to incorporate technology into teaching (Campbell, 2005), so a well-designed professional development program can stimulate teachers to adapt new technologies through diverse learning opportunities that increase the generation of technology self-

efficacy, collaboration and autonomy (Darling-Hammond et al., 2009; DeSantis, 2013; DuFour, 2004; Sergiovanni & Starratt, 2006).

In reviewing the literature on the factors shaping teachers' decision about technology integration into language teaching, both the presence of the internal factors such as the self-efficacy in technology, motivation and attitudes as well as the external factors such the school's facilities and the quality of technology training were worth highlighting. Considering the fact that professional development as a crucial arena for shaping teachers' technology use (DeSantis, 2013) as it enables teachers to engage with relevant experiences and essential skills technology integration (Yerdelen-Damar et al., 2017), the following part will focus on how professional development impacts teachers' choices in technology integration.

2.5 Research on English Language Teachers' Digital Literacies Practices Through Professional Development

As discussed earlier, teachers play a pivotal role in the integration of digital technologies into language teaching (Godwin- Jones, 2015; Knobel & Kalman, 2016; Miller, 2015). Therefore, emphsizing staff PD with respect to innovation is another central concern voiced by ELT researchers and instructors in the literature.

While on certain occasions, it might be conceivable to help teachers develop their digital literacies discretely; relating practices into teacher teaching practices is accepted to be increasingly significant and powerful (Brooks-Young, 2007). There is a growing number of frameworks for EFL teachers' technology integration. (Davies & Hewer, 2012; Dudeney & Hockly, 2007; Erben et al., 2009; Healey et al., 2008; Hinrichsen & Coombs, 2013; Janssen et al., 2013; Ioannou-Georgiou, 2008; Levy, 2012) and accordingly different advanced development activities and projects grew particularly for these teachers (Bauer & Ramazani; 2006; Dudeney, 2013; Hanson-Smith, 2006; Olesova & Meloni, 2005; Peachey, 2010; Pegrum, 2012; Rickard et al., 2006; Stannard, 2006). These endeavors have been perceived useful by the ELT scholars as part of staff development or used by teachers as part of a self-study PD plan (Hockly, 2012).

It seems apparent that there are many research on teachers' digital literacy development through technology-supported training (Campbell, 2016; Hagood et al., 2008; Hismanoğlu, 2012; Koçoğlu, 2009; Kosnik et al., 2016; Miller, 2007; Parra,

2012; Peters, 2006; Ramazani, 2006; Tai, 2013). Consequently, there arouse many models and frameworks. For example, Puentedura's (2013) SAMR model provides a four level of technology integration skills: substitution, augmentation, modification, and redefinition of digital materials. Newman (2009), as another example, proposed 5-step process model covering the following skills: understand and evaluate - create - communicate, created with intention to movement from terminology to action research. Obviously, the most popular model was the Technological Pedagogical Content Knowledge (TPCK or TPACK) model by Mishra and Koehler (2006).

Olesova and Meloni (2006) designed a collaborative internet project as part of a course in Northern Siberia in order to provide opportunities for English teachers in the country to carry out a project with another group in an English-speaking country. The project is composed of a number of parts to provide the participants with the basic computer skills and theoretical knowledge, internet application sources and practices, familiarity with the collaborative internet projects and the opportunity to design their own projects. The overall training gave invaluable insights on not only how teachers developed their digital skills and but also how they became a part of the global community.

Horlescu (2017) examined how a group of English teachers experienced multimodal meaning-making through multimodal digital literacy practices such as machinima within the frame of an ecological TPACK perspective. Considering the insistent call for professional development, he provided teachers with hands-on practices to reflect on digital materials affordances in order to discover whether they can establish the relationship between digital technologies and multiple literacies. Findings from his study suggested that digital literacies are the essential skills to use technology and eliminate barriers in relation to digital technologies in particular contexts, and teachers can develop digital literacies as long as they take part in practices requiring synthesis of knowledge and practice in relation to digital technologies.

Tai and Chuang (2012) also offered an alternative framework, *TPACK-in-Action,* which adapts a holistic approach through workshops aiming to help teachers develop ICT skills as well as TPACK knowledge. On the other hand, with the five-steps of Modelling-Analysis-Demonstration-Application-Reflection, it aims to encourage teachers to practice the skills and knowledge teachers have gained into their classes. This model is based on the idea that technology-focused trainings should cover

not only the computer skills but also the practices through which teachers can increase their pedagogical knowledge to successfully integrate technology for the betterment of student learning (Ingham, 2008).

Additionally, the following study by Chao (2006) concentrated on the impact of scaffolding and cognitive apprenticeship on EFL teachers' professional development in technology integration with *WebQuest* which is an online software program with the following sections*: introduction, task, process, evaluation and conclusion*. Based on the findings and feedback, the teachers became more self-directed, had a mature understanding of the role of technology as *a sine qua non* in language teaching and developed their skills in implementing technology in class.

As well as the formal instruction and training, such alternative methods as expert- novice teacher mentoring, communities of practice, and self-directed training were also proposed (Hubbard & Levy, 2006). One fruitful case of these pragmatic methodologies, affirmed by empirical research, is peer-support advanced model (Lee, 2007). Within a social approach, the training was delivered through webinar to a group of 10 Hong Kong middle-school teachers who worked with five peers in order to apply their knowledge into their own teaching contexts. The qualitative data through interviews and peer-group conferences revealed that teachers and the peers established a good rapport and strong professional partnership after the training. Findings from the research also reflected that peer support is a very effective mediation during the training.

Ingham (2008) in his study focused on student teacher mentoring. Analyzing data from the interviews, focus group discussions and reflective diaries of seven teachers in New Zealand, the study confirmed the hypothesis that when teachers had an authentic purpose for PD, then their learning resulted in a greater impact for their own learning as well as their students' learning.

Moreover, Stevens (2009) in his project, *Web Heads in Action (WiA)* created a vibrant online teacher community of practice where teachers exchange their ideas on not only about teaching but also on the appropriate use of digital materials and sources available in personal learning networks (PLNs).

TALL Mentoring Plan, as an alternative method to formal training was designed by Meskill et al. (2006) where pre-service teachers, in-service teachers and doctoral students collaboratively participated in a long-term project in order to gain the optimal professional development practices in teaching language through

technology. The findings of the project underlined the importance of expert-novice teacher mentoring in a collective and interactive process where instructional conversations, knowledge-based instruction, modeling and scaffolding were included.

With respect to self-reflection, Ray and Coulter's (2008) study set a vibrant example of the use of reflective blogs created by teachers in order to reflect on their professional practice. The findings from the study showed that their journals covered meta-reflective posts that could lead to changes in practice as well as the superficial reflection.

Timuçin (2009), in an attempt to discover the practices of EFL teachers' digital practices, based his research on Rogers' Diffusion of Innovations Theory, which suggests that embracement of a particular innovation is markedly affected by how the adapters approach. He found that the teachers who avoid making mistakes showed more tendency to dominate the other teachers.

Another study conducted by Wong and Benson's (2006) case study focused on the differences of the ultimate products of the two EFL teachers after training in Hong Kong. The findings revealed that the technology-training course revealed that it had a positive impact on the trainees' digital practices and it unmasked the difficulties they had in integrating digital tools into their own teaching contexts. Also, the study suggested that the knowledge of Information Technology (IT), teachers' pedagogical knowledge and their beliefs are important in benefitting from such trainings.

In addition, Savaş (2013) designed a project on the use of Thematic Group Blogs Project in which seventy-six pre-service EFL teachers in groups designed blogs on specific topics and post their reflections on the topics. Based on the data, Savaş (2013) suggested that Thematic Blogs as an instructional tool might promote the amount of interaction, collaborative learning and autonomy pre-service teachers.

To recap, the literature review has included a general overview of the key concepts of technology use, needs for teaching digital literacies at school and finally English teachers' digital practices. There seems to be a good range of empirical research with specific reference to in-service EFL teachers' digital literacy practices in Turkey as well as the worldwide. However, no research has been found in digital literacies development of pre-service EL teachers in Turkey through engagement with research in the literature. This gap in the literature inspired the study and the lack of evidence in the literature regarding Turkish EFL teachers' digital literacies informed the research questions.

2.6 The Role of Professional Development in Teacher Education

With the advent in technology and its use in the field of English language teaching, the roles of the EFL teachers are also changing (Hubbard & Levy, 2006), which necessitates technology training as a must for teacher candidates (Barzaq, 2007; Erben, et al., 2009; Ioannou-Georgiou - 2008; Levy, 2012). The remarkable increase in the use of technology in teaching is directly related to the need to meet the expectations of the 'digital natives' (Prensky, 2001) who are confident with the technology use as future language learners (Richards, 2014) as well as the teachers.

There are two critical arguments about this popularized so-called dichotomy, however. Firstly, Prensky (2011), by pointing a specific year -1982- in the date, defines digital natives as the ones who are born into technology and digital immigrants who can try to adapt to the changes brought by technology. However, being "competent" at technology use is not a matter of years spent with technology, rather, the amount and variety of opportunities with technology (Akçayır et al., 2016). Secondly, in Prensky's (2001) frame, digital native teachers will know better how to employ technology strategically in the class. Yet, being born in a digitally surrounded environment does not necessarily have to result in effective technology use, which will transform the learning experience (Carr, 2019; Kennedy et al., 2006). Although there is no consensus on the "ideal" literacies of teachers and learners coming with different ICT competencies, it is starkly apparent that how we approach language teaching and learning has been changing day by day.

In this sense, the changing theories of learning brought current changes in the understanding of professional development (Yeşilbursa & Çelik, 2014). Professional development opportunities through which teachers can principally integrate new digital tools and accordingly literacy practices are extremely essential (Moradkhani et al., 2013). Some scholars state that most of the teacher education programs allege not an in-depth training for and in digital tools and technology-supported learning environments (Lotherington et al., 2016), and subsequently teachers are insufficiently prepared to utilize digital technologies meaningfully (Lotherington et al., 2016). As a consequence, this insufficient teacher preparation unpacks the disconnect between the *needs* and *wants* of learners in the 21st century and the inadequate preparation of teachers where the focus is often on using digital tools for pedagogical purposes, not

encouraging the practice of multimodal digital literacies (Bezemer & Kress, 2016).

Without doubt, many critics have the opinion that teacher education has been unsuccessful at keeping up with the radical socio-political changes in society (Imig & Switzer, 1996) because as Velez-Rendon (2002) argues that the knowledge and skills that a second and foreign language teacher were supposed to have two decades ago are no longer satisfactory in today's radically digitalized and rapidly transforming world. Consequently, the sheer diversity of existing affordances of digital literacy (Lankshear & Knobel, 2010) emphasizes the difficulty in addressing reforms in teacher education. It is doubtless to say that only content knowledge and pedagogy were all essential for teachers twenty years ago, but today's second and foreign language teachers confront difficulties that require for a wider range of competencies and skills (Velez-Rendon, 2002).

Within this framework, equipping teachers with opportunities to practice their pedagogies through the current literacies and integrate digital learning tools in the classroom is an evident but a multifarious solution (Horlescu, 2017). Thus, sustainable results in the long-term, new forms of structures, i.e. meta designs for pedagogical development are needed (Jalkanen & Laakkonen, 2012). Accordingly, Bielaczyc (2006) claims that long-term development work necessitates theoretical-level understanding of the reasons why certain practices are effective from the viewpoint of learning while others are not.

More importantly, it would be crucial to put the responsibility on the shoulders of teacher educators who are supposed to equip pre-service and in-service teachers with a venue to gain new multimodal literacies for their own authentic purposes before they can effectively use them as student learning tools in their classrooms (Lankshear & Knobel, 2003; Hoven, 2006). In other words, language teacher education programs need to shoulder the responsibility of making the most of the digital technology training so as to provide their students with the experience and knowledge of using computers (Koçoğlu, 2009).

Accordingly, Albers et al. (2008) remarks that it is crucial for faculties of education to contextualize technology-training programs in order to provide opportunities that involve teachers in establishing a relationship between digital tools and the required literacies in the digital age. However, most of the in-class learning practices embody theory-based readings that are conceptual and context-insensitive (Olsson & Stålbrant, 2008). The principles are that knowledge needs to be presented

in an authentic context, i.e., settings and applications that would normally involve that knowledge. This means that if prospective teachers want to leverage their teaching instructions, they should engage in ways of how to comprehend the relevant contexts (Hassan, 2010; Park & Son, 2009).

Namely, teachers should make more effort in differentiating how the language and communication skills learners will need in the coming years from the ones to whom they are currently teaching, and to find out new ways in which learners are already experiencing in effective learning within the context of digital networks and affinity groups outside the classroom (Jones, 2014)

As a similar view, it is noted that often educators are only reluctant to use new technologies with which they are already familiar from use in other contexts (Pendergast, 2011). Moreover, teachers will only embody technologies into their curriculum as longas they have been prevailed upon of their usefulness (Lafford, 2009). Consequently, we reached a consensus that we possess the "hardware", we possess the software, but we do not have the "humanware" (Warschauer, 2000). Therefore, it is mandatory that pre- and in-service language teachers learn about computer tools which will support them in their teaching practices (Kılıçkaya & Seferoğlu, 2013).

Thus, this makes a direct change in the professional development of pre-service and in-service teachers (Knobel & Kalman 2016; Miller 2007; 2008; Pianfetti 2001). Teachers need to be given enough and appropriate opportunities during their teacher education classes and in professional development programs with a space to transform their roles, knowledge and beliefs (Koehler & Mishra, 2005) but perhaps most importantly, their concept of what literacy means (Horlescu, 2017).

On the other hand, it is prevailing that remodeling professional development for the betterment of the acquisition of 21st century skills and how best to meaningfully and clearly accommodate digital literacies into teacher education keeps generally neglected (Horlescu, 2017). This in fact reminds us the need for professional development that is purposefully focused on raising teachers' awareness of digital literacies and proposing a wide array of teaching pedagogies with a specific reference to multimodality by getting them to be engaged in hands-on experiences (Horlescu, 2017). Given this, the next chapter will give a detailed picture of how this research was designed in order to find answers to the research questions.

Chapter 3

Methodology

3.1 Introduction

This chapter is composed of two parts; the first focuses on the detailed description of research design covering the research context and the participants, data collection, data analysis, reliability in quantitative data and trustworthiness in qualitative data as well as the ethical considerations while the second part includes the pilot study covering contribution of the piloting, the results of the pilot study and changes in methodology and reasons.

3.2 Research Design

In order to benefit from a better understanding of qualitative research and to investigate the difference within the same group, mixed method study was used in this study. Mixed method designs are procedures "quantified" qualitative data (Miles & Huberman, 1994) or "qualified" quantitative data (Tashakkori & Teddlie, 1998). In this process, it is important to decide on which data is much more important (priority), which type of data to be collected first (concurrent or sequential), how to mix the data (integrating or connecting) and whether a researcher will utilize a theory (social science theory) (Creswell, 2012).

The Convergent Parallel Design (convergent/triangulation design) was adapted for this study because concurrent timing was used to implement the quantitative and qualitative studies during the same phase of the research process (Creswell, 2012). The qualitative and quantitative data in this design are equal priority so that they both have an equally important role in addressing the research problems. Use of quantitative data through numbers gives confidence to us. Moreover, use of qualitative methods gives voice from the participants (Sofaer, 1999) and allows them an opportunity to express their own perspectives, values and opinions (Palinkas et al., 2011). This design embodies both methods (qualitative and quantitative type) independent during the data collection and analysis and then mixes the results during the overall interpretation (See Figure 4).

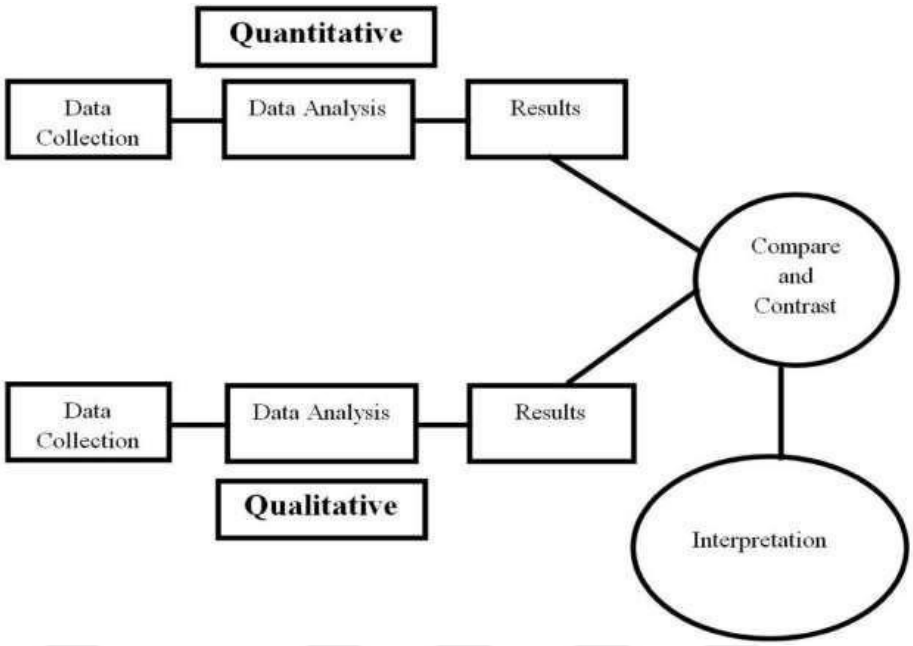


Figure 4. The Convergent Parallel Design (Creswell, 2012)

For this study, the priority was both on the qualitative and the quantitative data as I seek to compare pre-service teachers' self-reported knowledge of digital tools, self-efficacy levels in digital literacy skills as well as using digital tools, beliefs about technology use in language teaching, and also gain in-depth understanding of in what ways pre-service teachers could develop their digital literacies in relation to language teaching. Moreover, the data was collected concurrently before and after the course; the data was used in an integrative way, and lastly a social science theory called Situated Learning from the school of Applied Linguistics was used as the framework for this study.

3.2.1 The Research Context and the Participants. The integration of ICT in the language curriculum had an impact on the role of the teacher and the learners (Blin, 1999; Lam & Lawrence, 2002) and accordingly necessitates changes in power-relations in the classroom. Given this, the fundamentals of learner autonomy (Little et al., 2017), learner-centeredness, constructivism and more principally situated learning (Lave & Wenger, 1991) shaped the pedagogical tenets of this training. Therefore, the role of the pre-service EFL teachers was practitioner in one week and was developer in another week according to the nature of the digital material which was practiced, and was described in detail in the syllabus. On the other hand, I mostly scaffolded the

trainees through the process where they could share their knowledge, ask questions and act together to negotiate on meaning and action in a collaborative manner (Egbert, 2006) because scaffolding is nominated as a critical tool for the introduction of digital literacies (Olsson & Stålbrant, 2008). Moreover, in order to validate the situatedness of each activity in the syllabus, what Egbert (2006) has combined as the principles of the situated learning theory (Lave & Wenger, 1991) and other social constructivist theorists (Savery & Duffy, 1995) was used as a framework for the evaluation phase.

The research was conducted in a CALL course which was offered as a must course in an English Language Teaching (ELT) department at a state university in Turkey. The status of English is regarded a foreign language (EFL), so ELT Departments in Turkey is supposed to prepare pre-service teachers for the future teaching contexts with students at different levels and backgrounds in their mother language as well as the target language. Teacher candidates at the undergraduate programs are generally offered *Basic Skills in Computer* course irrespective of their fields of study. Therefore, this training required the students to engage in a variety of digital tools for the purpose of language teaching through informed decision, which is beyond the decontextualized use of computer and the simple mastery of technological skills. For this course, a DL training syllabus (Appendix A) was developed by the researcher according to the principles of Dudeney's (2012) four main areas of digital literacies. The number of the students in the training was twenty four.

The weekly length for this training in the CALL course was given 4 hours per week; two hours were placed as theory-based discussion through which participants could relate the research-based readings to their pedagogy and the other two hours were spared for practice through which they could apply what they read and discussed in the theory part.

In total, the course where the training took place lasted 14 weeks where students had a space to read and discuss the relevant technical and the pedagogical issues required each week and to engage in practicing with hardware and software programs specially developed for educational purposes (Appendix B and Appendix C).

For the theory sessions, students were assigned a related article one week before the in-class discussion hours. The rationale behind the trainees' engagement with research during the training was to improve the quality of their digital practices and prevent them from falling into trap of undervaluing the milestones of technology-specific pedagogy. As the participants were undergraduate students and may not have

enough experience in engagement with research, a reading prompt made of two parts was given within the article. The first part included the necessary terminologies and key concepts the students needed to write down their meanings in their own words.

On the other hand, the second part encompassed thought-provoking questions that required the student teachers to reconsider the key issues in technology with reference to language teaching and bridge the gap between different concepts among technology, pedagogy and content in relation to language learning and teaching. Scaffolding was provided through the article reading for each week for the purpose of enabling the trainees to focus on the important issues in the unit and in order not to diverge from the core issues in the article, as suggested by Egbert (2006). This kind of growing literature in CALL teacher education is also what Kessler (2006) offered as one of the current trends for CALL courses, so integrating such a component would be on the student teachers' benefits, which aimed to promote teacher candidates skills in reasoning their informed-decisions while doing practicing and reframe their experience.

More specifically, as for the example for the first week of the training, the article, *The Advantages and Disadvantages of Computer-Assisted Language Learning and Teaching for Foreign Languages* was assigned one week before the training started. The participants were asked to read the article and fill the prompt paper before coming to the class in order to get ready for the discussion. The first part of the prompt included practices which required them to define some terms such as CALL, stimulus and initiative as well as to differentiate between some concepts such as Behavioristic, Communicative and Integrative CALL.

The second part of the prompt paper is composed of questions which aimed to highlight key concepts and relate them to their future teaching practices as well as get the gist of the article. For instance, the questions in the second part of the focused on the following issues: (a) the aim of the study, (b) differences between computer as a tool and tutor, (c) pros of technology use in language teaching, (d) listing the challenges in technology integration into classroom from the most important to the least one, (e) how they cope with those challenges in their future classes and (f) the striking point in the article. Each issue aimed to deal with a different purpose. Listing the challenges from the most important to the least important one did not have a specific answer. The rationale behind this question was that the pre-service teachers would come up with different difficulties of technology integration into language teaching with possible explanations, exchange their ideas and eliminate some of the

perceived challenges in their mind. For example, during the in-class discussion hour of the week, one of the teacher candidates stated that limited access to online materials can hinder her from using technology and another teacher candidate refuted in a way that integrating technology was impossible without a suitable training even if teachers easily have an access to online materials. In fact, the candidate proposed that accessing online materials could be solved in many ways and it would take less time than being trained on that. In short, during discussion hours, they had a room for co-creating and reshaping their concept knowledge.

As for another example, the fourth week was on the importance of blogging in language teaching. Therefore, the article which was composed of a collection of other studies, *The Use of Blogs in EFL Teaching* by Güttler (2011) was assigned in the third week. The first part of the prompt paper of that week asked the pre-service teachers to define blog-related concepts such as explicit instructions, WYSIWYG, fluent and accurate writing and autonomy. The second part focused on the following points: aim of the study, choosing their favorite study in the article and giving rationale behind it, stating three types of blogs and their favorite blog types through *whys* and *wherefores*, identifying the rules of blogging, reporting the challenges of blogging and how they cope with those challenges as a teacher/learner and writing the striking point in the article. Through the use of article with a prompt paper, the pre-service teachers were asked to discuss on the key points, potentials, challenges and remedies in relation to blog use in language teaching.

As for the ninth week, the focus was placed on the use of *WebQuests* in language teaching. Therefore, the article, *Using WebQuests to Facilitate Task-based English Reading Instruction for Graduate Students* by Shan (2011) was assigned in the eighth week of the training. Similar to the constructs of the previous prompt papers, the first part required the pre-service teachers to identify such terms as *WebQuest*, stimulation, formative assessment, task-based methodology, scaffolding, constructivist pedagogy and higher-order thinking skills. The second part focused on the following issues: aim of the article, benefits of using *WebQuest* in language teaching/learning, six components of well- designed *WebQuest*, relationship between task-based learning and the use of *WebQuest*, rules of writing a *WebQues*t, what the findings of the article revealed in relation to *WebQuest* in language teaching and the most striking point in the article found.

For the practice sessions, the trainees were engaged in a wide array of hands-on

digital practices. The practices included the following digital tasks: (a) evaluating hardware and software programs through a pre-determined rubric, (b) using online storage and bookmarking for Bibs, (c) preparing quiz through online assessment tools, (d) designing blog and wiki, (e) creating digital storytelling, (f) creating podcasts, (g) engaging in mobile learning tools, (h) practicing QR codes, (i) being involved in Social and Global Learning Environments, (j) practicing Virtual Learning Environment and (k) designing *WebQuest* in order to enhance instruction in EFL classes considering the principles of second language acquisition (SLA).

For the practice sessions, the students were given a handout on how to develop and practice digital materials. This kind of syllabus also aligns with what Kessler (2006) remarked as one of the comprehensive approaches by focusing on the necessity of framework, which seeks to identify CALL practice taking its roots on particular language approaches, especially SLA research. Added to this, in the changing process of CALL teacher education, there is a concern with the extent to the student teachers can successfully practice the ideas and skills they learn through books, articles or formal courses to the language classroom (Egbert et al., 2002; Nunan, 1999). Therefore, this syllabus was generated to develop student teachers' digital literacies to meet the needs of the aforementioned paradigm shift in technology training in relation to language teaching for teacher education.

Added to this, the rationale behind putting the 12 digital materials and web-based sources (blog, wiki, podcast, online quiz tools, online classroom tools, digital story, website, VLE, online indexing materials, QR codes, online rubric tools and search engines) in the syllabus has manifolds. First of all, considering the framework of digital literacies by Dudeney et al. (2013), I realized that a DL training should include a variety of digital tools. For example, from the lens of Dudeney et al. (2013), having a participatory literacy means to be able to create a digital content and add this to others. Therefore, I decided to include the practice of wiki where students can collaboratively write online and contribute to others. Secondly, before including the digital tools, I checked international technology programs at different universities from different part of the world (Canada, Korea, England, Australia, and Japan) and identified the mostly used digital tools. Overall, these 12 digital materials were chosen to serve the purpose of this DL training.

3.2.2 Data Collection. Mixed data was collected through the multiple sets of data was used in the study in order to find answers to the research questions (see Table 1). For the quantitative part, the type of data was:

(a). ***Self-Reported Knowledge Scale*** with the participants at different times (before and after) which helped us investigate their knowledge about designing, implementing and evaluating the digital materials they are using during the training (Appendix D).

(b). ***Self-efficacy Scale in Digital Literacies*** with the participants at different times (before and after) which aimed to determine their initial and the terminal self-efficacy levels about digital literacies they have (Appendix E).

(c). ***Self-efficacy Scale in Using Digital Tools*** with the participants at different times (before and after) which aimed to determine initial and the terminal self-efficacy levels about using digital tools (Appendix F).

(d). ***Technology Belief Scale*** with the participants at different times (before and after) which aimed to explore their beliefs about the use of digital tools in language teaching (Appendix G).

(e). ***Rubric for the Output Quality*** was the assessment sheet through which the researcher and a language teacher concurrently gave grades on the digital artefacts of the trainees (Appendix H). A rubric is an explicit set of criteria which is used to evaluate particular type of work and gives more details than a one-shot grade or a mark and therefore it enables teachers to grade more objectively. Also, rubrics guide students to understand the goal of an assignment and focus their efforts on the core issues (Andrade, 2005). The rationale behind grading papers by two parties is to sustain inter-rater reliability, which means measurement of the extent to which data collectors or raters give the same score to the same variable (McHugh, 2012).

For the qualitative data, as Creswell (2012) suggested, documents, a valuable source of information in qualitative research were used in this study.

(f). ***Reflection papers on articles*** were the participants' reflection papers on the assigned articles. This type of document was developed by the researcher and was checked by an experienced CALL instructor (Appendix I). Reflection is increasingly gaining importance because of the need to link 'knowing what' and 'knowing how' (McDrury & Alterio, 2002). Additionally, it is to link between professional practice

between ‘espoused theories’ (those that practitioners say they use) and ‘theories-in-use’ (those that practitioners actually use) (Argyris & Schön, 1974). Given this, in reflection papers, the first part included terminologies and key concepts so that the students are to write down their meanings in their own words to show “knowing what”.

On the other hand, the second part encompassed thought-provoking questions that require the student teachers think about and bridge the gap between different concepts among technology, pedagogy and content in relation to language learning and teaching, namely to show “knowing how”. The students sent their reflection papers to my e- mail one day before the discussion session, by considering a certain online delivery protocol. For example, the following instruction was given to the participants in order to make sure that there was a consistent way of naming and sending online documents: *E-file: 17th of December 2018 (Tuesday-Midnight). Please, e-mail this file that you filled in to sedaaltiner@gmail.com after you name your file as 123TIINameSurname. In addition, write* ***123 Task II*** *in the “Subject” line of your e-mail.* As Dudeney & Hockly (2007) emphasized, encouraging our students to save their digital papers in consistent ways benefit to the students and the teachers.

(g). ***Reflective writing on practice****, another rich source of data,* was the essays about pre- service teachers’ learning how to engage in a variety of digital materials including planning, designing and evaluating processes (Appendix J). The aim of having participants write reflective papers was to help them raise their awareness about how they learned and what they knew. Moreover, a written reflective work takes its strength from production, or transforming the experience into words, to crystallize thoughts and feelings (Walker, 1985). In other words, pure description can lead to reflection and accordingly subsequent re-evaluation of the experience (McGill & Beaty, 2001). In the light of this information, in order to gain an in-depth insight into how the participants reflect on their experience, their reflective written works were collected after the training.

(h). Focus group discussion was with the participants’ discussions on the assigned articles through their reflection papers. As Creswell (2012) suggests, the use of the term *multiple perspectives* helps the researcher provide several viewpoints from different individuals and source of data. Some of the group discussions were audio-recorded. I chose the willing participants for the group discussion as willingness to completely participate in a group discussion is instrumental in supplying useful data and can be achieved within a homogenous group (Krueger & Ceasey, 2009). Also, they

recommend that participants should have similar properties such as, age range, ethnic and social class background. Therefore, I assigned the participants from the same educational background.

***(i). Field note*s** by the researcher who commuted to the research setting to take descriptive and reflective notes, which aligns with idea of Creswell's triangulation of the data (Creswell, 2012) were used in order to better record data. Additionally, as critical reflection through thick descriptions help researchers get prepared to provide the foundation for analytical writing and conceptual reasoning.

(j). One-on-one interviews with the students and the instructors were conducted at the beginning and at the end of the training as the data from some of the focused-group discussions did not suffice. An interview protocol on which the instructions for the process of the interview (Appendix K), the questions to be asked and the space to take notes of responses (Creswell, 2012) were also incorporated. For the interviews with the participants, purposeful sampling was used, namely I as the researcher deliberately selected people on a voluntary basis to develop a detailed understanding of the phenomenon (Creswell, 2012).

Table 1

Data Collection Tools

Research Questions	Data collection	Data analysis
1. Is there a difference between the level of self-reported knowledge of pre-service EFL teachers about digital tools before and after the DL training?	1. survey I- Self-Reported Knowledge Scale	Paired sample t-test
2. Is there a difference between the self-efficacy level of pre-service EFL teachers a. in digital literacies before and after the DL training? b. in using digital tools before and after the DL training?	2a. survey II- Self-Efficacy Scale in Digital Literacies 2.b. survey III- Self-Efficacy Scale in Using Digital Tools	Paired sample t-test
3. Is there a difference between the level of pre-service EFL teachers' beliefs about teaching through technology before and after the DL training?	3. survey IV- Technology Belief Scale	Paired sample t-test

4. How did pre-service EFL teachers' digital literacies change after the DL training?	4. Reflection papers on articles, reflective writing on practice, focus group discussions, field notes, one- on-one interviews	Inductive analysis

3.2.3 Data Analysis. In this section, analyses the data gathered from the qualitative and quantitative data will be revealed in that part.

3.2.3.1 Analysis of the Quantitative Data. The quantitative data were collected through four surveys and analyzed by SPSS 20.0 (Statistical Package for Social Sciences for IBM 20.0). Descriptive statistics (arithmetic mean, percentage and standard deviation) and inferential analysis (significant difference) were used. As the number of the participants at the beginning of the training was thirty four, Pearson correlation and paired sample t-tests were used to see the impact of the training. According to Lakens (2013), in order to test a predicted impact of any intervention, statistical significance could be used to analyze the quantitative data. However, statistical significance is the probability that the observed difference between the two scores is due to chance because statistical significance is the least interesting thing about the result, therefore, it is important to describe the results in terms of measures of magnitude of an intervention (Hoekstra et al., 2014; Nakagawa & Cuthill, 2007), which requires a researcher to calculate the effect size of the observed difference (Maher et al., 2013). In this vein, not only the substantive significance (effect size) but also the statistical significance (*P* value) as complementary analyses should be reported in reporting the findings of a study (Fan, 2001; Fidler & Cumming, 2012; Kirk, 1996; Özsoy & Özsoy, 2013; Rosnow & Rosenthal, 2009; Sullivan & Vein, 2012). Given this, in order to determine the effect size of the DL training on the participants, Cohen's *d* value was computed. Cohen's *d* value was calculated by subtracting the means of the scores of the pre-test and post-test and dividing the result by the pooled standard deviation (Cohen, 1992).

3.2.3.2 Analysis of the Qualitative Data. In order to gather ample evidence to the fourth research question, multiple methods of qualitative data collection were used, including reflection papers on articles, reflective writing on practices, focus group

discussions, field notes and interviews. All interviews were transcribed (Appendix L) and these transcriptions, along with field notes, focus group discussions, and all written documents gathered from the participants were collectively exploited for data analysis (Appendix M). The qualitative data were analyzed through data-driven coding, which requires a repeated examination of the raw data (Ryan & Bernard, 2003). Data-driven coding refers to a specific kind of inductive data analysis method that mainly uses detailed understanding of raw data to build concepts or themes through interpretations emerging from the raw data by a researcher (Thomas, 2006). Therefore, the researcher tries to discover the theory from the data which is already inherent (Strauss & Corbin, 1998). The rationale behind implementing an inductive approach is to let the researcher emerge findings from the existing raw data without any tight restrictions of a pre-determined structured method (Thomas, 2006). According to Scriven (1991), inductive approach is a goal-free approach whereby the researcher tries to examine the impacts of a particular program. In other words, inductive approach enables the researchers relate to the research objectives to the findings derived from the raw data (Thomas, 2006). Similarly, Patton (2002) remarked that the themes come from the data rather than an imposed methodology. Within this framework, as the fourth research question focuses on how digital literacies of pre-service EFL teachers changed, analyzing the data for this question through data-driven inductive approach served the best for this study.

The process of inductive coding starts with a careful reading of raw data, and the examination of text for discovering new meanings goes on the identification of labels and finishes with linking categories in various relationships (Thomas, 2006). However, it is not a linear process but a cyclical analysis where the iteration works as a reflexive process reflexive rather than a mechanical activity (Srivastava & Hopwood, 2009).

In order to sustain coding consistency, *independent parallel coding* was employed, as suggested by Thomas (2006). This method involves a process where two coders develop different sets of themes without displaying their own themes to each other and compare their sets to check the extent to overlap. Given this, as an initial coder, I developed initial categories derived from the raw data, and asked one of my colleagues, who have completed his PhD in ELT to follow the same procedure. At the end of the evaluation session, we compared two different sets of themes and negotiated on the final themes which will be given in the findings. Lastly, saturation as the point at which additional data do not lead to any new emergent themes was sustained in

order to be empirically confident as a researcher (Given, 2016; Saunders et al., 2018).

3.2.3.3 Further Analysis of both Quantitative and Qualitative Data. Following the synthesizing and classifying of data collected, the qualitative and quantitative data were then harmonized and further analyzed in order to gain an in-depth look of how high beneficiary and low beneficiary group developed digital literacies. No pre-defined specific method was used to do further analysis. Firstly, the total score of each participant that each one took from the four sets of quantitative data was computed in order to calculate the mean score. Then mean scores were put in an order from the highest one to the lowest one. Following this, the statements driven from the qualitative data were matched with the participants accordingly. The first six participants with the highest mean score (high beneficiary) and the last six participants with the lowest score (low beneficiary) group were drawn and their statements were examined in order to check if there is a qualitative difference between the responses of both groups.

Table 2 displays the qualitative data generation of the above-mentioned two groups.

Table 2

Density of the Qualitative Data

Data Methods	Word Count	Length (Minute)
Reflective Writing	7456	40 mins. Average
Reflection Paper on Articles	9443	25 mins. Average
Interview (3 participants)	6028	210 mins. Average
Exam Papers	7474	50 mins. Average
Focused-group discussion	2002	45 mins. Average
Field Notes	1988	4 months long

In order to detect the high and low beneficiary groups, the arithmetic mean of the scores drawn from the scales was calculated. Then the first six participants taking the highest scores and the last six participants taking the lowest scores were chosen, and their qualitative data was processed as a further analysis. As the maximum mean value was *M*= 5,00 the value of arithmetic mean for the high beneficiary group was found to range between *M*=3,8-4,1 while the value of arithmetic mean for the low beneficiary

group was found to range between *M*=1,8-2,9. Finally, their statements were re-analyzed and further specific themes emerged: implication for teaching, implication for students, expressing concept learning, describing use of digital tool, justifying the use of digital tool, reflection on course experience and personal opinion.

3.2.3.4 Reliability in Quantitative Data and Trustworthiness in Qualitative Data. Reliability refers to the degree of consistency or dependability of an instrument including stability, internal consistency, and equivalence (Neuman, 2012). Reliability is an important concept in research because it can be used to reduce errors during the analysis of responses to questionnaires (Creswell, 2012). The stability of the instrument refers to the extent which similar results are obtained on two separate occasions or a test-retest procedure (Polit & Beck, 2008). An instrument used in a study cannot be valid if it is not reliable; however, the reliability of an instrument is not solely based on its validity (Tavakol & Dennick, 2011).

Various statistical methods can be used to test reliability according to the characteristics of the data (categorical or continuous) and the contexts of testing variables, a Cronbach's alpha internal co-efficiency, the most widely used objective measure of reliability, was used in order to ensure the reliability of the scales. Internal consistency refers the extent to which all the items in an instrument measure the same paradigm or construct (Creswell, 2012), and therefore it is connected to the inter-relatedness of the items within the test. It is important to determine internal consistency before a test can be employed for research to ensure validity.

Among the four scales used in this research, three of them (*Self-Reported Knowledge Scale of Digital Tools, Self-efficacy scale in using digital tools" and Technology Belief Scale*) were developed by the researcher with the guidance of another researcher and one of them (*Self-efficacy scale in digital literacies)* was adapted from the framework of Digital Literacies coined by Dudeney et al. (2013). In order to validate the scales, the following steps by Creswell (2012) was tracked; a) prepare instrument for first pilot test, b) administer the first pilot test, debrief subjects, c) calculate reliability, d) run item analysis, e) revise instrument and f) prepare for the second pilot test.

For the qualitative data, in order to increase the rigor, member checking (Birt,

2016) was used through which I asked questions to the participants about the accuracy of the gathered notes during the interview. Full transcripts of the qualitative data were shown to the participants to seek their information, as suggested by Nguyen (2014). Participants had the opportunity to revisit their responses for accuracy and therefore they might acquire therapeutic benefits (Creswell, 2012). When necessary, peer debriefing process where external audit was tracked in order to check whether the inferences were logical, the themes are appropriate and the findings are grounded in the data (Jeanfreau, 2010). Lastly, triangulation of data was ensured for this study, which was based on a collection of multiple sets of data (Creswell, 2012).

3.3 Ethical Considerations

In order to conduct an ethically-sound study, all ethical issues such as reciprocity, assessment of risk, confidentiality and informed consent was assured through a checklist by Patton (2002) and relevant consent forms were given to the participants before data was collected (Appendix N). The consent form included all the relevant information including the purpose of the study, its procedures, benefits, confidentiality and the right to withdraw. When there were any involuntary participants, they were ensured to withdraw from the study at the beginning of study. The data was collected by the course instructor as a researcher; therefore, the participants were specifically granted that the study would no way affect their grades at the end of the term. Participation in this study was voluntary, and the participants were ensured to withdraw any time they deserve. Informed consent forms were gathered. Confidentiality of the data and the anonymity of the participants were also ensured throughout this study in order to preserve privacy on behalf of the participants. In terms of the administration, an ethical document was given to the university where the study was conducted (Appendix O).

3.4 Pilot Study

3.4.1 Contribution of the Piloting. Before commencing on collecting the required data for the present study, a pilot study was carried out prior to the actual experimentation in order to ensure reliability. The aim of the pilot study was to test the applicability of the questionnaires and also identify and correct any unforeseen problems as well as testing the amount of time allocated for answering the questions

and procedures during the actual data collection phase. The pilot study was conducted with 102 pre-service EFL teachers with similar characteristics (age range, freshmen, EFL context) to the actual participants of the study. The exact situation favorable for the future study was tried to be implemented by the researcher.

During the piloting, the participants were presented with the four types questionnaires aiming to identify their self-efficacy level of using digital tools, self-efficacy level of digital literacies, self-reported knowledge of digital tools and the technology belief scale. For the administration of the piloting, the time allocated to answer the items was set to 30 minutes, and all the participants were able to successfully complete the task. To be on the safe side, I decided on the completion time as 40 minutes as the required time for the actual study.

In conclusion, by conducting the pilot study, some technical and timing problems for the future experimentation were done away; additionally, it gave me an invaluable insight into the required procedures and effective ways to conduct the data collection most convenient to both the researcher herself and the participants.

3.4.2 The Results of the Pilot Study. Analyses were undertaken by means of SPSS Statistics version 20. The significance of the obtained Cronbach's alphas was judged against the value of alpha ($\alpha = 0.70$) to be considered acceptable (Kaplan & Saccuzzo, 2008; Mertler & Vanatta, 2005; Starkweather, & Kardong- Edgren, 2008).

The sample of the pilot study consisted of 102 pre-service English teachers from the following universities; Pamukkale University, Denizli; Celal Bayar University, Manisa and Dokuz Eylül University, İzmir. During piloting, all the ethical considerations were taken into account, and all the participants were assured through a verbal protocol and written consent forms that their answers would be kept confidential (Appendix L).

Table 3 presents a summary of the results of the Cronbach alpha ($\alpha = 0.79$) for the "Self-Reported Knowledge Scale of Digital Tools. Table 4 presents the summary of the results of the Cronbach alpha ($\alpha = 0.87$) for the "Self-efficacy Scale in Digital Literacies". Table 5 presents the summary of the results of the Cronbach alpha ($\alpha = 0.94$) for the "Self-efficacy Scale in Using Digital Tools", and lastly Table 6 shows the Cronbach alpha ($\alpha = 0.87$) for the "Technology Belief Scale".

Cronbach's alpha reliability coefficient ranges between $\alpha(0)$ and $\alpha(1.00)$, and the

closer Cronbach's alpha coefficient is to α = 1.0 , the greater the internal consistency of the items in the scale is (Gliem & Gliem, 2002). The Cronbach's alpha coefficients ranged from $\alpha(0.79)$ to $\alpha(0.94)$ for the scales used in this study. The results indicated that all the items of the scales had Cronbach's alpha indicators that exceeded the test value of $\alpha(0.70)$. In other words, those scales were considered to be acceptable reliable scales.

Table 3

Reliability Statistics for Self-Reported Knowledge Scale of Digital Tools

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.791	.789	12

Self-reported knowledge of digital tools scale was developed to measure to what extent the participants have the knowledge of such digital tools as blogs, wiki, and podcasts. It consists of 12 variables each of which refers to a different type of digital tool and the participants were asked to respond to the statement using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). As shown in Table 3, Cronbach's alpha value is α =0.79, which indicates a high level of internal consistency for our scale with this specific sample. In other words, the reliability analysis on this section scale revealed that the scale is composed of well-structured items; therefore, none of the items resulted in being removed.

Table 4

Reliability Statistics for Self- Efficacy Scale in Digital Literacies

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.876	.868	16

Self-efficacy scale in digital literacies was adapted from Dudeney et al. (2013) in order to measure to what extent the participants perceive themselves as digitally literate. It consists of 16 variables each of which refers to a different type of digital literacies, and the participants were asked to respond to the statement using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). As Table 4 displays, Cronbach's alpha is α = 0.87, which shows the scale has a high internal

consistency. This reliability analysis for the scale revealed it covers well-structured items; therefore, none of the items resulted in being removed as it was in the previous scale.

Table 5

Reliability Statistics for Self- Efficacy Scale in Using Digital Tools

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.949	.947	36

Self-efficacy scale in using digital tools scale was included in the study in order to measure to what extent the participants can use, create and evaluate digital tools and online sources. The scale consists of 12 items covering digital tools and online sources such as blogs, wikis, podcasts, virtual worlds and social networks with three variables (use, create, evaluate), the participants were asked to respond to the statement using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). As shown in Table 5, Cronbach's alpha for this scale is $\alpha = 0.94$, which has the highest internal consistency among the four scales used in this research.

Table 6

Reliability Statistics for Technology Belief Scale

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.878	.879	10

Technology Belief Scale section aims to determine to what extent the participants believe that use of technology impacted foreign language teaching. It consists of 10 variables each of which refers to a different type of belief in relation to technology and language teaching. As similar in the previous scales, the participants were asked to respond to the statement using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). As Table 6 displays, Cronbach's alpha is α =0.87, which reveals that the scale has a high internal consistency. Namely, the reliability analysis on this section scale also revealed well-structured items; therefore, none of the items resulted in being removed.

3.4.3 Changes in Methodology and Reasons. For the quantitative part, the

results of the reliability analysis through Cronbach's Alpha revealed that each questionnaire is detected as reliable (ranging from $\alpha = 0.79$ to $\alpha = 0.94$) and therefore eligible to utilize for the research. For the qualitative part, member checking (Creswell, 2002) was used for the credibility of the data. First of all, the interview questions were asked to three randomly chosen participants; their answers were transcribed, and the participants were asked to reflect on the accuracy of the data. Member checking showed us that the interview questions were clear enough to comprehend and conceptualize. For the 14-week-training program where pre-service teachers were engaged with digital tools and practicing digital literacies, a CALL specialist approved that the training program was aligned with the purpose of the study and the participants. Given these, there were no major changes in the methodology of this research.

However, I made minor changes in the instruction of the first questionnaire, "Self-efficacy Scale about using Digital Tools". This tool aims at identifying the level of self-efficacy of pre-service English teachers about using digital tools, such as blogs, wikis and podcasts which includes constructs such as "I can design a blog", "I can implement a blog and "I can evaluate a blog". During the data piloting process, I was expected by the participants from the two groups to elaborate on each meaning; "design," "implement" and "evaluate". Upon seeing this, I put an additional information at the beginning of the questionnaire as such *design*: create, *implement*: use in the classroom and *evaluate:* to determine effectiveness in order to highlight the differences between these concepts.

Chapter 4

Findings

4.1 Introduction

This chapter analyzes and discusses the impact of the training on digital literacies practices on the pre-service EFL teachers. The training which is composed of digital literacies practices was designed and implemented to meet the needs of the pre- service EFL teachers in subject-matter relevant technology use from different universities in the pre-training observations which lasted 2 years at my former workplace. At the pre-training observations, I realized that prospective EFL teachers were supplied with insufficient amount of chance to engage in DL activities, and therefore they graduated with no or little training to develop digital literacies in relation to language teaching, which was also echoed by Çelik and Aytın (2014).

Some of the technology-assisted courses were given to the teacher candidates without enabling them to relate the digital practices to their fields of study (Kılıçkaya, 2013). Prospective teachers studying at the Faculties of Education used to take general computer courses where they can superficially and commonly practice technological tools with the candidates in other departments irrespective of which department they were going to major in. For this reason, the DL training program was developed with a mindset through which the trainees explore the merits of digital materials *(learn about)* and learn proactively *(learn with)* the potential of educational technologies by designing materials (Shaltry et al., 2013). In other words, the training served for two purposes. Engaging pre-service EFL teachers with research through article-reading could lead them to design their digital artefacts in the light of theoretical bases, and therefore they can make informed-decisions about their actual practices with the digital materials.

This chapter will reveal the impact of the training by critically analyzing the data gathered from different sets of data tools. As the first step, pre-service teachers' self-reported knowledge of digital tools, self-efficacies of digital literacies and use of digital tools as well as the beliefs about teaching through technology were reported. A concurrent whole change in their self-efficacies, beliefs and practices is thought to be

a sign

of conceptual change in relation to their profession mediated by the ever-changing nature of technology.

Given these, the notion of digital literacies is regarded as highly crucial for the 21st century language learners in a digitalized world (Kereluik et al., 2013); therefore, it is inevitable for prospective teachers to foster a deeper understanding and knowledge of technological expertise in relation to their fields of study. In this sense, investigating their self-reported knowledge of digital tools, self-efficacy about digital literacies and using digital tools and lastly technological beliefs can shed light on what they know about digital tools, to what extent they are digitally literate and use digital tools and lastly their beliefs about the use of technology in language teaching.

4.2 Research Question 1

In order to answer the first research question, *Self-Reported Knowledge of Digital Tools* questionnaire was administered at the beginning and at the end of the term. The rationale behind using self-report questionnaire is that it can reach to a large sample of participants at one time with a low cost (Demetriou et al., 2015). Also, another advantage of self-report questionnaires is that it can be used as screening instruments in the first stage of a two-stage process in epidemiological studies (Demetriou et al., 2015).

The purpose of the scale was to discover to what extent preservice EFL teachers knew digital tools. It included 12 digital tools with four statements; *1. I never heard of this tool before, 2. I have heard of this word, but I am not sure what it is like, 3. I know this tool, but I am not sure I can use it.4. I know this tool, and I can use it. (Please elaborate on how you can use it.).* The participants were asked to choose the best statement, and for the fourth statement an additional note asking the participants to elaborate on the use of tool was deliberately was inserted in order to make sure whether the participant choosing the fourth statement knows the use of tool in practice.

The descriptive as well as the inferential analysis of the gathered data for the first research question is as follows:

Table 7

Paired Samples Statistics Between the Pre-test and the Post-test of Self-Reported Knowledge of Digital Tools Scale

		Mean	N	SD	SE
Pair 1	Pre-test	22.42	24	4.159	.849
	Post-test	29.29	24	5.465	1.116

As shown in Table 7, the number of pre-service teachers completed the survey in this study is 24. The mean for the pre-test was shown to be *M* (22.42) as compared to the mean for the post-test was *M* (29.29). The standard deviations obtained for the participants showed more variability among the scores of post-test rather thanpre-test scores.

In order to determine the participants' improvement in self-reported knowledge of digital tools, paired sample t-test was administered. It revealed the participants showed a remarkable progress as illustrated in the following table:

Table 8

Paired Sample t-test Results for Self-Reported Knowledge of Digital Tools Scale

		t	df	Sig. (2-tailed)
Pair 1	Pre-test-Post-test	-5.774	23	.000

According to the results of paired samples test correlations between the pre-test and the post-test scores of the participants, the sig. value (p=.000) is smaller than p= 0.05, which means the correlational difference is significant. Added to this, the degree of freedom was 23 (*df*=14). Considering the result of the paired samples t-tests, the change was shown to be statistically significant.

Findings from the data suggest that through participation in the training, the participants experienced a change in their perceived knowledge about digital tools. It appears that practices in the course had a significant impact on increasing preservice EFL teachers' knowledge about digital tools.

Further, in order to measure the strength of the training on the participants' self-reported knowledge of digital tools, Cohen's *d* value was computed. Cohen (1992) describes an effect size as *negligible* (0.15 < Cohen's d < 0.15), *small* (0.15 < Cohen's d < 0.40), *medium* (0.40 < Cohen's d < 0.75), *large* (0.75 < Cohen's d < 1.10) and *very*

large (1.10 < Cohen's *d* < 1.45) and *huge* as (1. 45 < Cohen's *d*). I computed the effect size "*d*" by calculating the mean difference between scores gathered from pre-test and post-test, and then divided the result (M=6.87) by the pooled standard deviation (SD_{pooled} = 5.83) and obtained Cohen's *d* value as *d*=1.2, which suggested a very large effect size (Cohen, 2012) .

4.3 Research Question 2

The second research question was addressed to determine whether there is a significant difference between the self-efficacy levels of the participants before and after the training. This research question has two sub-research questions identifying (a) the participants' self-efficacy levels in digital literacies and (b) the participants' self-efficacy levels in using digital tools before and after the training.

4.4 Research Question 2a

In order to answer the research question 2a, *Self-Efficacy Scale about Digital Literacies* was administered to the participants at the beginning and at the end of the term. The questionnaire was a 5 point-Likert Scale that was used as one of the commonly used psychometric tools in educational and social sciences research (Joshi et al., 2015).

The questionnaire included 16 statements which of each refers to one type of digital literacies framework developed by Dudeney et al. (2013), such as print literacy, texting literacy, hypertext literacy, multimedia literacy, gaming literacy, mobile literacy, code literacy, tagging literacy, search literacy, information literacy, filtering literacy, personal literacy, network literacy, participatory literacy, intercultural literacy and remix literacy. The participants were asked to indicate their level of agreement (from strongly disagree to strongly agree) to the given statements. Table 9 represents the descriptive statistics of the pre-test and post-test of the Self-efficacy Scale of Digital Literacies.

Table 9

Paired Samples Statistics between the Pre-test and the Post-test of the Self-efficacy Scale in Digital Literacies

		Mean	N	SD	SE Mean
Pair 1	Pre-test	38.25	24	11.719	2.392
	Post-test	61.08	24	11.669	2.382

As shown in Table 9, the number of pre-service teachers completing the survey was the same (N=24) with that of the first survey. The mean for the pre-test was shown to be *M*(38.25) as compared to the mean for the post-test (*M*=61.08). The standard deviations obtained for the participants did not show a considerable variability among the scores of post-test rather than pre-test scores.

Additionally, in order to measure the change of participants' self-efficacies in digital literacies, a paired sample t-test was administered, as shown in Table 9.

Table 10

Paired Sample t-test results for the Self-efficacy Scale in Digital Literacies

		t	df	Sig. (2-tailed)
Pair 1	Pre-test-Post-test	-8.073	23	.000

As Table 10 displays, the results of paired samples test correlations between the pre-test and the post-test scores of the participants, the sig. value (*P*=.000) is smaller than *P*(0.05), which means the correlational difference is significant. Likewise, as in the results of the previous scale, the degree of freedom was 23 (*df*=14). Considering the result of the paired samples t-tests, there was a significant difference between the scores of pre-test and post-test results of the participants.

In addition to the statistical difference, in order to measure how much this training impacted the participants' self-efficacy levels in digital literacies, Cohen's *d* value was calculated. I calculated the effect size "*d*" by calculating the mean difference between scores gathered from pre-test and post-test, and then divided the result (*M*= 22.83) by the pooled standard deviation (SD_{pooled} = 13.85) and obtained Cohen's *d* value as *d*=1.6, which suggested a huge effect size (Cohen, 2012) .

In the light of these findings, the data suggested that through participation in the training, the training had a big impact on the pre-service teachers, which led them to be more self-efficacious in digital literacies.

4.5 Research Question 2b

In order to answer the research question 2b, *Self-efficacy Scale about Using Digital Tools* was administered. For this reason, a 5 point-Likert Scale was developed as it was mostly used in collecting data like attitude, self-efficacy, motivation, self-concept, and other psychological fractions (Pornel & Saldana, 2013). The purpose of the scale was to measure to what extent the participants can use digital tools at the beginning and at the end of the term in order to indicate whether there would be a change in their use of digital tools. The participants were asked to state to what extent they could design, implement and evaluate a digital tool. Table 11 represents the descriptive statistics of the between the pre-test and post-test of the Self-efficacy Scale in Using Digital Tools:

Table 11

Paired Samples Statistics between the Pre-test and the Post-test of the Self-efficacy Scale in Using Digital Tools

		Mean	N	SD	SE
Pair 1	Pre-test	46.29	24	14.713	3.003
	Post-test	86.75	24	26.651	5.440

Table 11 presents the mean for the pre-test as M=46.29 and for the post-test as M=86.75. This finding shows that total scores gathered from the post-test is higher than the scores driven from the pre-test. In the light of these findings, remembering that the participants were asked to what extent they agreed that they were efficacious in using digital tools (1.00 refers to strongly disagree and 5.00 refers to strongly agree), a considerably high mean score in the post-test (M= 86.5) shows that they perceived themselves more efficacious in using digital tools compared to the pre-training session, which is the core aim of the DL training. Accordingly, the standard deviations obtained showed more variability in the post-test scores rather than pre-test scores, and this can be interpreted as the impact of the individual factor on the training.

Additionally, in order to measure the change of participants' self-efficacies in using digital tools, a paired sample t-test was administered, as shown in Table 11.

Table 12

Paired Sample t-test Results for the Self-efficacy Scale in Using Digital Tools

		t	df	Sig. (2-tailed)
Pair 1	Pre-test-Post-test	-9.036	23	.000

As it is seen in Table 12, the result of the data analysis revealed that the overall obtained value of p-value (*Sig 2-tailed*) of the pre-test and post-test is *P=.000* (Sig<0.05). This means that there is a significant difference in level pre-service EFL teachers' self-efficacies in using digital tools before and after the training. The negative *t*-value shows that the post-test result is higher than the pre-test which means an increase in post-test result. This points that the participants made a distinctive improvement after the training and benefitted from the DL training in terms of using digital tools.

As well as the statistical difference, in order to determine how much this training impacted the participants' self-efficacy levels in using digital tools, Cohen's *d* value was calculated. I calculated the effect size "*d*" by calculating the mean difference between scores gathered from pre-test and post-test , and then divided the result (M= 40.45) by the pooled standard deviation (SD_{pooled} = 21.93) and obtained Cohen's *d* value as *d*=1.9, which suggested a huge effect size (Cohen, 2012) .

4.6 Research Question 3

The aim of the third research question was to identify whether the preservice teachers' belief about teaching through technology changed or not. Likert-type or frequency scales employ pre-defined statements and are developed to measure attitudes and opinions (Bowling, 2002; Burns & Grove, 1997). As the third research question aims to measure the belief of the participants about technology use in class, a 5-point Likert Scale was administered to the participants at the beginning and at the end of the training.

Table 13

Paired Samples Statistics between the Pre-test and the Post-test of the Technology Belief Scale

		Mean	N	SD	SE
Pair 1	Pre-test	20.88	24	6.961	1.421
	Post-test	37.83	24	8.835	1.803

As indicated in Table 13, the mean score of the pre-test was shown to be *M*=20.88 as compared to the mean for the post-test which was *M*=37.83. The standard deviations showed more variability among the scores of post-test rather than pre-test scores. In order to determine whether there was a change in the participants' beliefs in technology, a paired sample t-test was administered and the findings are presented in Table 14 as follows:

Table 14

Paired Sample t-test Results for the Technology Belief Scale

		t	df	Sig. (2-tailed)
Pair 1	Pre-test-Post-test	-6.336	23	.000

According to the results of paired samples t-test correlations between the pre-test and the post-test scores, the sig. value *P* (.000) is smaller than *P*=.05, which suggests that there is a significant difference between the scores of pre-test and post-test. Moreover, the degree of freedom was *df*=23. Examining the result of paired samples t-tests, the change in the participants' beliefs in technology was statistically significant. The negative *t* value shows that the post-test result is higher than the pre-test which means an increase in post-test result.

In order to identify how much this training impacted the participants' beliefs in technology use in teaching, Cohen's d value was computed. I calculated the effect size "*d*" by computing the mean difference between scores gathered from pre-test and post-test, and then divided the result (*M*= 16, 95) by the pooled standard deviation (SD_{pooled} = 13.11) and obtained Cohen's effect size value as *d*=1.2, which suggested a very large effect size (Cohen, 2012) .

4.7 Research Question 4

The fourth research question was to explore different magnitudes of the DL training on the pre-service teachers with the help of different qualitative data tools, such as reflective writing papers, interviews and field notes. The DL training at the undergraduate level was also based on theoretical knowledge that aimed to improve the pre-service teachers' subject matter knowledge about digital tools so as to make them aware of the underlying pedagogical principles of technology integration into language learning/teaching and also to have them use, create and evaluate different types of digital materials and sources.

According to the analysis of the reflection papers on articles, reflective writing, field-notes and interview data, four main themes arouse that could be seen as part of development in digital literacies of preservice teachers: digital change, perceptual change, cognitive change and affective change, as shown in Table 15. (See Appendix M for Sample Coding of the Qualitative Data). Density refers to the high number of times a statement was expressed, and intensity refers to the richness and thickness of its expression (Johns, 2015). Given this, the themes that emerged from the qualitative data showed a high variability in terms of intensity and density.

Table 15

The themes that emerged from the qualitative data

Major Themes		Sub-Themes
Theme 1	Digital Change	Use of digital tools Creation of digital tools Evaluation of digital tools
Theme 2	Perceptual Change	PST qualifications Role of technology in teaching DL training
Theme 3	Cognitive Change	Conceptual Learning Raising Awareness Decision-making
Theme 4	Affective Change	Motivation Confidence Attitude

Revealing the findings, I will use *statement* which refers to the exact utterances produced by the participants. In this part, several statements will be included from the qualitative data covering reflection papers (RP), reflective writing papers (RW), fields notes (FN) and interviews (INT). Most of the data for this question came from the reflective writing papers written by the participants. In this sense, regarding the thick and rich data from the reflective writing papers collected from the participants, it can be said that they benefitted from the reflection on their readings and practices during the training. Additionally, as the syllabus to develop pre-service teachers' digital literacies is drawn from the framework generated by Dudeney et al. (2013), I will often refer to the authors in order to check what kind of set-skills they gained.

4.7.1 Theme 1: Digital Change. The first emerging theme from the analysis of data was digital change. Under the main theme of the digital change, there appeared to be three sub-themes; use of digital tools, creation of digital tools and evaluation of digital tools.

4.7.1.1 Sub-theme 1: Use of Digital Tools. The participants expressed overall agreement about the effectiveness of DL training through the use of digital tools, noting their capacity to design and evaluate online materials as well as to benefit from ready-made materials.

> I learned how to use major technological tools such as blogs, wikis, etc. When I visited and commented on other wikis prepared by my friends, I had a chance to see different materials and ideas. (P8-RW)

P8 in his writing shared his experience in blog and wiki. He stated that he contributed to others' wikis in the class, which affirms that he gained *participatory literacy,* the ability to contribute to the collective goals through digital networks. For this reason, it is important to encourage our learners to shift their focus from the local level to the international level (Lange, 2010) where they can contribute to each other.

> We have learned how to use various new tools such as blogs and had a chance to use it in the classroom. In fact, I had a personal blog but I did not have a student blog for teaching. (P11-RP)

Concerning the data drawn from P11's reflection paper on article, it can be seen that P11 benefitted from the training promoting a core skillset of digital literacies. As Dudeney et al. (2013) stated that some of the students may experience for the first time and some of them transfer their pre-existing digital skills into teaching by visiting other blogs. Therefore, digital literacies can not only benefit language learning and language teaching but also encourage the pre-service teachers to move beyond the traditional classes with a pre-digital mindset.

> I have learned lots of ways to use technology in English teaching such as creating a blog or preparing a digital story. Also, I have learned lots of terms related to language teaching and technology such as, netiquette, digital divide, digital native, digital immigrant, feedback. (P14-RW)

All these extracts represent that they felt competent at using digital tools after the training. Additionally, as the last extract showed that they also benefitted from the engagement with research.

4.7.1.2 Sub-theme 2: Creation of Digital Tools. The other sub-theme emerged from the data was creation of digital tools. The prospective teachers stated that they gained the ability to design their own digital tool and implement it in the class. They also reported that they did not feel that they could produce digital tools before the training, but after the training, they stated that they could achieve to design digital materials. As P20 brought up the issue:

> I think this course has helped me learn to make content in various ways and made me aware of many ways we can interact with students through technology. (P20-FN)

The quote by P20 was from the field notes I took during the training showed that he perceived himself as competent in designing a digital product. Also, it is worth mentioning that the participant verbalized this process as "creating content", which shows his growing conscious about the language point rather than the tool itself.

> This course helped me widen my range of doubt. I now have a clear idea on how we can create/shape information to help us teach. Like the week

> we created video content and reshape the story to fit ours. (P21-RW)

As P21 stated in her reflective writing that she developed her digital literacy in designing a digital product rather than using a ready-made one. However, most of the online sources do not allow enough room for learners to be active contributor, leading them to be the third person participant in the learning process (Lonsdale, 2006). On the other hand, as we can see from the statements, P21 perceived herself as a competent producer in designing digital artefacts.

> But the power is to have the ability to create the tools at the same time; we don't have to use a digital tool which is not good or qualified. For example, we anymore know how to do make our videos for our students. (P1-RW)

Sharing her experience in the practice session, P1 reported in reflective writing, after the training he could design a digital product for language teaching practices rather than picking up a ready-made one. This shows that P1 gained the flexibility to leave the pre-set use of commercial software programs and verbalized it as "power".

> I am able to develop my own tools such as blog and wiki. Although it seemed hard at the beginning, I was able to design my own DST. (P16-RW)

Sharing a close view with P1, P16 also stated her improvement on designing a digital product. This gave the teacher the chance to move away from a traditional classroom understanding to a modern perspective and to address more people (Pegrum, 2010). As Dudeney et al. (2013) emphasized, it is paramount to encourage teachers to make their voice heard and display their profiles online, by helping them gain *personal literacy*.

> If I cannot find any suitable digital tool; for example, for young learners some digital tools may not be ethical, so I can create my own tool like an appropriate DST or another activity requiring no reading and writing. (P3-INT)

As a more specific example, P3 explained how she could create a digital product for very young learners, by emphasizing on two points. The first one is that the issue

of digital safety while working with young learners is crucially important (Dudeney et al., 2013) as they cannot raise awareness about *hacktivisim* or digital safety compared to the older ones. In this sense, P3 seemed to sensitize with the principles of using technology while teaching to young learners. The other issue P3 raised was that young learners might not have the cognitive and motor skills (Cameron, 2001) to proceed in practices through technology; therefore, he is thinking of the benefit of accommodation of digital tools.

> Anymore, I am able to develop my own digital tools for my pupils. I can create my own digital story and wiki for grammar and writing lesson. (P13-INT)

As seen in the extract, P4 considered developing digital tools as a power. In fact, P4 states his/her positive thoughts about the creation of digital tools from a different perspective, by implying that being able to develop one's own tool could be beneficial on behalf of the learners rather than the teachers. Considering the remark, it can be inferred from his self-report that P4 is experiencing a kind of role change from being a pre-service teacher to an in-service teacher as P4 stated that she could design a material that it is not ethically suitable for young learners.

> If I cannot find any suitable digital tool; for example, for young learners some digital tools may not be ethical, so I can create my own tool like a DST we did together. (P4-INT)

Overall, the remarks of the participants gave a clear picture of how engaging with digital materials and discussing the relevant published articles contributed to their literacies in terms of designing their own materials rather than consuming ready-made tools. This need is supported by Jenkins (2009) who emphasized that teachers should leave from the comfortable zone of consumer to the zone of prosumer (producer + user).

4.7.1.3 Sub-theme 3: Evaluation of Digital Tools. The last sub-theme under the major-theme of Digital Change was the evaluation of digital tools. I purposefully put three extracts from the data in order to highlight that each reflected their experience at different levels although three of them stated that they can all evaluate digital tools.

Taking the utterance by P17 into consideration, we can see just a statement without any reference that P17 could choose a software tool to teach language; on the other hand, going one-step further, P10 acknowledged that she could have a kind of superficial criteria such as students' age and interests to evaluate a specific tool. Then strikingly, P24 reported his/her ability to evaluate digital tool by making pedagogical reasoning by terminologies such as collaboration, credibility of websites and teaching goals. This gives us a very clear idea that the participants who are intensively engaged with article reading sessions are easily and thoroughly able to reflect, verbalize and synthesize their experience in training.

> Moreover, I'm able to decide whether a wiki is coherent, full of examples and allows collaboration or not, also I can use different search engines anymore; googling is not the only option. (P24-RW)

From data driven from P24's reflective writing, we can see that P24 improved on searching skills, which Dudeney et al. (2013) calls it as *searching literacy* as a required skill to be digitally literate. Relying only Google means that we give the full responsibility on the shoulder of a commercial company about having it find us the most relevant, important and true information for our class (Vaidhyanathan, 2011). Therefore, we as language teachers need to guide our learners to develop strategies in choosing the best alternative from a large array of search engines instead of encouraging the *googlization of everything*. Being able to search through the Internet efficiently and quickly is mostly undervalued; however, a skillful teacher needs to acquire this literacy (Dudeney & Hockly, 2007).

> Likewise, I can select any digital tool which is beneficial; I mean, I can decide which website is useful or not, or I can decide whether a blog is suitable to my students or not. (P17-RW)

Another data drawn from P10's reflective writing showed that she could evaluate a wiki according to some principles after the training. Before the pre-service teachers designed their own artefacts, they were engaged in a practice session where they were supposed to evaluate a wide range of digital tools and sources. This gave them a greater ownership of the assessment process (Palloff & Pratt, 2009), which can lead the pre-service teachers to transfer this *information literacy* into their future classes.

> Also, I can evaluate a wiki when I see. For example, I can ask questions such as "Is it suitable to my students' age, interest and their language proficiency levels?" (P10-RW)
>
> Then, integrating digital tool into language teaching is not a toy, we should consider whether it is suitable to my students' levels, interests and my teaching goals. (P24-FN)
>
> I think in the near future I can use them for my students. But the most powerful thing is that I do not completely rely on any digital tools or website. Some of them may not be used because of lack credibility, pedagogical or other moral issues. (P14-INT)

It is promising to notice what P14 stated in the reflective writing paper touched very crucial issues in technology integration into education in an exponential growth of the digitalized world. Firstly, he verbalized the notion of "credibility" of a digital source, by emphasizing the importance of reliability of a digital material to be used in class among the tsunami of digital materials. It is apparent that the training helped P14 gain a critical eye on checking appropriacy of digital tools, which Dudeney et al. (2013) calls it *information literacy.* As Rheingold (2012) suggested that a practical way to cope with information overload is to encourage learners to have *information literacy*. Consequently, this training enabled the participant to gain this kind of literacy, by giving the opportunity to adjust and regulating information in a principled manner.

4.7.2 Theme 2: Perceptual Change. The second theme emerged as perceptual change that the trainees experienced after the training. The data collected through reflective writing and interviews were analyzed to pinpoint the perceptual changes. According to the results of the data, there emerged three sub-themes: the pre-service teachers' qualifications, the role of technology in language teaching and DL training. What differentiates these sub-themes in this group from that of the previous ones is that pre-service teachers start to reveal their thoughts and develop some kinds of teaching plans in relation to teaching pedagogy, going one-step further from the use of technology.

4.7.2.1 Sub-theme 1: The Pre-service Teachers' Qualifications. The first sub-theme was the pre-service teachers' qualifications. This sub-theme was stated by a great number of the participants with different views. Among the themes, this sub-theme is the most fruitful one in terms of the breadth and the depth of the data. This can bring us to the point that they are developing a kind of conception of being an English teacher.

For instance, P3 made a critical comment on the qualification of PSTs by placing a special emphasison the current role of English worldwide:

> Instructional Technologies are important for the future generation teachers, as the World enters a technology era. It would probably be essential for students of English language to have the knowledge for technological skills as English has an outstanding power in the World of information Technologies. (P3-RW)

The other statement by P2 underlined the importance of online teaching. What is striking here is that the participant implicitly emphasizes the difference between using digital tools and having the appropriate pedagogy.

> They (PST) should be able to use some sort of equipment and have the knowledge to use and teach online information bases. (P2-RW)

As another lens, P4 pinpointed the complementing aspect of pedagogical practice to the digital practice by stating that teachers need to have the background knowledge about using technology.

> At least, teachers are needed to know basic tech knowledge and skills and conventional education ways to integrate technology into the class. (P4-RW)

Considering the statements of P11 and P13, it can be explicitly seen that the qualifications of pre-service teachers are mostly related to the use of some specific digital tools, such as blog, wikis and online quiz tools. Both of the participants put the

emphasis specifically on the use of digital tools rather than sole knowledge about those tools. This shows that the participants are aware that using a digital tool is beyond knowing a digital tool, which was supported by a number of scholars (Hockly, 2013; Hubbard 2006; Krumsvik, 2006; Nguyen, 2014).

> I think one pre-service teacher should know at least how to use tools such as word, PowerPoint, excel. Pre-service teachers should know creating wikis, blogs, sound and images. (P11-RW)

> Using wikis, learning the useful tools such as Quizlet, blogs are also useful and teacher should be able to fully use these. (P13-RW)

On the other hand, the following statement made by P14 revealed two points to us. Firstly, pointing the necessity of sharing documents online can be considered a sign of the need felt by pre-service teachers in the sense that they need to support their students outside the classroom. It seems that teaching in a four-wall grey environment is not sufficient in today's learning avantgarde environment. This is echoed by Fitzpatrick and Davies (2003) who remarked that education goes beyond the four-walled classroom. Then, it is noteworthy to recognize the use of language "we" while mentioning the qualities of pre-service teachers. Namely, pre-service teachers started to internalize their profession and have a sense of belonging.

> We must learn computer. I think in educational purposes it is the first step. After that we should know how to share our documents online way to our readers/students. We can use them in an active way. We should learn how to use these technological tools. (P14-RW)

Notably, P19 approached the qualifications of pre-service teachers from a global perspective in the reflective writing paper, by emphasizing that being able to use technological tools even at the initial level is necessary. What is more critical here is that the participant paied proper attention on the computational thinking skills as a prerequisite of the 21st century skills. This signifies that the participant does not see the training process as a hunch on her back; rather he tends to philosophize the integration of technology in all walks of life through the use of the word "era" which refers to the Digital Era.

> In the 21th century we have to look forward. In myopinion, in this era everyone should learn how to use computer basically. It can be easily learned by us…..Teachers should be use computational thinking while solving a problem. (P19-RW)

As another remark on the qualities of pre-service teachers, P20 drew a more precise and strict frame by emphasizing that technology use for pre-service teachers is a must. The participant also raised awareness about the criticality of producing digital tools and about the notion of being "literate:

> Pre-service teachers should at least be able create original content for their students and be actively communicating through technology. Basic computer knowledge and being a technologically literate is a must for pre-service teachers. (P20-RW)

4.7.2.2 Sub-theme 2: The Role of Technology in Language Teaching. The second sub-theme under perceptual changes is the ever-increasing role of technology in language teaching. The participants seemed to reflect on whether and how technology use can have an impetus on language teaching practices. Some of the participants focused on the advantage of technology integration on behalf of the students, such as their needs and motivation while some others emphasized the facilitative aspect of technology in classroom instruction. Identifying the higher number of the participants favoring technology integration for the betterment of the student learning rather than the classroom practices or the teachers seems promising. This also implies that the pre-service teachers start to mirror a kind of teacher identity as well as the learner identity. For example, P13 described and exemplified the use of technology in language teaching by referring to a specific digital tool.

> Of course we should learn the place of blogging in language teaching, at least it gives a kind of context for students, for example, a reading passage on modals can be put on my blog and let them read the blog before the course. (P13-INT)

P7 also made a similar statement that use of technology contextualizes language teaching. This shows that both of them put the emphasis on the context-rich environment for teaching English considering the skills of the English language.

> Language is not a one-direction way, instead it has lots of different ways going with different directions such as listening, writing, speaking and technology draws a frame for language learning rather than learning in isolation. (P7-INT)

In the same vein, P4 added a point that how being competent can promote a student's motivation in language learning. Strength of a student in an area other than the language can have a good impact on the learning process.

> By using these ways, students can be more eager to be included in the learning process. They can also feel more comfortable because they are using something that they are competent. Computers, educational applications such as blog and wiki etc. It can contribute to students learning. (P4-INT)

Likewise, the statement of P11 stressed the benefit of technology for the learner. It is also satisfying to see the participants touching the term "digital native", which is a popular conceptual phenomenon that needs to be discussed within the frame of technology-supported language learning.

> As we are in technology age, it is almost impossible to avoid using technology. So we have to use it in our life's various places. Education is one of them. New generation is digital native so best way to teach something them is technology. (P11-RW)

With respect to appropriacy, P18 commented on the importance of technology for young learners who does not start learning reading and writing, such as videos and games. This shows that having to adjust their digital tools they designed in the training process provided them with the abilities to tailor their teaching practices.

> I think tech can be used various purposes in education. For example, children who don't know writing or reading can learn something with videos and games more effectively. (P18-RW)

On the other hand, P16 pointed out the role of technology in language teaching in the feedback process as well as the stimulating effect of technology. It is a different view from the other as the participant implies that a learner can monitor his/her learning process with the help of computers.

> It is easier, more interesting and meaningful to use technology rather than a pen and a paper and by using technology, you can learn quicker, faster, more effectively , or… like… well, you would have more guidance, so, you would be… you would feel comfortable and you would see your progress and in that way. (16-INT)

4.7.2.3 Sub-theme 3: The Digital Literacy (DL) Training. The last sub-theme was the perceptual change in DL training. All of the statements that the pre-service teachers made below pointed that implementing DL requires planning and training. For example, P17 made a critical comment on digital tool selection and sparing time for preparation.

> Using technology in class as a teacher takes more than I thought. It is not like that you can go and use a random digital tool. (P7-RW)

P13 also placed a considerable emphasis on the necessity of DL training after the analysis of the data from the interview. Added to this benefit, what the participant focused on is the combination of the necessity of training at the theoretical level and practical level to use technology thoughtfully in class.

> I think there are many criteria to apply a digital tool in class; I need to be equipped, first of all, then I need to have the pedagogy to implement and evaluate (P13-INT).

P5 similarly reported that in order to use technology in class a teacher should have time, practice and the necessary information. Jalkanen and Laakkonen (2011) also put the emphasis on the necessity of training for effective use of digital materials into language teaching. As P5 remarked:

> We should be careful about knowing a digital tool and using it in class. It takes time, practice, knowledge and other elements to implement a technological device in class. (P5-INT)

Additionally, the data from the interview with P11 explicitly revealed that the participant raised awareness about implementing technology in class. Also, the participant seemed to differentiate two concepts in a way that knowing a digital tool

for everyday purposes is an issue, and integrating it into language class is another issue.

> Using a digital tool in our daily live is one thing but using it in class is another thing. I would not think that it necessitates a special training. (P11-INT)

From the remarks the trainees made, it is apparent that the trainees had new perceptions about the qualities of pre-service teachers, subject-matter relevant technology integration and technology training. A change is a pedagogical challenge (Taalas, 2005); therefore, it should firstly start in the perceptions rather than in the practices.

4.7.3 Theme 3: Cognitive Change. The third theme emerged as cognitive change that the prospective teachers experienced after the training. The data gathered through the interviews and reflective writing papers were analyzed to discover how they experienced the cognitive change. After analysis of data, there emerged three sub-themes: conceptual learning, raising awareness and decision-making. These three themes are interwoven owing to the fact that when students are engaged in conceptual knowledge, they raise awareness and they can consequently project what they learned on their future teaching practices (Dikilitaş, 2013).

4.7.3.1. Sub-theme 1: Conceptual Learning. The first sub-theme was conceptual learning. The participants revealed ample evidence on what they learned after the training. A pleasant surprise to me in the data was the extent to which pre-service teachers used terminologies within the notion of technology use in class. It is worth noting that P13 seemed to undergo a conceptual change more compared to the other participants as the data drawn from P13 was considerably richer, which lead me to gain a deeper understanding of the perceptual transformation experienced by the participants. Therefore, I will often display statements of P13 in this part. To start with another participant, P3 reported in the interview that she learnt a new terminology and tried to describe it.

> Also, I learned a new term "scaffolding". It was a good one; a more proficient one helps the less proficient one. First of all, reading articles was

> the most beneficial one; I learned lots of concepts related to my field such as autonomous learner, scaffolding, different types of CALL, difference between CALL and MALL, lexicon, hardcopy and softcopy, collaborative learning etc. (P3-INT)

Sharing the same opinion, P13 highlighted how he promoted extensive knowledge about the topics discussed in the articles referring to the difference between the two types of CALL in addition to the knowledge of terminologies.

> This was the first time I have read scientific articles. It was hard but I found some ways on how to read it. For example, I started searching for the terminologies like digital native/immigrants, feedback, behavioristic CALL, MALL. Etc. Also, it was good for me to discuss the articles in the class. (P13- INT)

With respect to article reading, P16 noted the role of article reading on learning new terminologies by referring to a specific group of those in the reflection paper. Although P16 did not give the description of these terms, from my field notes I took, I found that he was talking about the importance of netiquette as behaving properly in online platform.

> Also, we read scientific papers and I learned lots of terminologies such as scaffolding, instant feedback, and netiquette. (P16-RP)

As well as the conceptual learning through the discussion of articles, the participants also reflected that they also learned a great number of things in the practice session. For instance, P13, the participant giving the richest data for this sub-theme, expressed his content that he joined a community of practice online for the first time.

> In my opinion, the most beneficial one was the Webinar on strategies to promote and protect language teacher well-being. I had not attended a webinar or even a seminar before. Also, you wanted us to ask questions and take a screening shot during the webinar. Hopefully, I managed to do that. (P13-INT)

From a more balanced standpoint, P13 in reflective writing shared his experience about attending webinar where he was supposed to interact with the other English teachers in another country. It is important for our students to get experienced beyond

the conventional classrooms with four walls in order to encourage them to discover diverse perspectives and gain a critical eye to on what they hear and observe (Dudeney et al., 2013). In other words, allowing a room for learners to take place in such professional spaces can lead them to have access a kind of networked intelligence (Burbules, 2009). Therefore, we need to guide them in tracking different learning networks where they can exchange their opinions, ideas and experiences with the other people in the field.

> There are lots of digital tools and applications we learned so far and each of them can be beneficial as long as we prepare them according to its purpose. (P13-INT)

4.7.3.2 Sub-theme 2: Raising Awareness. The second sub-theme was raising awareness. Having experienced conceptual learning, the participants reported that they raised awareness in the milestones of language teaching through technology.

For example, P17 pointed that he could not estimate the rationale behind article reading at the very beginning of the training and then realizes it is the way to rationalize the practical training. First of all, he rewords what happens in the article and catches the pedagogical implication for the wiki creation. Specifically, he clearly depicts how reading articles has impacted his actual practice with wiki:

> At first, I couldn't understand why we had to read but then I realized that we were supposed to relate the information on the article to our practices. For example, we had an article on wiki. In the article, students like us were developing wiki and stating their opinions about wiki. They stated that they had some difficulty related to wiki for example they need more clear instructions. Then next week we had to create a wiki where we can design an activity. While doing my wiki, I paid attention to write more clear instructions for my students. (P17-INT)

P16 made a similar remark in the interview that his realization was that engagement with research with the subordination to practice digital tools. P16 seemed to gain more insight into the contribution of reading and discussion articles into their digital practices.

> I realized the importance of article reading into language teaching; we had

> a chance to practice what we have learned from the articles. (P16-INT)

P16, also in his reflection paper, noted a key point in practices in the training sessions. The participant noted many critical issues while implementing technology in a language class. His realization also shows that integration of digital technologies is more beyond than slacktivism, which means one-click online activism.

> I realized that there are lots of pedagogical issues in using technology while teaching through technology such as evaluation, level of the students, where and how to put technology in lesson plan. (P16-RP)

What P8 expressed as for the awakening was not much different from the previous statements. He stated his progress in terms of being aware of the multifaced aspect of implementing technology in class. It is more than a "chalk and talk" (Susikaran, 2013) methodology for the future learners born in technology.

> I realized that integrating technology into language teaching requires a very detailed plan, pedagogy, observation and evaluation. (P8-INT)

4.7.3.3 Sub-theme 3: Decision-making. The third sub-theme under cognitive change was change in the decision-making process, which led the participants to estimate how they combined the use of the new knowledge with the issues of which they raised awareness. The participants showed a clear picture of how to teach language in the light of the experience they had during the training. As an example, P15 in the interview depicted how she could employ technological devices in class and the critical points he/she would take into consideration.

> Surely, it made a big difference on me. For example, if I want to use technology in my class, I will try to make it collaborative, interactive and prepare lessons which will increase my students' higher order thinking skills. (P15-INT)

The expression of P15 on her future teaching plans also showed that he gained the autonomy to decide on why to use a digital product rather than how to use it. This is achieved through a "built pedagogy" (Monahan, 2002) where the teacher tailors their own pedagogies guided by student-centered educational approaches. Also, another

participant furthered the issue by putting the emphasis on the different type of English learners with different needs and remarked that the participant could adjust the digital tools and the teaching technique accordingly.

> So it (learning the difference between EAP and ESP) means that if I have ESP students, I should arrange my materials according to their needs. May be they are tourism students and would want to practice oral skills more than the written. (P19-INT)

As another example, P2 also gave a clear picture of what kind of digital tools can be much more suitable to a specific group of learners. As Dudeney et al. (2013) state that dragging puzzles or moving a computer's mouse can be also a digital activity for young learners and this is achieved through developing digital literacies.

> Also, we can design a digital storytelling for young learners to teach simple past tense. I'm sure they will like it because I like the idea of digital storytelling so much. (P2-INT)

4.7.4 Theme 4: Affective Change. The last theme emerged from the qualitative data was affective change. Under the affective change theme, there arouse three sub-themes: motivation, confidence and attitude.

4.7.4.1 Sub-theme 1: Motivation. The first sub-theme was motivation. Motivation can be considered a strong fuel for teachers to use technology in their class. Most of the participants expressed their satisfactions with the experience they had in the training. Their statements embodied such feelings as pride and enthusiasm to learn about technology use in class. The following statement by P17 implies how participating in an online community in relation to their subject matter makes him feel different than his friends majoring at the same department but from different institutions.

> It (attending webinar) was a different and amazing experience for me, I told this to my friends who are studying in English Language departments in other universities and their reactions were good also. I felt proud at that time. (P17- INT)

As a very close example, P6 commented on his practice in creating digital story

and expressed his contend about reconceptualizing his materials through the modernization of the story. Re-designing is an inevitable practice in the digital area. Subtitling a film, reworking on the constituents of digital tools or dubbing are the well-known examples of re-designing. Dudeney et al. (2013) called this as the *remix literacy*, the ability to modify pre- existing materials or reshape the past meanings of those materials. He had a chanceto bring what they do in their online lives to teaching context. Given this, it is seen that P3 also had a chance to develop his agency gained remix literacy after the training.

> It (DST) allowed me to bring a digital story with visuals. Also, you asked us to put a modern element in the digital stories we created so it was funny. For example, in my story The Little Riding Hood used a navigation to find her way to grandma. (P6-INT)

4.7.4.2 Sub-theme 2: Confidence. The other sub-theme was change in confidence. It was inspiring to see that the participants reflected on how much they gained confidence after the training. As a researcher witnessing the pre-feelings and the frightened face of the participants before the training, I can heartfully well pleased to display the comment. For example, P18 felt confident owing to the fact that he could put into practice what he learned.

> I think that this course affects me in a good way. I learned different things of course so I feel confident that I can integrate technology when I become a teacher. (P18-INT)

As stated in the extract, the source of P18's confidence also came from another experience. Dealing with a perceived difficult experience such as article reading made the participant feel courageous.

> This course gave me courage that I am capable of using a wide range of tools while teaching English. To be honest, I was scared when I heard different terms such as wiki and blog. Mostly, I am more scared when I saw the articles because I had not read the articles before. Luckily, you gave us some prompt papers then we could be guided easily and focus on the most important ones. This was a different but a good experience for me. (P18-INT)

By the same token, P16 explicitly noted how confident he felt after the training because during the training the pre-service teachers were given a variety of chance to participate in practicing, discussing and reflecting. As Harrington and Stockwell (2003) marked that participation in CMC has a huge impact on the quality of language produced by students.

> My thoughts and knowledge on technology have been improved greatly because… like, I never thought that I would… I could use technology in learning and teaching so effectively… I feel confident, so… that's how this course affected me. (P16-INT)

From the above quotes by the participants, it was apparent that they felt more confident in using, creating and evaluating digital materials and sources at the end of the training. This finding also aligns with the finding of a very recent study conducted by Akayoğlu et al. (2019) who conducted a study to discover how pre-service teachers conceptualize digital literacies. They also found that pre-service teachers mainly expressed the affective contribution of technologies for themselves.

4.7.4.3 Sub-theme 3: Attitude. The final sub-theme was the change in the attitudes of pre-service teachers towards the use of technology in language classes. Some of the participants held negative attitudes towards the integration of technology owing to experiencing a deficient use of computer use at the beginning of the training. P3 was one of the participants who had negative thoughts about the role of technology in teaching. After the training, it was clearly seen that he underwent a change in good terms.

> I used to think that technology is a waste of time as I told you about my previous experience, but I think that it is beneficial and necessary to use in our classes. (P3-RW)

As Dudeney and Hockly (2008) pointed that what can lead a language teacher to have negative attitude largely comes from the lack of confidence, a lack of logistic support and a lack of training (Shaltry, 2013). Consequently, they result in categorizing themselves as *technophobe*, a cautious user of technology, or *technogeek*, a technology enthusiast (Meachum, 2015). Here, it is apparent that the attitude of P3 changed from the negative to the positive because P3, during the training, underwent an on-going

practice in what Dudeney and Hockly (2008) listed as a group of deficiency.

4.8 Findings of the Further Analysis of the Qualitative and Quantitative Data of High and Low Beneficiary Participants

To link quantitative and qualitative data results, I examined high and low self-reported scores by the participants to ensure clear links that might support the impact of DL training on the pre-service teachers. Then, a quantified qualitative difference was found between the high and low beneficiary groups in terms of depth and breadth of reflection on their practices, conceptual knowledge and digital practices as shown in Table 16.

Table 16

Further Qualitative Themes

High Beneficiary	**Specific Themes**	**Teachers' Comments**	**Theme Synthesis**
P3	Justifying the Use of Digital Tool	*I liked also creating WebQuests, It has lots of steps… Students had a chance to finish their tasks according to their pace through scaffolding, they are guided in terms of sources so that they cannot get lost in random sources and all the instructions are given clearly.*	Affective Change
P7	Describing the Use of Digital Tools	*Of course we should learn the place of blogging in language teaching, at least it gives a kind of context for students. For example, a reading passage on modals can be put on my blog and let them read the blog before the course*	Digital Change
P8	Implication for Teaching	*In my teaching situation in the future, they can be taken to the classroom and used there by learners so that they can make information exchange on how to use these kind of tools.*	Cognitive Change
P11	Expressing Concept Learning	*Using technology in classroom has some requirements and should be integrated professionally and every single detail should be taken seriously but… saying that you do those things perfectly, it would definitely benefit the students and the teacher because… like, it would relieve both and it would improve the relation between the two and… yeah, overall I think using technology in a classroom is really beneficial and positive concerning you're doing it properly.*	Cognitive Change

Table 16 (cont.d)

P13	Implication For Students	*Obviously, this course made a difference in many terms. Firstly, as I said before this was the first time I have read scientific articles. It was hard but I found some ways on how to read it. For example, I started searching for the terminologies like digital native/immigrants, feedback, Behavioristic CALL, MALL. Etc. Also, it was good for me to discuss the articles in the class. For example, we could learn difference between traditional CALL and Behavioristic CALL.*	Digital Change

Low Beneficiary	**Specific Themes**	**Teachers' Comments**	**Theme Synthesis**
P2	Reflection on Course Experience	*I have learned applications that I can use it in presentations. I have learned how to use Animoto, Webinar.*	Digital Change
P16	Personal Opinion	*They need to know how to use these gadgets and they should be keen on computer technologies.*	Perceptual Change
P17	Personal Opinion	*Technology could be effective if used properly.*	Perceptual Change
P19	Personal Opinion	*I think it's (technology) very useful, time saver and a great way to be used for educational purposes.*	Perceptual Change
P22	Personal Opinion	*It may not be basic but if a pre-service teacher learns some of the programming languages she/he won't have to search for needed programs.*	Perceptual Change

According to the further analysis of qualitative data, there was a qualitative difference between the high beneficiary and low beneficiary groups. The former group tended to give more critical, lengthy, deep and content-rich reflections on the training while the latter group revealed short, superficial, critical and judgmental reflections. Moreover, impersonal language used in passive construction implies externalizing the learning process and self-benefits are unconsciously ignored whereas in high beneficiary group *personal I/we* language is distinctively used which implies more personalization in their development.

Added to this, although there are two participants from both groups who underlined that they changed in their digital use, it can be seen that they did not change at the same level. For example, P17's statement seems superficial while he was expressing that he could use *Animoto*, which refers to adaptation of digital tool; on the other hand, P17 also stated that through he could use it through a detailed description of blog to teach a specific language point, which refers to integration of digital tool. In brief, it seems that there is an interlink between the quantitative response level and

scope of qualitative comments of low and high beneficiary groups.

Table 17

The Number of the Statements Matched with Themes in Both Groups

Themes	Low Beneficiary	High Beneficiary
Implication for Teaching	-	19
Implication for Students	1	12
Expressing Concept Learning	-	11
Describing the Use of Digital Tool	-	8
Justifying the Use of Digital Tool	-	13
Reflection on Course Experience	4	8
Personal Opinion	7	7
Total	12	82

As shown in Table 17, it was also observed that high beneficiary group revealed more data in terms of the number of the statements (33505 words in 82 statements) while the low beneficiary group provided relevantly less data (332 words in 12 statements). Also, the statements of the high beneficiary group were matched with more themes than that of the low beneficiary participants.

4.9 Summary of the Findings

In the light of the qualitative analysis, this part sought to identify how digital literacies of pre-service EFL teachers changed through the practices in the training. It became evident that the participants underwent major and minor changes in terms of knowledge and use of digital tools, perception, cognition and affective elements. Considering the further analysis of the qualitative research, it was found that high beneficiary participants gained an insightful and analytical perspective more while developing their digital literacies after the training compared to the other participants in the counter-group.

Chapter 5

Discussion and Conclusion

5.1 Introduction

This chapter represents the overall conclusion and the discussion along with the findings of the study. Firstly, the previous research findings that are and are not aligning with the present research will be investigated. Secondly, implications for teaching as well as recommendations for further research in relation to the aim and the findings of the study will be covered.

5.2 Self-Reported Knowledge of Digital Tools

As technology has transformed how meaning is constructed, knowledge and the ability to use digital tools are crucial for effective involvement in an information society (Yordming, 2017). The landscape of English teaching has also taken its share from the remarkable expansion of technology (Nguyen, 2012; Sultanova & Maksudova, 2019), and there emerged a wide array of digital tools and resources that can facilitate language teaching and learning (Khoshsima, 2018).

The first research question addressed to examine whether there was a significant difference between the scores the participant's self- reported knowledge of digital tools at the beginning and at the end of the training. Findings obtained from self-reported knowledge scale indicated that, in posttest condition, the mean score increased drastically. Also, the effect size (Cohen's $d = 1.2$) was found to be very large. This shows that the magnitude of the training on the pre-service teachers who have increased their knowledge in digital tools is very high. The finding is also supported by Carreos (2014) who issued the position that the teachers should be provided a venue through intensive digital tool-based trainings to increase their knowledge of ICT and its infusion into language teaching.

Additionally, Perez and Murray (2010) claimed that computer literacy is closely related to digital literacy of a teacher; therefore, a teacher's ICT literacy is granted by the ability of manipulating digital technologies where the teacher make sense from the digital practices. Newhouse (2002) remarked that the use of inappropriate digital

materials or little knowledge of digital tools can result in inadequate use of digital tools at schools. Therefore, a call for a careful selection of digital tools to be tailored to language teaching cannot go unnoticed (Çelik & Aytın, 2014; Newhouse, 2002). Likewise, according to Hicks et al. (2013), the skill of writing is more than bringing words together; rather, it is the ability to convey their message through technological tools to communicate their message.

The finding of this research question is quite similar to the findings of another research in the literature. Through Design-Based Research (Jalkanen & Laakkonen, 2011), teachers can have a chance to discover the mutual effect between theory and practice as well as between different tools (artefacts), and in turn it increases their understanding of learning (Sharpe et al., 2010). However, as Hockly (2012) noted that lack of digital tool knowledge could adversely result in hesitation in implementing these tools in the classroom and prevent teachers from providing a digitally rich context forlanguage teaching.

5.3 Self-Efficacy in Digital Literacies and Use of Digital Tools

The second research question was addressed to determine whether there was a significant difference between the self-efficacy levels of the participants before and after the training. This research question has three sub-research questions identifying (a) the participants' self-efficacy levels in digital literacies and (b) the participants' self-efficacy levels in using digital tools before and after the training.

5.4 Self-Efficacy in Digital Literacies

As mentioned in the previous sections, a self-efficacy scale in digital literacies was developed by the researcher according the framework of Digital Literacies Framework suggested by Dudeney et al. (2013). Findings obtained from the scale indicated that the pre-service EFL teachers expressed themselves more efficacious in most of set-skills of digital literacies compared to the beginning of the terms. Moreover, the effect size (Cohen's d =1.6) was found to be huge, which shows that the impact of the training on the pre-service teachers who have developed digital literacies is proved to be huge.

Among the other areas such as knowledge and use of digital tools, as well the belief in technology, the trainees stated the highest remarkable change in their digital

literacies practices. This can be directly attributed to the fact that DL training helped the trainees become more efficacious and in turn develop their sense of capability of meaning-making, creating new forms of knowledge and sharing the created knowledge with others. This finding is supported by a huge body of the literature which emphasizes that teachers' self-efficacies around technology and professional development had a profound effect on teachers' sense of capability when using technology (Hartell et al., 2015; Ritzhaupt et al., 2012; Tschannen-Moran et al., 1998). In other words, teachers' beliefs in their own potential to use digital materials to facilitate learning are impacted by how they practice it (Albion, 2001; Bozdoğan & Özen, 2014; Thompson &Woodman, 2019).

Following this line of thought, teachers participating in collaborative, reflective and hands-on learning practices can as a form of enculturation to digital literacies (Curwood & Cowell, 2011). In this light, putting the emphasis on the inadequacy of teacher education programs (Tsitouridou & Vryzas, 2004), Bower et al. (2013) proposed that pre-service teacher education programs need to revisit their curriculum with the prupose of getting them ready to adjust new forms instructional practices according to the upbringings of technology.

5.5 Self-Efficacy in Use of Digital Tools

The second sub-research question was addressed to determine whether there was a significant difference between the self-efficacy level of pre-service EFL teachers in using digital tools at the beginning and at the end of the training. Findings drawn from the Self-Efficacy Scale in Using Digital tools indicated that the pre-service EFL teachers stated themselves as more competent in using, creating and evaluating digital artifacts as a teacher in teaching English. It seems that this exponential growth in digital use at the end of the training is due to exposure to a variety of *on the job* practices of pre-service teachers during the training. Additionally, as the effect size (Cohen's $d = 1.9$) for this study suggests, that impact of the training on the pre-service EFL teachers who have developed digital literacies is proved to be huge.

This finding is supported by Russell et al. (2007) who remarked that providing contexts for diverse experiences with technology for teachers develop their abilities in using digital tools. For this reason, it is essential to train pre-service EFL teachers with up-dated technology-assisted design capabilities (Bower et al., 2013).

Bingimlas (2009) also found that a teacher training program increasing basic skills of digital technologies as well as interactive skills needed for effective integration promotes teacher's efficiency in implementing ICT in education.

Other scholars also negotiated on the idea that self-efficacy in technology as a prominent theme has a profound effect on technology use and effectiveness (Albion, 2001; Yerdelen-Damar et al., 2017). Therefore, a collaborative and scaffolded training could accelerate the improvement of training teachers' self- efficacy with technology (DeSantis, 2013).

A very similar study by Ertmer and Ottenbreit-Leftwich (2010) highlighted that teacher self-efficacy in using digital tools is intertwined with the experiences and practices in technology implementation. Furthering the issue, they support that self-efficacy may outweigh skills and knowledge among teachers who integrate technology in classroom (Ertmer & Ottenbreit-Leftwich, 2010).

On the other hand, as contradictory to the previous studies mentioned above, Anderson and Groulx (2005) aimed to discover the impact of self-efficacy levels of a group of English teachers on technology use in class and did not explore self-efficacy with technology as a reliable measurement for predicting the use of digital tools. This might be due to different reasons. One reason is that the nature of the training is crucially important. As Harris et al. (2009) stated that tool-focused DL training is so popular in many parts of the USA, which mainly puts the stress on the advantages and shortcomings of digital tools rather than addressing how digital technology can complement teacher pedagogy over technology (Papert, 1990). As another reason for failure in technology training for teacher educators, some other technology-focused language teaching training programs provide limited access and engagement in sustained collaboration (Darling-Hammond & Sykes, 1999), where the trainees can contribute to joint knowledge and experience technology in relation to language teaching.

Curwood and Sydney's (2011) ethnographic case study design sets a vibrant example of how professional development can contribute to teachers' expertise in using digital tools and technology integration in a sustained dialogue. Collecting multiple sets of data across time and space, they found that that hands-on learning practices with digital tools in a sustained collaboration in technology-based learning communities helped the trainees learn, practice and confident about digital tools and prepare technology- supported courses within the English curriculum.

In this vein, rather than an isolated, de-contextualized and only tool-oriented training, creating learning communities giving prominence to the socially situated nature of learning will add more to English teachers' pedagogical beliefs and practices with digital tools (Ertmer, 2005).

5.6 Technology Belief

The third research question was addressed to determine whether the training crept into the pre-service EFL teachers' technology beliefs in language teaching. The findings showed that there was a significant increase in their beliefs at the beginning and at the end of the training; in other words, the training enabled the pre-service teachers to realize the profound effect of technology use in class. As well as the significant difference, the effect size (Cohen's d=1.2) proved that the training had a huge impact on the pre-service teachers who started to realize the potential of technology in language teaching.

This finding is supported by the following studies in literature. Hans et al. (2017) further emphasizes that a well-designed training which provides pre-service and novice teachers with a venue where they can engage them in digital activities is an important step in transforming their beliefs in technology use in teaching. In this sense, reflection should be used as a method in order to understand what challenges their existing beliefs, leading them move away from the negative beliefs in teaching through technology (Hsu, 2013). In this sense, it is important to increase teachers' knowledge of digital tools in order to eliminate the detrimental effect of little or no knowledge of digital materials on teachers' beliefs in technology.

In another study, Boza et al. (2010) aimed to find out how ICT training through wiki impacted on 20 EFL teachers' beliefs in technology integration into language teaching. They found that practicing with wiki design and reflecting on the pedagogical use of wikis both made the teachers familiarize the digital tool and increased their beliefs in how technology can reframe the teaching of English (Boza et al., 2010).

A number of scholars also agreed that technology-based activities and environments where the teachers can explore and design new learning environments through the engagement with digital practices had a profound effect on their technology beliefs in language teaching (Jimoyiannis & Komis, 2007; Kersaint et al., 2003; Kim et al., 2013; Parra, 2012 Sahin, 2016).

5.7 Development in Digital Literacies

The fourth research question was addressed to examine how pre-service teachers developed their digital literacies. As mentioned in the previous sections, the training was designed by the researchers to develop digital literacies of pre-service EFL teachers. Considering the findings gathered in the data analysis chapter, together with what participants' statements in their reflective writing papers and the interviews, it is obvious that the training promoted digital literacies of the participants and helped them integrate different types of digital tools such as DST (Appendix P), wiki (Appendix Q), blog (Appendix R), *WebQuests* (Appendix S) as well as their participation in a webinar (Appendix P) during the practice session. The training aimed at both providing a bridge between the SLA theories as well as a space for practicing what the participants have learned in the theory session. Knowing how-to-use digital tools such as computer does not automatically mean knowing how to integrate those digital tools in language classes competently and comprehensively (Aydın, 2013; Barzaq, 2007; Başaran; 2013; Çelik & Aytın, 2014; Kılıçkaya, 2012; Uluuysal et al., 2014).

To put it differently, desolated inclusion of knowledge-based activity in CALL courses in which only digital tools are introduced or just the underlying theories are discussed does not result in effective teaching practices through technology. As revealed in a study conducted by Pete (2006), pre-service teachers did not favor the sole learning about technology. Instead, a comprehensive DL training necessitates locating and adjusting the appropriate formal courses in teacher education programs to help pre-service teachers make informed-decisions about technology use in relation to language teaching (Hegelheimer, 2014). In this sense, the training provided the teacher candidates with a deeper understanding of CALL applications through pedagogic rationales.

5.7.1 Digital Change. Data derived before the training on the participants' perceived knowledge of digital tools signified that the participants did not consider themselves knower in digital tools used in technology-supported courses at the very beginning of the term. Yet, at the end of the 14-week DL training, there was a statistically significant difference in their perceived knowledge of digital tools. As the data were on the participants' perceptions, it was uncertain whether this shift in their perceptions would lead to the actual knowledge of tools. However, the analyses of the

reflective writing papers and the interviews pointed that the participants tried to embody a variety of tools practiced during the training. In other words, the training especially allowed the participants to use, create and evaluate digital tools with a specific reference to English language teaching. More specifically, they practiced how to evaluate hardware and software programs (Appendix U), wikis (Appendix W), mobile applications (Appendix X) as well as how to use online storage (Appendix Y). This finding goes parallel with the digital literacies framework suggested by Dudeney et al. (2013) in a way that English language teachers should lead their learners to gain both language skills for communication as well as some of the digital skills they will consequently need in their future class.

As for the participants' change in use, creation and evaluation of digital tools, it can be seen that most of the participants benefitted from the situated DL training, which led them to develop their digital literacies. This can be attributed to the fact that the participants were exposed to a wide breadth of DL activities during the training at the theoretical and practical level, which enables the participants shift from one role to another as a DL practitioner. It is aligned with the suggestion proposed byHubbard and Levy (2006), emphasizing the importance of the recognition of the range of functional roles that the pre-service teachers need to have: practitioner, developer, researcher and trainer.

Added to the benetifs stated in the previous sections, it was found that there was a high increase in the pre-service EFL teachers' self-efficacies in using digital tools drawn from the quantitative data as well as their development in digital literacies from the qualitative data. This can be attributed that teachers' high self-efficacies in using digital tools are strongly related to their technology implementation in class (Albion, 1999; Kurt & Atay, 2009; Robertson & Al-Zahrani, 2012). This finding is supported in many studies in literature, which underlines the importance of actual implementation of digital tools (Groth et al., 2007; Kramarski, & Tova, 2015; Kumar et al., 2008; Miles, 2013; Moore-Hayes, 2011; Nadelson et al., 2013; Wang et al., 2004). Similarly, Pan and Franklin (2011) conducted a research to discover what can impact technology implementation in class and found that teachers' self-efficacy in using Web 2.0 tools was a determining factor of Web 2.0 tools integration in school classrooms. Moerch (1995) identified that teachers with high efficacy levels in digital tools generally result in high levels of implementation. Along similar lines, Henson (2002) also marked that the importance of teacher self-efficacy in technology lends

itself in the impact on teaching behaviors.

Kumar et al. (2008) also found that in order to implement digital technologies in class, teachers must consider themselves to be self-efficacious. Echoing Kumar (2008), Rethlefsen and Park (2011) also argued that obtaining preservice teachers' technology efficacy was a crucial factor in order to understand their implementations in the class. However, a contrasting idea comes from Wang et al. (2014). According to Wang et al. (2014), enhanced self- efficacy beliefs in digital tools may be taken as a necessary condition but do not necessarily mean that they will result in the deployment of technology among teachers.

Added to this, Jones (2001) stated that as the teachers "drive the CALL" process, they must be explicitly thought and trained to make important decisions in CALL implementations, which is the purpose of this training. Slaouti and Motteram (2006) conducted a research to examine how language teachers developed their skills with educational technology. According to results of the study, the participants expressed their beliefs about learning how to use specific tools as well as the generic tools, such as word processors, which could affect the development of language and literacy.

In relation to this, what is promising in this training is that in this digital era with full of consumptive apps, the participants achieved to be productive language teachers. They have shifted from the comfortable zone of consumer to that of *prosumer* (producer-consumer), coined by Toffler (1970) or *produser* (producer-user), coined by Jenkins (2009). Although, the two terms have common in the notion of a shift being from consumer to user, I prefer calling the pre-service teachers as *produsers* rather than prosumer as they developed their skills in designing, using and evaluating the digital products in relation to language teaching. This is also aligning what Dudeney et al. (2013) suggest that providing students with a room to practice their life-long skills and the value of contributing to others are necessary, and we need to combine the practices of language and literacy skills so that some of our learners could have a chance to bring new inflections into the era.

Moreover, the participants perceived themselves as competent in choosing and identifying suitable digital tools and artefacts to be used in class. This signifies that the training helped them develop digital literacies in terms of evaluating, regulating and adjusting any educational technologies. What Weinberger (2009) states in "Transparency is the New "Objectivity" is the credibility of information, which means that the user should be able to evaluate and track the information. Therefore, an external

authority is not the only one who will decide on this. In this sense, relating this idea with the pre-service EFL teachers' practices on the evaluation of digital tools, it is clearly seen that they became competent at the triangulation of information and tools to a moderate extent.

Additionally, in a digitally networked era, language teachers should construct their digital identities through which they can maintain their presence. It is in the hands of language teacher educators and trainers to shape how we are perceived in an online platform (Gillmor, 2010). Therefore, pre- service teachers sustaining their presence in the digital era through a variety of engagement in technological practices, such as attending webinars and contributing to one's wiki gave them a chance to display their digital identities. In other words, they learned how to acquire "digital diplomacy" while practicing sharing their experiences with others, which sometimes results even in conflict with themselves (Solomon & Schrum, 2007).

In relation to the abovementioned issue, we should keep in mind that being able to exploit digital tools to display a digital identity is a kind of necessary skill to be digitally literate. Therefore, an inappropriate presence, an inappropriate "digital tattoos" could prevent a teacher from establishing a good reputation (Mitchel & Underhill, 2014). In this sense, this training provided the pre-service teachers with an on-going support to create appropriate digital footprints. Namely, they were supposed to be careful about the way they used language in their digital products and in their comments on and contributions to the others' digital artefacts.

Another relevant point to "digital tattoos" that needs to be revisited is the digital identities of language learners as well as the language teachers. Language teachers need to observe students' digital writing practices very carefully because an analytical examination of their online written products considerably give us precious hints of their deliberate choices, which could enable them to create their digital identities. In this sense, how they can construct their digital entities mediated by another language can help us expand our pedagogy.

This idea is supported by the findings of a study conducted by Schreiber et al. (2015), urging that focusing on multilingual identity and digital translingual practices of learners can open us a window in order to understand how language learners employ linguistic and semiotic resources in diverse contexts.

Given this, the digital change of the participants in this study can be attributed to the engagement in a variety of digital tools during the training. For example, one of

the tasks that the participants was to create a digital story where they were required to combine different modes, such as words, images and sounds, which can be considered an evidence as one of the essential skills to be digitally literate. This finding aligns with that of a study conducted by Churchill et al. (2018) who remarked that being easy to use and requiring minimal technological skills, practicing digital stories helps teachers to focus on pedagogical aspects of implementation rather than getting lost in technological chaos, which can lead them to develop digital literacies. In a similar vein, Warlick (2005) suggests that practicing digital storytelling helps teachers develop their own digital literacies because it creates a space for them to make teaching and learning more relevant to students' *wants*.

In addition to this, pre-service teachers participating in DL practices in the training have a high level of self- efficacy related to ICT use and digital literacy (Brown & Warschauer, 2006; Chai & Lim, 2011; Kitade, 2015). Additionally, it has been also noted that student teachers being equipped with advanced technological skills are more willing to teach through technology (Paraskeva et al., 2008).

However, the procedure sometimes may not proceed as in the way we plan. Considering the fact that there is no exact hierarchy of complexity of literacies, I tried to plan the activities from the less conceptually and technologically demanding one to the more challenging one along with the digital tools, which was also suggested by Dudeney et al. (2013). Although there is an order of complexity in activities, some of the pre-service teachers found some practices as linguistically challenging. As the digital products reflected the language of which they are capable of, it was important to provide an on-going linguistic support during the training especially for the freshmen (Anderson & Groulux, 2015; Blackwell et al., 2014; DeSantis, 2013). For this reason, I tried to design a modal product, taught some terminologies in advance and used a process approach although they are producing digital materials.

5.7.2 Cognitive Change. Another finding identified from the data as cognitive change revealed three sub- processes, such as learning, awareness raising and decision-making. These cognitive processes arouse after a systematic change after the training. Most of the participants indicated that they acquired a wide spectrum of conceptual knowledge of digital tools, and this contributed markedly to their digital literacies through the discussion of articles, which helped them to develop the ability to construct their own meaning and knowledge. This finding is supported by the studies of the

following scholars (Jonassen, 1997; Pear & Crone-Todd, 2002) who emphasized the need for technology-based courses covering activities to help teachers to generate knowledge and transform it into reality.

Similarly, a great number of scholars (Garvis, 2015; Gayetzky, 2005; Han et al., 2017; Parra, 2012; Salyzn, 2005; Solarte et al., 2007) also remarked that appropriately designed instructions in digital technologies encourage EFL teachers to reflect on what they experienced. Therefore, teacher candidates should be trained on the pedagogical use of digital tools (Stojanovic, 2004) where innovative technologies have been offering a great number of revolutions to the teaching profession (Jung, 2005).

According to the data, the participants gained wider and deeper lenses in relation to the integration of technology in class as a sign of cognitive element, which Belshaw (2015) considers as an essential element of digital literacies. In fact, Belshaw (2015) emphasizes that expanding the mind through different lenses enables an individual to grasp a greater slice of the digital world. In this vein, exposing language teachers to practices in DL training in educational technology is critical in terms of raising awareness in advance and sustaining long-term practices (Masood, 2010; Rohaan et al., 2012).

Considering that the teacher continues to have the greatest impact on the decision-making process in the classroom (Cannon et al., 2011), it is important to shift the focus from the technology to the teacher as pivotal players in the design of technology-supported learning (Çoklar & Yurdakul, 2017; Levin, & Wadmany, 2008). This finding suggested that the trainees' engagement with research through in-class article discussion hours enabled them to make informed-decisions about their digital artifacts that they produced. This collaborates with the findings of the study conducted by Jalkonan and Laakkonen (2012) who emphasized that teachers must develop their pedagogies in different discourses through research engagement in order to meet some of the challenges related to integrating technology in language teaching.

For this reason, technological education as well as the technological instruction is a cutting edge for language teachers to realize the potentials of digital technologies in their class (Motallebzadeh, 2005). Similarly, Compton (2009) stated that the approach to technology-based courses in the language teacher education should center on the pedagogy-related issues beyond the hardware and software related practices. In relation to this, Slaouti and Motteram (2006) conducted a study in order to identify

how a particular training program could help teachers conceptualize their skills to use educational technologies and found that leaving the fire walls of traditional classrooms and letting the teachers reconstruct their own skills could lead to develop their awareness of computer-based task designs.

As Garcia (2018) suggested that in order to help teachers sustain classrooms that mirror the context of the learning in reality, it is important to place trust in the expertise of teachers rather than in the latest digital tools. Following this line of thought, after the training, the participants made remarkable statements that they experienced changes in the decision-making process, which leads them to pro-active thinking about the future implementations of technology use in language teacher in class. This finding also corroborates with what Masood (2010) identified in his study in which he sought to find out the impact of DL-integrated EFL syllabus on prospective teachers and found that technology-based experiences of prospective teachers could lead to a sound understanding of the need to successful transfer of DL experience to their future teaching practice.

Additionally, after the training, pre-service teachers came up with a lot of personalized and context-sensitive ideas (Borg, 2003) on how to integrate a specific digital tool for a specific language skill for their future classes after a series of self-reflection sessions. This shows that they can gain the necessary skills of how to inform their practices (Bustamante & Moeller, 2013; Schmid, 2011) although they as freshmen lack the opportunity to transfer what they have learned into real classrooms. This might be attributed to the situated nature of the DL training where the pre-service teachers were given the opportunity to construct collaborative knowledge, practice real-life digital literacy skills and are scaffolded at critical times through multiple roles and perspectives (Herrington & Oliver, 2000; Lave & Wenger, 1991).

In a very recent study, Holmberg's (2019) investigation into how Design-Based Research can be methodologically used to examine teachers' knowledge and practices about technology integration provided a clear evidence of research-based trainings can foster teachers' skills as educational designers.

5.7.3 Perceptual Change. The qualitative data revealed that the participants underwent a perceptual change in the qualification of pre-service teachers, the role of technology and the DL training. Most of the participants agreed that pre-service teachers should be able to successfully and appropriately integrate technology into

language classes through being a careful guidance to their students (Alkan & Erdem, 2010; Hismanoglu, 2012). In line with this, Peters (2006) urged that teachers should develop new competencies in order to apply the new curriculum in culturally, linguistically and religiously diverse school environments. In his study, he emphasized that the new role of a language teacher should be the one guiding the students with specific digital tools instead of superficial and amusing gadgets (Peters, 2006).

In addition to this, following the discussion of the dichotomy of digital native/digital immigrant, at the beginning of the training most of the participants regarded themselves as digital natives and therefore assumed to be successful in technology integration. Then, after the training, they realized that being an English teacher is beyond knowing the sole use of digital tools and noticed that they did not have the pedagogical skills for an effective integration (Hubbard, 2006; Olesova & Meloni, 2006; Wong & Benson, 2006). This finding is in line with the statement that digital native is a kind of myth, and many digital natives do not automatically have the sophisticated digital literacy (Balbay et al., 2018; Thompson, 2012; Turner, 2014).

As discussed in the previous sections, there arouse arguments about this popularized so-called dichotomy. Firstly, Prensky (2011), by pointing a specific year in the date, defines digital natives as the ones who are born into technology and digital immigrants who can try to adapt to the changes brought by technology. However, being "competent" at technology use is not a matter of years spent with technology; rather, the amount and the variety of opportunities with technology are the milestones of being a confident user of technology. Secondly, in Prensky's (2001) frame, a digital native teacher will know better how to employ technology thoughtfully in the class. Yet, being born in a digitally surrounded environment does not necessarily have to result in effective technology use, which will transform the learning experience (Carr, 2019; Kennedy et al., 2006). For example, Li (2016) in his three-year longitudinal study found that although digital native teachers also more frequently used digital tools in class, they lacked in adapting them for a student-centered pedagogy and for communication and collaboration.

Therefore, in order to verify that the teachers can appropriately infuse new digital tools into present curriculum, the first step should be to implement field-respective technology training courses at the teacher education programs at the university (Yüksel & Kavanoz, 2011) because as Hismanoglu (2012) also reported that if teachers do not perceive the new technologies as valuable, it will be in turn a detrimental effect for

them to use technologies meaningfully.

In addition to the perceptual changes in the qualities of pre-service teachers, the participants revealed a change in how DL training should be like and expressed their need to be more pedagogically supported. This finding corroborates with a very recent study in the literature. Ardıç and Çiftçi (2009) in an attempt to discover ICT competence of EFL instructors and their professional development needs to be conducted a study with193 EFL instructors across different universities in Turkey and found that they underrated themselves in terms of ICT skills in relation to language teaching and desired a strong need for a pedagogical training for the effective infusion of ICT tools into their classroom practices. The study implicitly points to a very important issue in a sense that the EFL instructors with low ICT skills consider their inefficiency in technology implementation owing to lack of pedagogical training. This requires us to reconsider technology-focused language teaching courses at undergraduate programs, which is a critical period for teacher candidates whose pedagogical, technical and subject matter knowledge newly begin to shape.

This finding also aligned with another study conducted with pre-service EFL teachers in Korea by Jeong (2017). According to the result of the study, the pre-service teachers stated that they wanted to participate in technology-supported language training programs more in order to pedagogically gain a deeper and insightful understanding of technology use and to elevate their technological and pedagogical skills in order to navigate in today's dynamically world.

More recently, another relevant study with the findings of this research was conducted by Kılıçkaya (2019) in an attempt to investigate two in-service language teachers' views and experiences on the training where they were offered a series of workshops on digital material creation and web-based material tools to teach English. He found that the participants benefitted from the training and expressed their desire that teacher education programs should reconsider and give high priority of technology courses in a way that student teachers could be pedagogically supported more.

5.7.4 Affective Change. Recently, interest in affect has gained greater importance for language teaching practice (Borg, 2005; Soule, 2019; Xu, 2012; Yang, 2019) because it is not possible to disregard the mutual effect of affect and language learning especially in a non-native language learning context where students' self-image is of great importance (Arnold, 2009). This can be also attributed to the concept

of training pre-service teachers on technology use in class. In this training, preservice teachers can be considered foreign technology learners in a non-native technology-learning environment where their self-image takes on a bigger role to capitalize the use of digital technologies.

In relation to what Arnold (2009) noted on the role of affect, Gürsoy (2013) remarked that positive attitudes held by prospective teachers can result in willingness to teach a language, which may boost the implementation of effective methods and techniques in class. Reflecting what Gürsoy (2013) noted on the findings of this study, it can be inferred that positive attitudes held by preservice teachers in this study encouraged them to reconstruct their teaching practices through digital tools.

In general, the participants held the view that they had positive feelings and thoughts about the practices in the training. According to the findings of this research, the impact of the training on the participants was on their motivation, confidence and attitudes. This finding aligns the previous studies revealing positive attitudes of language teachers towards technology use (Alkan & Erdem, 2010; Başöz & Çubukçu, 2014; Chung, 2014; Cutrim Schmid & Hegelheimer, 2014; Hismanoglu, 2012; Kuo, 2008; Özdamlı et al., 2009; Saglam & Sert, 2012; Savaş, 2014; Yüksel & Kavanoz, 2011).

As for the motivation, the participants had different motives to use the digital tools. Some of the pre-service teachers stated that they enjoyed toward an embrace of a conventional way of teaching with a technological one while some other participants liked in discussing pedagogical issues in a community of practice, a process proposed by Hanson-Smith (2006) for CALL instruction. Accordingly, Wong and Benson (2006) paid a special attention on building a community of learners as a key to foster active participation of CALL practitioners.

Additionally, the qualitative data provided a rich source on how the participants felt confident about technology infusion, which lead them to engage in digital literacies more eagerly. Similar to the findings of this study, Hegelheimer (2004) also revealed clearevidence of how a group of language teachers felt more competent about the meaningful integration of technology into class as well as about technology itself.

In a similar vein, realizing the need for a greater integration of technology in to the M.A. program in Teaching as a Second Language Program, the faculty in Iowa State University offered a technology course, Computer Methods in Applied

Linguistics as a prerequisite course that aimed at effectively prepare students to use technology as a language teacher.The course provided the students with greater opportunities to get familiar them with the computer skills, discover current and potential applications for teaching, design web pages to promote language teaching and to do statistical and linguistic analyses (Alkan & Erdem, 2010; Teo, 2008) .

Another correlating finding came from a study conducted by Jeong (2017) in Korea, seeking to identify whether the hands-on practices of engaging with various software programs could impact prospective teachers' self-confidence in CALL for their future EFL teaching classrooms. Having analyzed the qualitative data, he found that including ICT into teacher education program promoted preservice teachers' confidence in implementing technology in class compared to that of the initial level of confidence.

In this sense, it is suggested that preservice teachers should be given the ample opportunity to gain technological knowledge and have them to grasp the merits of CALL for their EFL learning and more importantly for their future language classes (Compton & Hammett, 2009). This finding is also supported by another scholar who found that when pre-service teachers observe their educators using technologies and they use themselves, their self-confidence could increase to use technology in their own classes (Shaltry et al., 2013).

In another study, it was found that when prospective teachers are exposed more to new technologies, it enabled them to produce proactive attitudes, and consequently they started to consider themselves confident users of instructional technologies (Shaltry et al., 2013).

Therefore, among other aspects, as cited by Joeng (2017), prospective teachers' experience and positive attitudes towards new technology are the most essential factors for the successful implementation of digital materials in language education for the future classes (Chung, 2014; Gunter, 2001; Johnson & Howell, 2005), or at least more inclined to plan how to integrate it.

In this sense, in realizing the need for sustaing pre-service teachers' positive attitudes towards technology integration into class, it is important to harmonize their *wants*, what they want in terms of digital literacy skills with their *needs*, what they may need. During the training, the practices provided them a wealth of opportunities to bring their daily experiences into the digital material production process. This aligns with what Dudeney and Hockly (2007) suggested in that students will have favorite

digitals materials in their daily life and we should find ways of integrating them into our classroom teaching.

5.8 Conclusion

This study provides a local voice on the impetus of DL training on whether and how pre-service EFL teachers develop digital literacies in relation to language learning and teaching English.

The pre-service teachers stated that were competent in identifying, selecting and integrating a variety of digital tools for teaching practices such as remixing a generic material to teach language. Simultaneously, the participants used to enroll in a basic computer course in which they were supposed to develop basic computer literacies such as using word processing and creating presentation as well as communicating online. However, the literacy skills they gained in that course did not seem to reach at a desired level in terms of providing the skills to manipulate the technologies themselves to design techniques for pedagogic purpose.

On the other hand, when this training was completed, the pre-service EFL teachers acknowledged themselves more digitally literate. In addition, it was found that they statistically improved on the following factors:

1. perceived knowledge of such digital tools as online quiz tools, online classroom tools and search engines,
2. self-efficacies in the following digital literacies: print, texting, multimedia, gaming, mobile, code, tagging, searching, information, filtering, personal, networking, participatory, intercultural and remix,
3. self- efficacies in the use of digital tools,
4. and beliefs about teaching through technology.

It can be openly said that teachers' perceived knowledge of digital tools, self-efficacies about digital literacies and use of digital tools as well as beliefs about teaching through technologies are the facilitative factors in leading them to be digitally literate language teachers.

Increased ICT self-efficacy of teachers about instructional purposes facilitates teachers' use of ICT (Hatlevik & Hatlevik, 2018), and thus it brings us to the idea that

examining self-efficacies about pre-service teachers' digital tools could pave the way to prepare them to use technology as the password into the new waters of teaching. Moreover, as Kılıçkaya (2013) emphasized that higher self-perception of competence had a positive impact on human behavior and therefore resulting in willingness to do more. Additionally, Teo et al. (2008), trying to discover the relationship between teachers' beliefs about teaching and technology use, found that teachers' beliefs could result in technology use in class.

Therefore, realizing the fact that pre-service teacher education is at the first zenith in terms of preparing student-teachers for profession, it is crucial to leave "still water" of the teacher education, as stated by Meskill et al. (2006) and update the existing undergraduate curricula in order to provide pre-service EFL teachers with a current model in a better teaching environment to use digital technologies effectively for their future class in Turkey.

Inözü et al. (2010) in an attempt to investigate the nature of out-of-class language learning practices of student teachers conducted a study on the assumption of its contribution to the learning process and found that student teachers were more inclined to rely on an external authority for the beyond-the-class practices rather than their own decisions. Within this framework, what complements out-of-class language learning will be the teachers who can provide language practice facilities their learners through technology, and this can be achieved if the teacher develops digital literacies in relation to teaching.

In this sense, by providing an on-going technical, emotional and curricular support, pre-service EFL teachers will desire more to infuse digital tools into their future classes. Therefore, offering the pre-service teachers digital literacies-oriented technology courses where they can have the opportunity to fill the gap between the existing and the future educational setting is vital to realize the critical role of language teachers for the effective use of technology. Then they can display their potentials for future teaching practices that will require them to implement student-centered pedagogical approaches in digitally inclusive future work environments.

Overall, the purpose of this training was to open up a group of pre-service EFL teachers with a wide range of opportunities for the betterment in not only using digital tools but also for a space where they can generate their own teaching techniques. I did not aim to prepare them to be the educational service robots for language learning in

RALL (Robot-Assisted Language Learning), rather, I expected them to inter-play among the core-set-skills of digital literacies in order to go beyond a BALL (Book-Assisted Language Learning) or a PALL (Pen-Assisted Language Learning) approach. Although we think that we are supposed to have been experiencing in the post-method era for years, we have already entered a new phase, Digital Age where the sole integration of macro-strategies of post-method era does not work alone in class practices. To conclude, language teaching is not as organic as it used to be in fifteen years ago in, and therefore, in the foreseeable future effective teaching will be in the hands of the teachers who can design their own teaching philosophies through a balance among the three essential discourses of subject-matter, pedagogy and technology.

5.9 Strengths and Weaknesses of the Study

The implementation of this research helped me provide great benefits and face challenges as a researcher and teacher. In other words, this research had strengths and weaknesses which I acknowledge in order to be more proficient in training foreign language teachers to develop their digital literacies.

5.9.1 The research strengths. Implementing such a training might be a common practice in other teaching contexts, but this research covered the first pilot study at the Foreign Language Teaching Department where the study was conducted. Therefore, the strengths I present below are specific to the research context.

a. The first strength of this research was that it was the first attempt to offer CALL course for the freshmen in ELT Department; therefore, it could gradually help the pre-service teachers to both start thinking on and practicing their digital literacies for the first time.

b. In addition, this training could provide a model combination of theory and practice for other CALL instructors or EFL instructors trying to teach language through technology.

c. The other strength was related to developing my teaching practice. This CALL course pushed me to gain increased confidence and skill for training teacher candidates with little or no subject-matter specific teaching pedagogy to help them develop their digital literacies.

5.9.2 The research weaknesses. As well as the strengths, the research weaknesses were carefully examined and identified for perceiving and seeking for improvement.

a. The first weakness of this research project was connected with the logistic facilities that the research context offered. Although the training took place in a CALL course, the procedure was tried to be furthered in a conventional class where a overhead projector was the only technological tool. The implementation process would have been much more productive and if this training could be in a modernized technology-supported laboratory.

b. The second point to be considered as a weakness of this study was that I conducted the study with the freshmen students in ELT Department. This means that these prospective teachers neither take field-specific courses such as Language Skills, Linguistics or English Literature nor have experience in teaching pedagogy. Therefore, they had to spend much more effort and time on understanding academic articles and creating digital artifacts. However, it could be an advantage in a way that in the coming years if they are cognitively prepared and professionally are ready; "the earlier, the better".

5.10 Pedagogical Implications for Pre-service Teacher Education on Digital Literacies Practices

In the light of the data analysis and discussion above, there are a number of implications in relation to digital literacies in pre-service teacher education.

1. A descriptive rather than a prescriptive undergraduate course embodying the principles of technology integration into language teaching and learning should be offered to all prospective EFL teachers in Turkey. Although the course in which the training took place was offered to the candidates in the first time, it would have been much more effective if it were given in the 6th term when the candidates are offered methodology and approaches courses in English language teaching. Being engaged with the theoretical and practical skills of how to teach as well as what to teach, the candidates would feel much more comfortable and competent in activating digital literacies in complementing teaching skills with digital tools.

2. As the ultimate goal is to develop digital literacies specifically in

language teaching, the procedure should be planned in a way that the practices could allow candidates to bring technical, pedagogical and language skills together rather than to force them to negotiate among the contradictions in subject- matter knowledge, technical knowledge and pedagogical knowledge. Therefore, the teacher educators giving such trainings should be "technology-proficient language teachers", as stated by (Kassen et al., 2007) rather than an adjunct instructor.

3. Remembering the fact that there is no negotiation on what technology infusion looks like in a real-life context and in what ways it can be achieved and there are a great number of theories or propositions (Philips, 2015), it can be highly beneficial to give the training in a situated learning environment where the candidates are prepared for the unexpected through engagement with research. Overtly, the participants benefitted from reading and discussing a variety of articles centering on the mutuality of technology and language teaching/learning. Within this framework, involving meaningful practices where the candidates can take place in "situated technology experiences" must be an integral part of such programs, which can lead conceptual changes in trainees.

5.11 Recommendations for Further Research

The following suggestions might be made for further research as technology training within pre-service teacher education program is a resource- hungry field of study. Firstly, this training in a diverse educational context, covering more digital tools and a different kind of model might produce richer and comprehensive data in order to investigate how pre-service teachers develop their digital literacies. Another recommendation could be to implement the same training to the pre-service teachers at different levels with those having a considerable amount of pedagogical and subject-matter knowledge. Thirdly, observing the candidates to identify whether they can use these digital tools in other undergraduate courses at the department or in the school practicum could give a deeper understanding of whether they would internalize the digital literacies practices. Fourthly, considering the speed of the technological development, it could be hard to provide a precise future-proof guideline on the way of integrating digital tools into class (Dudeney et al., 2013). However, as Baykal (2017) remarked that universities should be the institutions where students can reconstruct existing knowledge, it will be highly beneficial to have pre-service teachers take part

in a series of action research where they can have the opportunity of observing, reflecting, evaluating and modifying their classroom practices.

As Baumfield et al. (2008) noted that engaging in action research encourages teachers to think outside the box and develop a clearer understanding of teaching practices during the action-reflection cycle. Burns and Kurtoğlu-Hooton (2016), for example, aimed to explore a group of teachers' practices and experiences as practitioner who were engaged in doing research about the deployment of technology and found that it increased teachers' knowledge of technology infusion into class.

Following this line of thought, pre-service teachers could also be provided with a space where they can explore the different aspects of technology integration practices into language teaching. Then the volunteers among the researchers could also be given the chance to present their studies at undergraduate conferences that have been increasingly organized recently by some of the universities in Turkey and share their ideas across the context. This could also accordingly contribute to the perception of pre-service teachers about their own profession, by experiencing that being a language teacher goes beyond taking formal courses in faculties of education.

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APPENDICES

APPENDIX A

DL-Training Syllabus (adapted from Dudeney et al., 2013)

Weeks	Article	Aim	Material	Practice	Assumed Digital Literacy Type (Dudeney et. al, 2013)
1. Introduction a. Foundations of CALL b. Evaluation of Digital Tools & Different Search Engines	Dina, A. T., & Ciornei, S.-I. (2013). The advantages and disadvantages of computer assisted language learning and teaching for foreign languages. *Procedia-Social and Behavioral Sciences, 76*, 248-252.	Students will be introduced with the jargons, basic concepts and contributions to language teaching. Students are to have a critical eye on the digital tools	1.a. article 1.b. a very rich list of digital tools produced for educational purposes will be given to the students ▪ Icerocket ▪ Technorati	Students will evaluate relevant hardware/software programs through a rubric	- searching literacy - filtering literacy - information literacy
2.a. Online Storage 2.b. Bookmarking for Bibs 2.c. Annotation for all resources	No assigned article	This session is on how to store information online. This session is on how to store and retrieve online information.	2.a. ▪ Dropbox 2.b. ▪ Diigo ▪ Bibme ▪ Easybib ▪ Purdue Owl	2.a&. 2b&. 2.c. Students will practice using an online storage, bookmarking and citing information	- tagging literacy - coding literacy - mobile literacy

		This session is also on how to cite information by different sources.	2.c. ▪ Zotero ▪ Yolink		
3.a. Backchannels 3.b. Online Assessment Tools 3.c. Online Rubric Tools	No assigned article	3.a. This session is on voicing ideas through backchanneling a class discussion. 3b.&3c. This session is on creating online grading and assessment tools assessment	3.a. ▪ Tinychat ▪ Coveritlive ▪ Todaysmet 3.b. ▪ Hot Potatoes 3.c. ▪ Tech4Learning	3.a. Students will take part in online discussion. 3.b. Students will create online quiz. 3.c. Students will develop online rubrics.	- filter literacy - search literacy - network literacy - personal literacy - texting literacy
4.a. Blog 4.b. Wiki	Güttler, F. (2011). The use of blogs in EFL teaching. *BELT-Brazilian English Language Teaching Journal, 2*(1).	4.a. This session is on the collaborative aspect of language teaching	▪ Wordpress ▪ Blogger ▪ Pbworks	Students will develop blog and wiki spaces for language teaching purposes	- remix literacy - personal literacy - hypertext literacy - texting literacy - filter literacy - search literacy - information literacy - print literacy

5. Wiki	Rodrigues, P., Williams, S. J., & Vethamani, M. E. (2016). Student Response to Using Wiki in Written Discourse. *Journal of Interdisciplinary Research in Education (JIRE) ISSN, 6*(1), 20-33.	This session is on the collaborative aspect of language teaching	▪ Wordpress ▪ Blogger ▪ Pbworks	Students will develop blog and wiki spaces for language teaching purposes	- remix literacy - personal literacy - hypertext literacy - texting literacy - filter literacy - search literacy - information literacy - print literacy
6. Digital Storytelling	Thang, S. M., Sim, L. Y., Mahmud, N., Lin, L. K., Zabidi, N. A., & Ismail, K. (2014). Enhancing 21st Century Learning Skills Via Digital Storytelling: Voices of Malaysian Teachers and Undergraduates. *Procedia - Social and Behavioral Sciences, 118*, 489-494. doi:https://doi.org/10.1016/j.sbspro.2014.02.067	This session is on combining telling stories with a variety of multimedia, including graphics, audio, video, and Web publishing	▪ Storybird	Students will create digital stories	- multimedia literacy - remix literacy - personal literacy - hypertext literacy - texting literacy - filter literacy - search literacy - information literacy

7. Digital Storytelling	Thang, S. M., Sim, L. Y., Mahmud, N., Lin, L. K., Zabidi, N. A., & Ismail, K. (2014). Enhancing 21st Century Learning Skills Via Digital Storytelling: Voices of Malaysian Teachers and Undergraduates. *Procedia - Social and Behavioral Sciences, 118*, 489-494. doi:https://doi.org/10.1016/j.sbspro.2014.02.067	This session is on combining telling stories with a variety of multimedia, including	▪ Storybird ▪ Animoto	Students will create digital stories	- multimedia literacy - remix literacy - personal literacy - hypertext literacy

		graphics			- texting literacy - filter literacy - search literacy - information literacy
8. Midterm Exam Week					
9. Podcast	Ho, C.-T. B., Chou, Y.-H. D., & Fang, H.-Y. V. (2016).Technology Adoption of Podcast in Language Learning: Using Taiwan and China as *Examples. International Journal of e- Education, e-Business, e-Management and e- Learning, 6(1), 1.* (optional reading)	This session is on making digital recordings and downloading to a computer or mobile device.	▪ Audicity ▪ Buffer	Students will examine different podcasts and create theirs.	- remix literacy - multimedia literacy
10. Mobile Learning	No assigned article	This session is on current practices of mobile learning	▪ various mobile applications	Students will practice mobile assisted language teaching for language teaching purposes through cell-phones and tablets	- mobile literacy - information literacy - print literacy
11. QR Code	No assigned article	The session is creating a	▪ QRStuff	Students will create QR	- remix literacy

		code consisting of an array of black and white squares, typically used for storing URLs or other information for reading by the camera on a smartphone.	▪ Creators- Kaywa ▪ Zxing	codes for language teaching.	- multimedia literacy - information literacy - mobile literacy
12.a. Social Learning 12.b. Global Learning	No assigned article	The session is on practicing	▪ Facebook ▪ Twitter ▪ E-Pals ▪ Classroom.2.0	Students will join in social media to practice teaching, attend online webinars and practice networking through online tools.	- print literacy - mobile literacy - information literacy - network literacy - personal literacy
13. Virtual Learning Environment	No assigned article	This session is on being engaged with 3D virtual reality technology	▪ Second Life	Students will create their own avatars	- game literacy - personal literacy

14. WebQuest	Shan, C. (2011). Using webquests to facilitate task-based English reading instruction for graduate students. *Chinese Journal of Applied Linguistics, 34*(2), 34-43.	This session is on producing web-based learning activity	▪ WebQuest	Students will design their *WebQuests*	- multimedia literacy - remix literacy - personal literacy - hypertext literacy - texting literacy - filter literacy - search literacy - information literacy

APPENDIX B
Guide for Exploring Educational Software and Websites

Dear all,

I hope you had a great exam week.

Attached you can find the website evaluation form. Please download a blank copy of this form & fill it in electronically. Then, e-mail it to sedaaltiner@gmail.com by writing **CALLw4- website evaluation** in the "Subject" field and labeling the file as your **name surname**.

Due Date: **25.11.2018 (Sunday, midnight)**

Best,
Seda ALTINER

PhD Candidate, Seda ALTINER

Lab Time- Exploring Educational Software and Websites

Student Name and Surname:

A. Web 2.0 Cool Tools for Schools
http://cooltoolsforschools.wikispaces.com/ Resources for Teachers

B. Free Educational Software and Games
http://www.educational-freeware.com/

C. Free Education Software
http://www.schoolforge.net/education-software

D. Top 100 Tools for Learning 2013
https://www.opensesame.com/blog/top-100-tools-learning-2013

E. The 100 Best Free Online Learning Tools
http://edudemic.com/2010/07/the-100-best-and-free-online-learning-tools/

F. (Nitro PDF Reader)
*Browse through the websites and software for education and select **5 top** software and/or websites that are new to you and you would like to use for ELT.*

1.

Name:	
Primary Use:	
How can it be used in ELT?	
Why did you like it?	

2.

Name:	
Primary Use:	
How can it be used in ELT?	
Why did you like it?	

3.

Name:	
Primary Use:	
How can it be used in ELT?	
Why did you like it?	.

4.

Name:	
Primary Use:	
How can it be used in ELT?	
Why did you like it?	

5.

Name:	
Primary Use:	
How can it be used in ELT?	
Why did you like it?	

APPENDIX C
MALL Evaluation Guide

Dear all,

Please click on the link where you can find a list of mobile applications for educational purposes.

http://sites.miis.edu/mall/apps/explicit-apps/

Then

- download any of them on your phone
- use it
- evaluate the application through the rubric attached & give your comments in a separate paragraph

through an e-mail to sedaaltiner@gmail.com by writing **MALLapp-evaluation** in the "Subject" field

Due Date: 13.12.2018 (Thursday , at 8.00 pm)

Best,
Seda ALTINER

APPENDIX D

Self-Reported Knowledge Scale of Digital Tools

Please indicate which one you agree or disagree with each of the following statements:

1. blog (e.g. WordPress, Blogger)	1. I never heard of this tool before.
	2. I have heard of this word, but I am not sure what it is like.
	3. I know this tool, but I am not sure I can use it.
	4. I know this tool, and I can use it. (Please elaborate on how you can use it.)
2.wiki (e.g. PBworks)	1. I never heard of this tool before.
	2. I have heard of this word, but I am not sure what it is like.
	3. I know this tool, but I am not sure I can use it
	4. I know this tool, and I can use it. (Please elaborate on how you can use it.)
3. podcast (e.g. storyjumper, storynory)	1. I never heard of this tool before.
	2. I have heard of this word, but I am not sure what it is like.
	3. I know this tool, but I am not sure I can use it.
	4. I know this tool, and I can use it. (Please elaborate on how you can use it.)
4. online quiz tools (e.g. Hotpotatoes)	1. I never heard of this tool before.
	2. I have heard of this word, but I am not sure what it is like.
	3. I know this tool, but I am not sure I can use it
	4. I know this tool, and I can use it. (Please elaborate on how you can use it.)
5. online classroom tools (e.g. Nicenet)	1. I never heard of this tool before.
	2. I have heard of this word, but I am not sure what it is like.
	3. I know this tool, but I am not sure I can use it.
	4. I know this tool, and I can use it. (Please elaborate on how you can use it.)

6. digital storytelling (e.g. Storybird)	1. I never heard of this tool before.
	2. I have heard of this word, but I am not sure what it is like.
	3. I know this tool, but I am not sure I can use it.
	4. I know this tool, and I can use it. (Please elaborate on how you can use it.)
7. website (e.g. Weebly)	1. I never heard of this tool before.
	2. I have heard of this word, but I am not sure what it is like.
	3. I know this tool, but I am not sure I can use it.
	4. I know this tool, and I can use it. (Please elaborate on how you can use it.)
8. virtual learning environment (e.g. SecondLife)	1. I never heard of this tool before.
	2. I have heard of this word, but I am not sure what it is like.
	3. I know this tool, but I am not sure I can use it.
	4. I know this tool, and I can use it. (Please elaborate on how you can use it.)
9. online indexing materials (e.g. Diigo, Bibme)	1. I never heard of this tool before.
	2. I have heard of this word, but I am not sure what it is like.
	3. I know this tool, but I am not sure I can use it
	4. I know this tool, and I can use it. (Please elaborate on how you can use it.)
10. QR codes (e.g. QRStuff, Creators-Kaywa)	1. I never heard of this tool before.
	2. I have heard of this word, but I am not sure what it is like.
	3. I know this tool, but I am not sure I can use it
	4. I know this tool, and I can use it. (Please elaborate on how you can use it.)
11. online rubric	1. I never heard of this tool before.

(e.g. Rubistar)	2. I have heard of this word, but I am not sure what it is like.
	3. I know this tool, but I am not sure I can use it
	4. I know this tool, and I can use it. (Please elaborate on how you can use it.)
12. search engines (e.g. Icerocket, Technorati)	1. I never heard of this tool before.
	2. I have heard of this word, but I am not sure what it is like.
	3. I know this tool, but I am not sure I can use it
	4. I know this tool, and I can use it. (Please elaborate on how you can use it.)

APPENDIX E
Self-efficacy Scale in Digital Literacies

Please indicate how much you agree or disagree with each of the following statements:

		Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
			(1)	(2)	(3)	(4)	(5)
language	print	I can create different type of online texts, such as blogs, wiki etc.					
	texting	I can write mobile phone text messages in my own language and English use					
	hypertexts	I can create an online text with an appropriate number of hyperlinks (hyperlink: To put a link in order to guide the reader so that they can click on the link and access the page)					
	multimedia	I can use images, sounds and video for blogs, wikis					
	gaming	I can create an online avatar and use it for teaching language					
	mobile	I can use my mobile devices(mobile phone) for learning/teaching English					
	code	I can adapt different programs for teaching Language					

information	tagging	I can store information and I can retrieve it easily					
	search	I can use a variety of search engines for different types of online searches (e.g google for general searching, google scholar for academic searching)					
	information (critical)	I can evaluate hardware/software programs produced for language teaching					
	filtering	I can distinguish relevant information from irrelevant ones on language learning/teaching					
communication	personal	I can deal with difficult people or situations online.					
	network	I can communicate with and inform others					
	participatory	I can contribute to collaborative online projects (e.g. wikis, photo sharing) sites)					
	intercultural	I can understand different digital tools produced in different cultural contexts					
(re)design	remix	I can create digital tools for teaching English					

APPENDIX F
Self-efficacy Scale in Using Digital Tools

Please indicate how much you agree or disagree with each of the following statements:

1. I can	design a blog	1 2 3 4 5	implement a blog	1 2 3 4 5	evaluate a blog	1 2 3 4 5
2. I can	design a wiki	1 2 3 4 5	implement a wiki	1 2 3 4 5	evaluate a wiki	1 2 3 4 5
3. I can	design a podcast	1 2 3 4 5	implement a podcast	1 2 3 4 5	evaluate a podcast	1 2 3 4 5
4. I can	design an online quiz	1 2 3 4 5	implement an online quiz	1 2 3 4 5	evaluate an online quiz	1 2 3 4 5

5. I can	design an online classroom	1	implement an online classroom	1	evaluate an online classroom	1
		2		2		2
		3		3		3
		4		4		4
		5		5		5
6. I can	design a digital storytelling	1	implement a digital storytelling	1	evaluate a digital storytelling	1
		2		2		2
		3		3		3
		4		4		4
		5		5		5
7. I can	design a website	1	implement a website	1	evaluate a website	1
		2		2		2
		3		3		3
		4		4		4
		5		5		5
8. I can	design virtual learning environment	1	implement virtual learning environment	1	evaluate virtual learning environment	1
		2		2		2
		3		3		3
		4		4		4
		5		5		5
9. I can	design indexing materials	1	implement indexing	1	evaluate indexing	1

	online	2	materials online	2	materials online	2
		3		3		3
		4		4		4
		5		5		5
10. I can	design QR codes	1	implement QR codes	1	evaluate QR codes	1
		2		2		2
		3		3		3
		4		4		4
		5		5		5
11. I can	design online rubric	1	implement online rubric	1	evaluate online rubric	1
		2		2		2
		3		3		3
		4		4		4
		5		5		5
12. I can	design search engines	1	implement search engines	1	evaluate search engines	1
		2		2		2
		3		3		3
		4		4		4
		5		5		5

APPENDIX G
Technology Belief Scale

Please indicate how much you agree or disagree with each of the following statements:

5- Strongly Agree (SA)

4- Agree (A)

3- Neutral (N)

2- Disagree (D)

1- Strongly Disagree (SD)

	1	2	3	4	5
Using digital tools, such as blog, wiki, online classroom, website					
1. motivates students.					
2. enhances student learning.					
3. increases collaboration among students.					
4. promotes autonomous learning.					
5. develops students' critical skills..					
6. enhances creativity of students.					
7. helps students become more active.					
8. increases engagement in learning.					
9. impacts output quality					
10. increases interactivity					

APPENDIX H

Rubric: Output Quality of Pre-service Teachers' Digital Products (adapted from Leikin, 2012)

Creativity: making something new and different from others

Authenticity: reflecting genuine use of the language and the tool

Originality: originality of all solutions in the class

Feasibility: being practical to design and implement

Rater I

	creativity	authenticity	originality	feasibility
Student A				
Student B				
Student C				
Student D				

Comment:

Rater II

	creativity	authenticity	originality	feasibility
Student A				
Student B				
Student C				
Student D				

Comment:

APPENDIX I
Prompt Papers of Reflection Paper on Articles

ELT 550 CALL

Week 1. Dina, A. T., & Ciornei, S.-I. (2013). The advantages and disadvantages of computer assisted language learning and teaching for foreign languages. *Procedia-Social and Behavioral Sciences, 76*, 248-252.

A. Write the definitions of the following terms in your own words and elaborate on each within a relevant concept in Second Language Acquisition.

- CALL:

*Behavioristic CALL:

*Communicative CALL:

*Integrative CALL:

-instructional materials:

-stimulus:

-initiative:

B. Answer the questions below and discuss each in relation to your future/possible teaching practice.

1. What is the aim of the study? Write the bottom line of the article.

2. Explain the following expressions;

-computer as a *tool:*

-computer as a *medium:*

-computer as a *tutor:*

3. What are the pros of integrating technology into the language learning/teaching setting?

4. What are the challenges of the use of technology in language teaching? (You can add more regardless of the article). List them from the most important to the least one.

5. How would you cope with the challenges if you were to encounter in your class.

6. What is the striking point in the article?

ELT 550 CALL

Week 2. Güttler, F. (2011). The use of blogs in EFL teaching. BELT-Brazilian English Language Teaching Journal, 2(1).

A.Write the definitions of the following terms in your own words and elaborate on each within a relevant concept in Second Language Acquisition.

- blog

- explicit instruction :

- WYSIWYG:

- fluent writing & accurate writing:

- autonomy:

B. Answer the questions below and discuss each in relation to your future/possible teaching practice.

1. What is the aim of the study? Write the bottom line of the article.

2. Explain the purpose of each study in the article briefly. Choose your favorite one and state the rationale behind it.

3. What are the three types of blogs? Which one would you prefer in your classroom as a teacher? How and why?

4. Horvath (2009) lists a couple of rules for the blogging as a learner/teacher. Please add three more and justify your reasons.

5. What could be challenges of blogging in foreign language classroom and how would you cope with these as teacher/learner?

6. What is the striking point for you in the article?

ELT 550 CALL

Week 3. Rodrigues, P., Williams, S. J., & Vethamani, M. E. (2016). Student Response to Using Wiki in Written Discourse. *Journal of Interdisciplinary Research in Education (JIRE) ISSN, 6*(1), 20-33.

A. Write the definitions of the following terms in your own words and elaborate on each within a relevant concept in Second Language Acquisition.

- written discourse:
- lexicon:
- computer-mediated communication (CMC)
- hardcopy:
- transparency feature:
- autonomous learner:
- scaffolding:

B. Answer the questions below and discuss each in relation to your future/possible teaching practice.

1. What is the aim of the study? Write the bottom line of the article.

2. What are the advantages of wiki in language classroom? Discuss each one and give detail.

3. What are the shortcomings of wiki in language classroom? How would you eliminate each difficulty?

4. As part of this course, you were assigned to design a wiki for your classroom. Please give detail about your wiki (skills or component, level of the students, background of the students etc.). Then inform about the challenges and state how you cope with them.

ELT 550 CALL

Week 5. Thang, S. M., Sim, L. Y., Mahmud, N., Lin, L. K., Zabidi, N. A., & Ismail, K. (2014). Enhancing 21st Century Learning Skills Via Digital Storytelling: Voices of Malaysian Teachers and Undergraduates. *Procedia - Social and Behavioral Sciences, 118*, 489-494. doi:https://doi.org/10.1016/j.sbspro.2014.02.067

A. Write the definitions of the following terms in your own words and elaborate on each within a relevant concept in Second Language Acquisition.

- digital story:
- technology literacy
- raising awareness
- computer savvy:
- EAP:

B. Answer the questions below and discuss each in relation to your future/possible teaching practice.

1. What is the aim of the study? Write the bottom line of the article.
2. List the (3) objectives of the project.
3. What are the students' perceptions of digital storytelling?
4. What are the teachers' perceptions of storytelling?
5. Discuss the difference between traditional storytelling and digital storytelling. What do you think about the use of digital storytelling in language teaching?

ELT 550 CALL

Prompt of Reflection Paper on Articles

Week 9. Shan, C. (2011). Using webquests to facilitate task-based English reading instruction for graduate students. *Chinese Journal of Applied Linguistics, 34*(2), 34-43.

A. Write the definitions of the following terms in your own words and elaborate on each within a relevant concept in Second Language Teaching.

- *WebQuest*:
- stimulation:
- formative assessment:
- task-based methodology:
- scaffolding:
- constructivist philosophy:
- higher- order thinking skills:

B. Answer the questions below and discuss each in relation to your future/possible teaching practice.

1. What is the aim of the study? Write the bottom line of the article .
2. Discuss the benefits of using *WebQuest* in Language teaching/learning.
3. What are the six components of well-designed *WebQuest*? Explain each briefly.
4. Elaborate on the relationship between task-based learning and the use of *WebQuest*.
5. According to Dodge (2001), what are the rules for designing a *WebQuest*? Which one is the most important to you?
6. What do the findings of the study reveal about integrating *WebQuest* into language teaching?
7. What is the striking point in the article?

APPENDIX J
Reflective Writing Guide

Name Surname:

Student Number:

Please answer the question below

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

    (PROMPT: Teacher's technology usage, and students' technology usage)
    a. Have you ever had such an experience?
6. What do you think about the basic technological knowledge and skills that should be learned by pre- service teachers from all disciplines?
7. What do you think about sufficiency of the technologies you have learned in this course?

    (PROMPT: equipment and application)
8. What are the technologies which contribute to students' any kinds of learning?
    a. How can they be used in instructional process?
    b. What kinds of knowledge and skills do pre-service teachers need to integrate these technologies into instructional process?
    c. What do you think about how these kinds of knowledge can be gained in preservice teacher educational programs?

9. What kinds of technologies do you think are beneficial to transform English terms?
    a. What kinds of knowledge and skills do pre-service teachers need to transform English terms using these technologies?
    b. What do you think about how these kinds of knowledge can be gained in preservice teacher education programs?
10. What are your major concerns about integrating technology into English lessons?
    a. How can you handle with these concerns?
11. If you summarize, what kinds of knowledge and skills do you need to contribute students' learning by integrating technology?
    a. What are the contributions of this course into above mentioned knowledge?
    b. What do you think about how these kinds of knowledge can be gained in preservice teacher education programs?
12. What do you think about whether you can use knowledge you have learned in this course in future practice of your professional life or not?
    a. What kinds of strategies can be applied to enable pre-service teachers apply these knowledge and skills in their real life?
13. Please, tell me about any experiences you think that the course was successful in integrating technology into instructional process.
14. Please, tell me about any experiences you think that the course was unsuccessful in integrating technology into instructional process.
15. What can you suggest for developing the CALL course so that pre-service English teachers can be more successful in technology integration?
16. Do you have anything more to say to develop technology integration of preservice teachers?

APPENDIX K
Interview Questions

1. What do you think about the CALL course? Please comment on the theory and practice part separately.

2. How was it different from the other courses?

3. What have you gained in this course?

4. How did you cope with when you have difficulty in and out of the class?

5. How do you think that the course will affect you future instructional practices in your profession?

APPENDIX L
Sample Transcriptions

Transcription of Pre-Interview with Participant 22

+To me, technology is the things that mankind produce… they are not naturally produced like… tools like flint or… in the modern times computers, internet. In the older or ancient times, the knives, swords, hammers, axes and such…

+ In language classes we have to use technology, obviously we say that… we obviously use technology, like boards and board pens and… erasers… notebooks and such but in modern times, if you were to mean computers as technology or internet as technology, I think that in today's world current generation is digitally native from a very young age so… that is an advantage because integrating technology in language classes definitely will increase their interest in language classes and… like, it would not bore them and they would find that… find it easy… yeah and such… but the disadvantages could be that they could shi… their attention could be… could get shifted from the class because if you were to use web… I mean… like, let's say you are watching a YouTube video on language… on, let's say present tense and you see a video about a game on the recommended tab at the right, you can… that can shift your attention from learning to leisure and that could be a disadvantage. Also, looking at computers can sometimes irritate your eyes and some people find that reading something, me included, on the computer is really a… daunting task, so… they could prefer text or hardcopies of the paragraphs and such and that could be another advantage, disadvantage… actually that is an disadvantage, but overall, you would have access to learning materials everywhere, anytime as long as you have internet and that is the most… the biggest I think in integrating technology into language classes.

We haven't yet learned anything in this class, like, we kind talked about blogs, but… blogs, I don't, I mean, I can't find anything that I can use blogs… in a language teaching class because,

like, I don't know how to use them in class. They seem insufficient… so yeah, that's it

+ Computers, I think makes a big difference, like, our math teacher in our high school used computer and… like, it was much more interesting to solve problems and we could access the information… formulas we need from the smartboard and our tablets, so… in that term, it's definitely a useful thing but in language class, I don't know I never had a language class that used computer, so, yeah.

+ I think internet is a useful tool because I basically learned English from internet. I used to watch a lot of TV series when I was thirteen to fourteen years old and that actually improved my English by a lot, like, before that I couldn't even differentiate between a simple past and past continuous tense but after that… after getting exposed to many English materials, like speech and subtitles would provide me vocabulary and such… and overall I suddenly found myself, like, knowing English, I knew it, I could understand it, I couldn't really speak it but I could understand and write things about it and I could actually chat people, chat English speakers on the internet because, like, I could, overall, make a conversation with English.

+ I think this class will be about using computers in language learning, like, for example using online translators, online information, videos and, like, posting our home works on the… on our blogs and sending them via email and such… and... I actually do think that I will benefit from it but I'm not sure how I would benefit from it, like, it could save my time from… getting a hard copy or waiting for teacher to have a guidance in our homework, so… yeah, that was… that could be a benefit but… I don't know, like… it would still be same boring homework i guess, yeah.

Transcription of Post-Interview with the Participant 22

+ This course affected me in a way that my thoughts and knowledge on technology have been improved greatly because… like, I never thought that I would… I could use technology in learning and teaching so effectively… so… that's how this course affected me.

+ This course definitely made a difference. It improved my perspective, even gave me a new perspective on teaching and learning because… like, before this course, I never, again, I never thought that I would use… I could use technology in learning. I would only use translator for English and even using… while using it, I would still us a paper and a pen to learn that word or words but with this course, I… after this course, I currently know that I could use applications for learning that words as well and that definitely gave me a new perspective because it is so much more easier to learn while using a technology than not using a technology.

+ I think that mobile applications are much more beneficial in language learning because you cannot carry computer to everywhere but you can carry your mobile phone anywhere you go and as long as you have internet you have connection to the world and… In that manner, it is much more beneficial, you can access learning or teaching materials at anywhere and they are cheaper in general, so, I think that mobile applications in language learning is definitely more beneficial, especially for students.

+ Technology should be integrated into a classroom by a teacher who is digitally native and classroom… the… the teacher shouldn't be like a teacher, it should be… he or she should be more of a guidance and provider of the directions for the students so, that's how it should be integrated into classroom, also the students' economical situations should be considered, like…

you can't integrate a… you can't tell them to buy a computer when they are… when they don't have enough money, so, that should be taken into account and students also take a small course to… on how to use technology but I doubt that anyone in current generation is unaware of that, so… yeah, that's how the technology should be integrated into classroom.

+ My biggest concern is that I don't know… I don't really know how to teach but I believe that I'll learn that at the years to come, so… leaving that aside, I… second… my second concern is that students can, like… well, you have a computer at hand and if I gave you a homework, how should I know that you would not copy the homework from others and while, like a… plagiarism, yeah that was the word, I'm sorry I forgot it. The students' attention can get shifted to other things like… yeah, I … he or she could choose playing a game over doing homework on computer, so… that's another concern for me, to get their attention… and in terms of collaboration, some students don't want to make a contact with others while they do their homework, so, that is another concern for me, and… yeah, those are my biggest concern in using technology in class.

+ I think that technology will affect language learning and teaching in a positive way because, like I said before, it is easier and much more interesting to use technology rather than a pen and a paper and by using technology, you can learn quicker, faster, more effectively, or… like… well, you would have more guidance, so, you would be… you would feel comfortable and you would see your progress and in that way, language learning could get… could have a improvement, I guess… yeah… I mean it would affect it in a positive way

+ The most beneficial one was the WebQuest, so… I never thought that you would have such a useful tool on the internet, I never knew it before but that tool is really useful and… Quizlet application was also a really beneficial thing for me, it was not the most beneficial but it was a beneficial thing but… the least beneficial one for me was the Digital Story Telling… like… I

don't think that it was a necessary thing because… like, I could go watch a YouTube video rather than watching a digital story telling or go play a game with subtitles rather than watching, and again, digital story telling video, so… I don't think it was the… like, I definitely think it was the least beneficial thing we have learned so far in this course… I mean, I learned English from watching TV series and playing games with subtitles, so… I… I don't think it is an interesting concept in our time, so… concerning our generation.

+ Overall, using technology in classroom has some requirements and should be integrated professionally and every single detail should be taken seriously but… saying that you do those things perfectly, it would definitely benefit the students and the teacher because… like, it would relieve both and it would improve the relation between the two and… yeah, overall I think using technology in a classroom is really beneficial and positive concerning you're doing it properly.

Transcription of Exam Papers with the Participant 12

1. In my opinion, the most important advantage of using the internet for language learning and teaching is classes. We are living in technology age and nearly all of the kids born as digital native. They start to use internet in early ages and they do it more efficiently than most of the olders. It is because of today's conditions. In our day access of technology and technology is very easy. For this reason, learning and teaching language from internet is the most successful one.

Creativity is one of the advantages also. For example, when creating a source you can use various sounds, images, interactive tests etc. This way while you can save your Money and time, you can create more useful sources than in paper.

Being in contact with more people compared with class. To how many people can be given seminar by one person? With internet it is infinite. For example, with webinar. Thousands of

people around the World can listen to what you are saying. By this way one can save Money and time.

As we know every students' needs are different and you can't meet all their needs as a teacher. For this problem internet gives us a solution. Automatic feedback. In this way a student can see his/her mistakes and won't feel ashamed because feedback comes from computer. Also after feedback a student can ask help from the teacher. And the teachers can save time from giving feedback to each person.

2. There are three types of blogs

Tutor blog: giving information about specific topics

Learner blog: as a learner you can contact with native speakers and receive help.

Class blog: easy way to stay contact with class and can do various activities such as collaborative writing.

I would prefer Tutor blog. Because tutor blog gives students more independency as they would benefit from what they need. They would search for topics which they need more to learn. In this way we would give them opportunity to choice.

Transcription of Interviews with the Participant 12

+ So far, in this class I've learned about using wikis, creating wiki pages and collaborating with my friend and I have learned about blogs… how to post blog posts and how to read someone else's blogs and comment on them… how can I use them in classes, how can I produce material with blogs and wikis… and those were the things that we, I have learned so far.

+ I'm not really sure about blogs but I will… I'll definitely use wikis when I'm a teacher myself because wiki provide a huge palate of knowledge… they… from… by using hyperlinks, I could, let's say, create a resource page and I could link that resource page to the given homework and the student can save his time from searching this stuff on the internet and start to build it's(his)

knowledge and… students also can collaborate with each other and that could push even the lazy students to study because everyone else is using wiki to studies, they're collaborating and they're having fun, everybody is producing good materials for their homework and that could actually be a really useful thing because taking a piece of paper and pen and doing a homework or… even doing worksheets, like fill in the blank questions, even they are really daunting because they are really hard… like you could… you would have to think about filling the word in a blank and you would have to worry about… not… actually warping the paper, bringing it to class… I mean if there were to be rain, paper could get wet and the material could get destroyed… but internet, that would not happen because if you were to post in internet, even if your hardcopies were to get wet you could always print another one and… like… you could actually get instant feedback from your teacher… that is a… that is an actually huge plus because in normal traditional methods you would have to wait for a week before reaching your teacher's guidance, but in wikis teacher can guide you to the right place and student can have a better experience… more comfortable and more easier experience in learning a unit… a topic. So, with that in mind, I definitely think that I would use wikis in classes but I'm not that sur… I'm not really sure about blogs because wikis can cover pretty much everything that blog does, so, there is no need for using blogs in language teaching, I think.

+ They do affect language learning in a way that learners can reach… can access the material easily, whenever they want, wherever they want… and because of that language learning can be a fun and… like, easy thing to do… like, you wouldn't have to search through the web for a grammar… let's say present tense or past tense… your teacher would give you the resource in his or her wiki and you would just have to click a link to go to that page and look for the resource and that would affect language learning in a positive way.

APPENDIX M
Sample Coding of the Qualitative Data

Main Themes	Sub-theme 1	Sub-theme 2	Sub-theme 3
Theme 1: Digital Change	Use	Create	Evaluate
	- I learned how to use major technological tools such as blogs, wikis, etc. And I think I will use them for educational purposes in my future life. (P8-RW)	- I learned creating and using wikis, blogs, *Animoto* and I think I am very sufficient now. Also this course makes me a skilled technology user as I learned how to develop digital tools to teach English. (P24-RW)	- Likewise, I can select any digital tool which is beneficial; I mean, I can decide which website is useful or not, or I can decide whether a blog is suitable to my students or not. (P17-RW)
Theme 2: Perceptual Change	the PST qualifications	the Role of technology in language teaching	DL training
	- It is necessary to learn basic technological skills for pre service teachers in this digital era, to me. Also, student teachers need to have knowledge of computer and technology. (P9-RW)	- Technology is what makes your life easier by assisting you. When the conventional educational ways don't provide the learner's needs, technology provides support at that point. (P6-FN)	- Using digital tool in our daily live is one thing but using it in class is another thing. I would not think that it necessitates a special training. (P11-INT)
Theme 3: Cognitive Change	Conceptual Learning	Raising Awareness	Decision-making
	- First of all, reading articles was the most beneficial one; I learned lots of concepts related to my field such as autonomous learner, scaffolding, different types of CALL, difference between CALL and MALL, lexicon, hardcopy and softcopy, collaborative learning. etc. (P3-INT)	- I realized the importance of article reading into language teaching; we had a chance to practice what we have learned from the articles. (P16-INT)	- By using hyperlinks, I could, let's say, create a resource page and I could link that resource page to the given homework and the student can save his time from searching this stuff on the internet and start to build it's(his) knowledge and… (P22-RP)
Theme 4: Affective Change	Motivation	Confidence	Attitude

	- It (DST) allowed me to bring a digital story with visuals. Also, you asked us to put a modern element in the digital stories we created so it was funny. For example, in my story The Little Riding Hood used a navigation to find her way to grandma (P3-INT)	- This course gave me courage that I am capable of using a wide range of tools while teaching English. Mostly, I more scared (P13-INT)	- I feel that integrating technology into language teaching is fun. (P3-INT)

APPENDIX N
Code of Ethics (adapted from Patton, 2002)

1. Explain the purpose of the research Accurate & understandable Use lay language (no jargon) Decide what should and should not be shared How will the research contribute to society, their community, the world
2. Promises and Reciprocity Don't make promises you won't or can't keep Why should the participant take part in the research? What's the benefit to them?
3. Risk Assessment How will this put the participant(s) at risk? Could there be legal implications? Could the study cause psychological distress? If you uncover controversial information, how should be shared? How will you communicate potential risk and handle issues that arise?
4. Confidentiality What are the commitments that can be honored? Confidentiality - you know identity but will maintain confidentiality Anonymity - you do not know the identity of participants What information will be changed? What information can you NOT promise to keep confidential? Data storage & maintenance (time and place)

5. Informed Consent

Is it necessary? What kind will work for the situation?

IRB guidelines - what are they, how are they followed, and what needs to be submitted to them?

6. Data Access and Ownership

Who will have access and why?

Ownership of data - who? Communicate this to the participant(s)

Who (if anyone) can review findings/data/paper before release or publication?

7. Interviewer Mental Health

Will interviewer(s) be negatively impacted by study?

Could there be a need to talk about the experience? Can this be done without breaching existing contracts?

How will interviewer(s) care for themselves?

8. Advice

Who will be the go-to person or persons for the researcher(s) during the study regarding ethics issues that may arise?

9. Data Collection Boundaries

To what extent will you press participants for data?
Where will you draw the line?
What if participants become uncomfortable?

10. Ethical vs. Legal

Develop an ethic framework/philosophy
Go beyond what is required by the law
Will you have a professional or disciplinary code of ethics as a guide?

CONSENT FORM

Dear respondents;

In partial fulfillment of requirements for the degree of Doctor of Philosophy in Foreign Language Teaching Department, Bahçeşehir University, I am carrying out a study which aims at investigating digital literacies of pre-service EFL teachers, including your beliefs, expertise and knowledge of digital tools for instructional purposes. I will take about an hour of your time to ask a number of questions of which I will write down the answers. It is only for academic purpose and information provided will be kept strictly confidential. There will be no judgments afterwards. If you are interested, the result of the research would be provided to you.

I will do my best to keep your personal information confidential. All information collected by the surveys will be stored in a password-protected database. I will not include participant names in any published reports, media, or public discussions. Your name will be given a code for survey data. This code, instead of a name, will link your survey and identity. Only the researcher and you will be able to see this information. I will ask for your permission if I want to cite you by name for any reason.

You may be photographed or video or audio recorded for recruitment and teacher training purposes.

Thank you for your participation.

Best regards!

Seda ALTINER

Thesis Title	Developing Digital Literacies of Pre-service Teachers in CALL Course
Purpose of the Study (Why do I need to sign this form?)	This research is being conducted by Seda ALTINER at Bahçeşehir University. I am inviting you to participate in this research for my dissertation thesis. The purpose of this research is to collect data about your experience, beliefs and knowledge of digital tools in order to make Computer Assisted Language Learning (CALL) courses in teacher education programs better. In this sense, this study is assumed to contribute to the development of CALL courses for pre-service English teachers by providing them opportunities to ben engaged with digital tools so as to be digitally-literate language teachers. Accordingly, it aims to fill the gap in the literature on the betterment of CALL courses in teacher education.
Procedures (What do I have to do?)	The procedures involve the following: The data will be collected in written and verbal form. You will be asked to complete surveys before, during after the course, and you are expected to participate through the following dates; 01.04.2018-01.05.2018 or 01.05.2018-01.06.2018 The survey takes 15 minutes to complete. You may also be photographed or video or audio- taped for recruitment and teacher training purposes for the interview part. Please, put a check mark next to one of the statements below:

	____I give my consent to have myself photographed and video recorded for this study ____ I do not give my consent to have myself photographed and video recorded for this study
Potential Risks and Discomforts	There are no known risks for participation in this study.
Potential Benefits	There are no direct benefits from participation in this research. I hope that, in the future, other people might benefit from this study through improved understanding what contributes to successful teacher education programs for pre-service teachers.
Confidentiality	Any potential loss of confidentiality will be minimized by storing data in a password- protected database. Only I -as the researcher -will have access to see the survey and other data. Also, you will never be financially charged for this research. When I write my dissertation thesis, your identity will be protected to the maximum extent possible. Your information may be shared with the advisor.
Right to Withdraw and Questions	Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, it will not prevent you from any right that your university provides, now or in the future. If you decide to stop taking part in the study, if you have questions, concerns, or complaints, or if you need to report an injury related to the research, please contact the researcher: Seda ALTINER e-mail: sedaaltiner@gmail.com telephone: 5327951568
Participant Rights	If you have questions about your rights as a research participant or wish to report a research-related injury, please contact: Bahçeşehir University/ Institution of Educational Sciences
Statement of Consent	Your signature indicates that you are at least 18 years of age; you have read this consent form or have had it read to you; your questions have been answered to your satisfaction and you voluntarily agree to participate in this research. If you agree on what you have read and to participate, please sign your name below.
Signature and Date	NAME OF PARTICIPANT _____ SIGNATURE OF PARTICIPANT _____ DATE_____

APPENDIX O
Ethics Form for Data Collection

T.C.
DOKUZ EYLÜL ÜNİVERSİTESİ REKTÖRLÜĞÜ
Öğrenci İşleri Daire Başkanlığı

20.10.2018

Sayı : 15563195-300.99- 628
Konu : Anket Uygulama İzni

BAHÇEŞEHİR ÜNİVERSİTESİ REKTÖRLÜĞÜNE

İlgi : a) 25.09.2018 tarihli ve 20021704-730.08.03-3078 sayılı yazınız.
b) Üniversitemiz Buca Eğitim Fakültesi Dekanlığının 18.10.2018 tarihli ve 85316909-399.99-E.68380 sayılı yazısı.

Üniversiteniz Eğitim Bilimleri Enstitüsü İngiliz Dili Eğitimi Doktora Programı öğrencisi Seda ALTINER'in "Developing Digital Literacies of Pre-Service EFL Teachers" konulu tez çalışması kapsamında uygulama yapma isteğinin dersleri aksatmamak ve uygulamayı kendisinin takip etmesi koşuluyla uygun görüldüğüne dair Üniversitemiz Buca Eğitim Fakültesi Dekanlığından alınan ilgi (b) yazı fotokopisi ekte gönderilmektedir.
Bilgilerinize ve gereğini arz ederim.

Prof.Dr. Himmet KONUR
Rektör a.
Rektör Yardımcısı

Ek : İlgi (b) yazı (1 sayfa)

Dokuz Eylül Üniversitesi Rektörlüğü
Adres: Cumhuriyet Bulvarı No:144 35210 Alsancak / İZMİR
Tel: 0(232) 412 1212 Elektronik Ağ: www.deu.edu.tr
Kep Adresi: dokuzeyluluniversitesi@hs01.kep.tr

Bilgi İçin İrtibat:
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E-Posta: o.ozkan@deu.edu.tr

T.C.
DOKUZ EYLÜL ÜNİVERSİTESİ
Buca Eğitim Fakültesi

BUCA EĞİTİM FAKÜLTESİ
E-İmzalıdır

Sayı : 85316909-399.99-E.68380 18/10/2018
Konu : Anket Uygulama İzni

ÖĞRENCİ İŞLERİ DAİRE BAŞKANLIĞINA

İlgi : 02.10.2018 tarih ve 63225 sayılı yazınız.

Bahçeşehir Üniversitesi Eğitim Bilimleri Enstitüsü İngiliz Dili Eğitimi Doktora Programı öğrencisi Seda ALTINER'in tez çalışması kapsamında Fakültemiz Yabancı Diller Eğitimi Bölümünde anket yapma isteği dersleri aksatmamak ve uygulamayı kendisinin takip etmesi koşuluyla yapması uygun görülmüştür.
Bilgilerinizi rica ederim.

Prof.Dr. Ercan AKPINAR
Dekan V.

Dokuz Eylül Üniversitesi – Buca Eğitim Fakültesi
Adres: Uğur Mumcu Cad. 135. Sk. No:5 35150 Buca-İZMİR
Tel: 0 232 420 48 82 Elektronik Ağ: http://bef.deu.edu.tr
Kep Adresi: dokuzeylulniversitesi@hs01.kep.tr

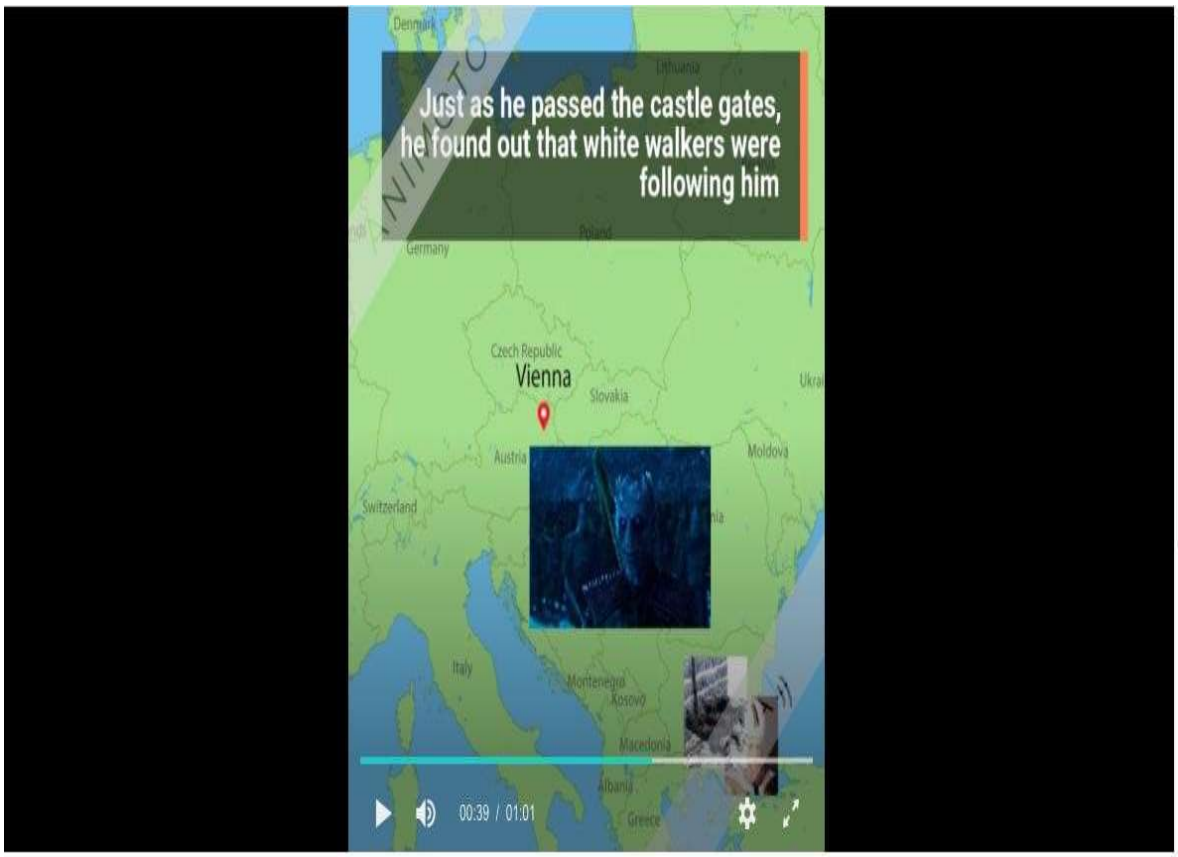
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Sevgi TİFTİK
Dahili:
E-Posta: sevgi.tiftik@deu.edu.tr

İzmir

Bu belge 5070 sayılı e-İmza Kanununa gore Prof.Dr. Ercan AKPINAR tarafından 18.10.2018 tarihinde e-imzalanmıştır.
Evrakınızı http://dogrulama.deu.edu.tr linkinden 33EFA989QX2 kodu ile doğrulayabilirsiniz

APPENDIX P

Digital Story Screenshots (produced by Participant 2 and Participant 7)



The Siege of Viestros

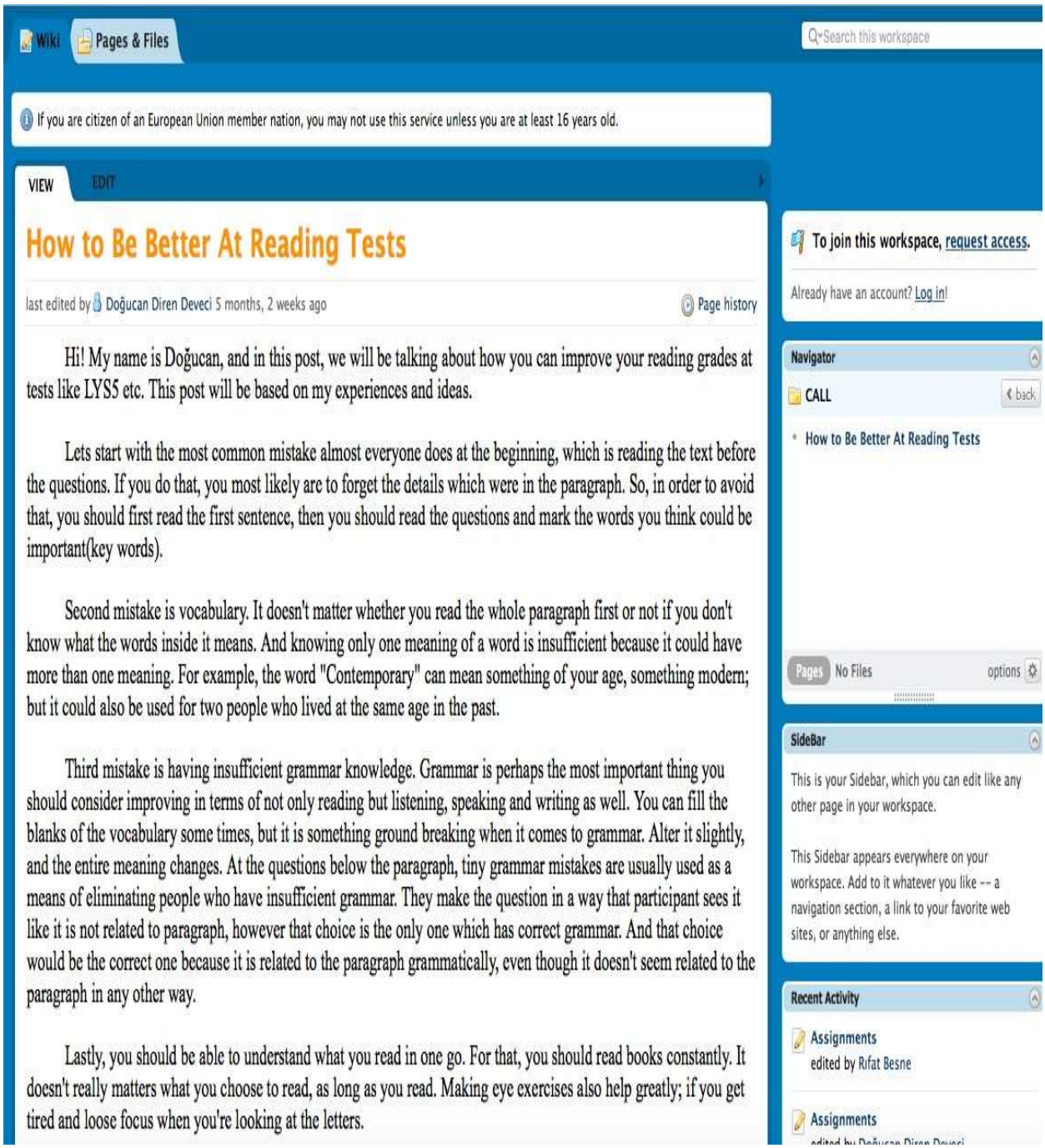
SHARE DETAILS

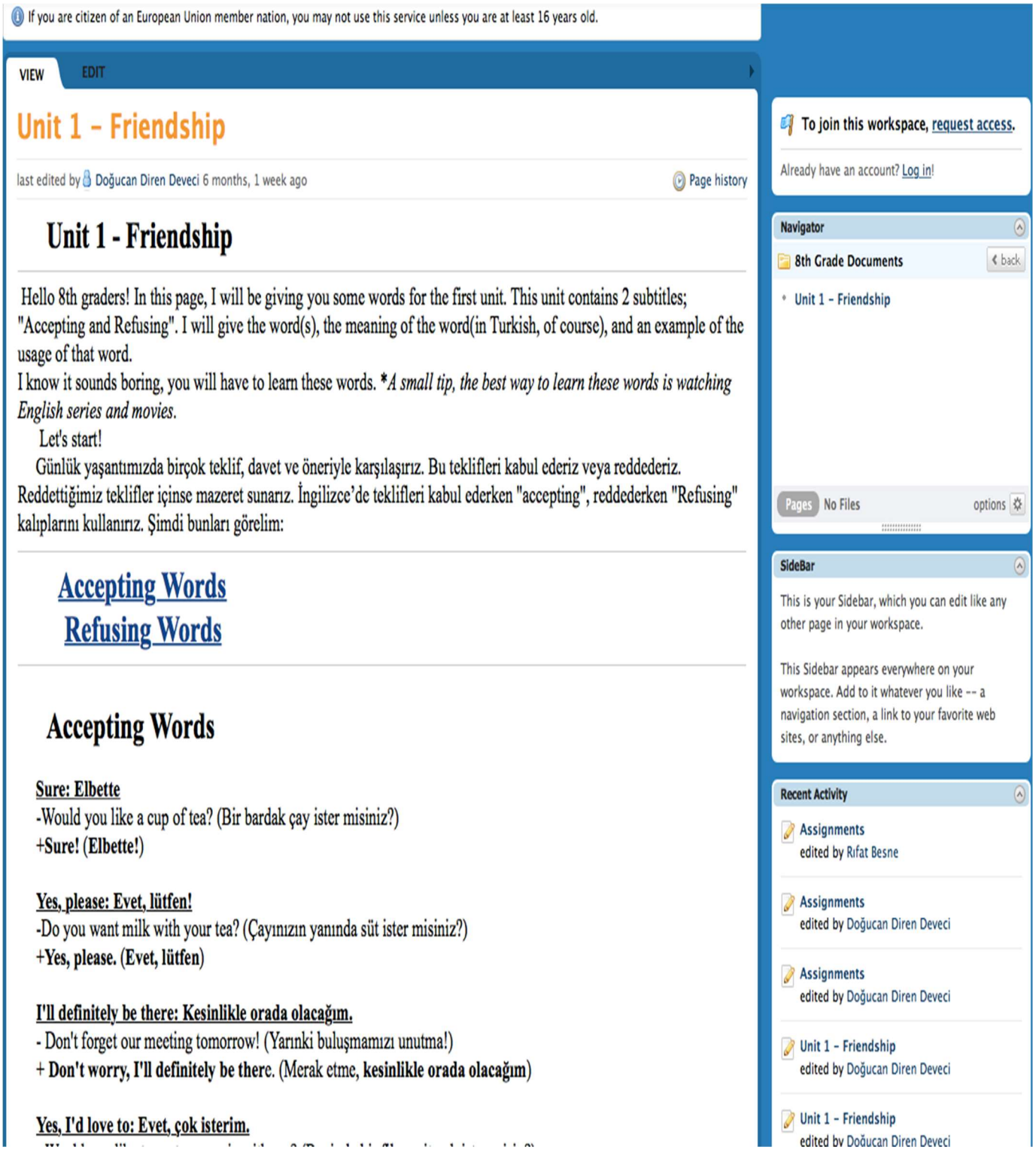


Cinderella and a little bit of Sherlock

SHARE DETAILS

APPENDIX Q
Wiki Screenshots (produced by Participant 12 and Participant 9)




If you are citizen of an European Union member nation, you may not use this service unless you are at least 16 years old.
VIEW
EDIT
Unit 1 – Friendship
last edited by Doğucan Diren Deveci 6 months, 1 week ago
Page history
Unit 1 - Friendship
Hello 8th graders! In this page, I will be giving you some words for the first unit. This unit contains 2 subtitles; "Accepting and Refusing". I will give the word(s), the meaning of the word(in Turkish, of course), and an example of the usage of that word.
I know it sounds boring, you will have to learn these words. *A small tip, the best way to learn these words is watching English series and movies.
Let's start!
Günlük yaşantımızda birçok teklif, davet ve öneriyle karşılaşırız. Bu teklifleri kabul ederiz veya reddederiz. Reddettiğimiz teklifler içinse mazeret sunarız. İngilizce'de teklifleri kabul ederken "accepting", reddederken "Refusing" kalıplarını kullanırız. Şimdi bunları görelim:
Accepting Words
Refusing Words
Accepting Words
Sure: Elbette
-Would you like a cup of tea? (Bir bardak çay ister misiniz?)
+Sure! (Elbette!)
Yes, please: Evet, lütfen!
-Do you want milk with your tea? (Çayınızın yanında süt ister misiniz?)
+Yes, please. (Evet, lütfen)
I'll definitely be there: Kesinlikle orada olacağım.
- Don't forget our meeting tomorrow! (Yarınki buluşmamızı unutma!)
+ Don't worry, I'll definitely be there. (Merak etme, kesinlikle orada olacağım)
Yes, I'd love to: Evet, çok isterim.
To join this workspace, request access.
Already have an account? Log in!
Navigator
8th Grade Documents
back
Unit 1 – Friendship
Pages
No Files
options
SideBar
This is your Sidebar, which you can edit like any other page in your workspace.
This Sidebar appears everywhere on your workspace. Add to it whatever you like -- a navigation section, a link to your favorite web sites, or anything else.
Recent Activity
Assignments
edited by Rıfat Besne
Assignments
edited by Doğucan Diren Deveci
Assignments
edited by Doğucan Diren Deveci
Unit 1 – Friendship
edited by Doğucan Diren Deveci
Unit 1 – Friendship
edited by Doğucan Diren Deveci

APPENDIX R
Blog Screenshots (produced by Participant 6 and Participant 19)

FEATURED



October 29, 2018

PRONOUNCIATON, WHY IS IT SO DIFFICULT?

–

Frequently, educators avoid teaching pronunciation for the following three reasons:

1. It seems to be a difficult subject for teachers to learn.
2. Only English native speakers can teach it.
3. Students may find it boring.

The issue is, how valid are these reasons? Let's summarily analyse each of them:

1. Pronunciation seems to be a difficult subject for teachers to learn.Very frequently student-teachers are overwhelmed with phonetic transcriptions without even understanding the difference between a phoneme and ...

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Learning Vocabulary and Phrases Through Philosophy

Monday, October 29, 2018

Philosophy Version 1.0

Philosophy comes from a Greek word *philosophia* and does mean "*the love of* ***wisdom***".

Let's do some philosophy!

Think about that: If all your decisions really are just the result of how you were **raised** and what chemicals you've **flowing** in your brain, then are any of your choices actually free?



If you're not truly free to make your own decisions, or choose your own actions, then how can you are **held accountable** for them?

Today's words are:
wisdom (n): the ability to use your knowledge and experience to make good decisions and judgments. (*I certainly hope to gain a little* ***wisdom*** *as I grow older.*)

raise (v): to cause something to increase or become bigger, better, higher, etc.
(*The government plan to* ***raise*** *taxes)*

About Me

Recep Tekin

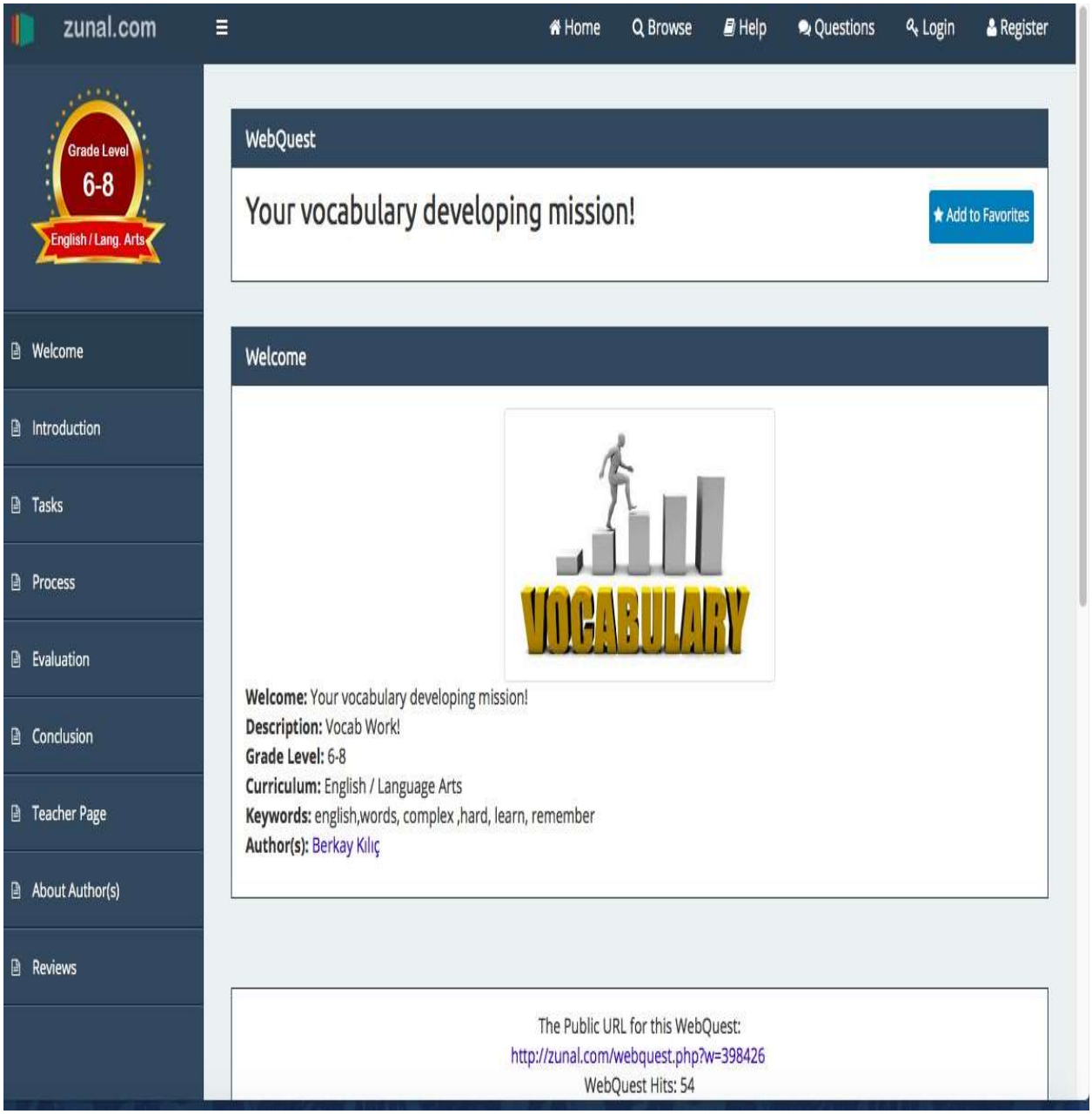
View my complete profile

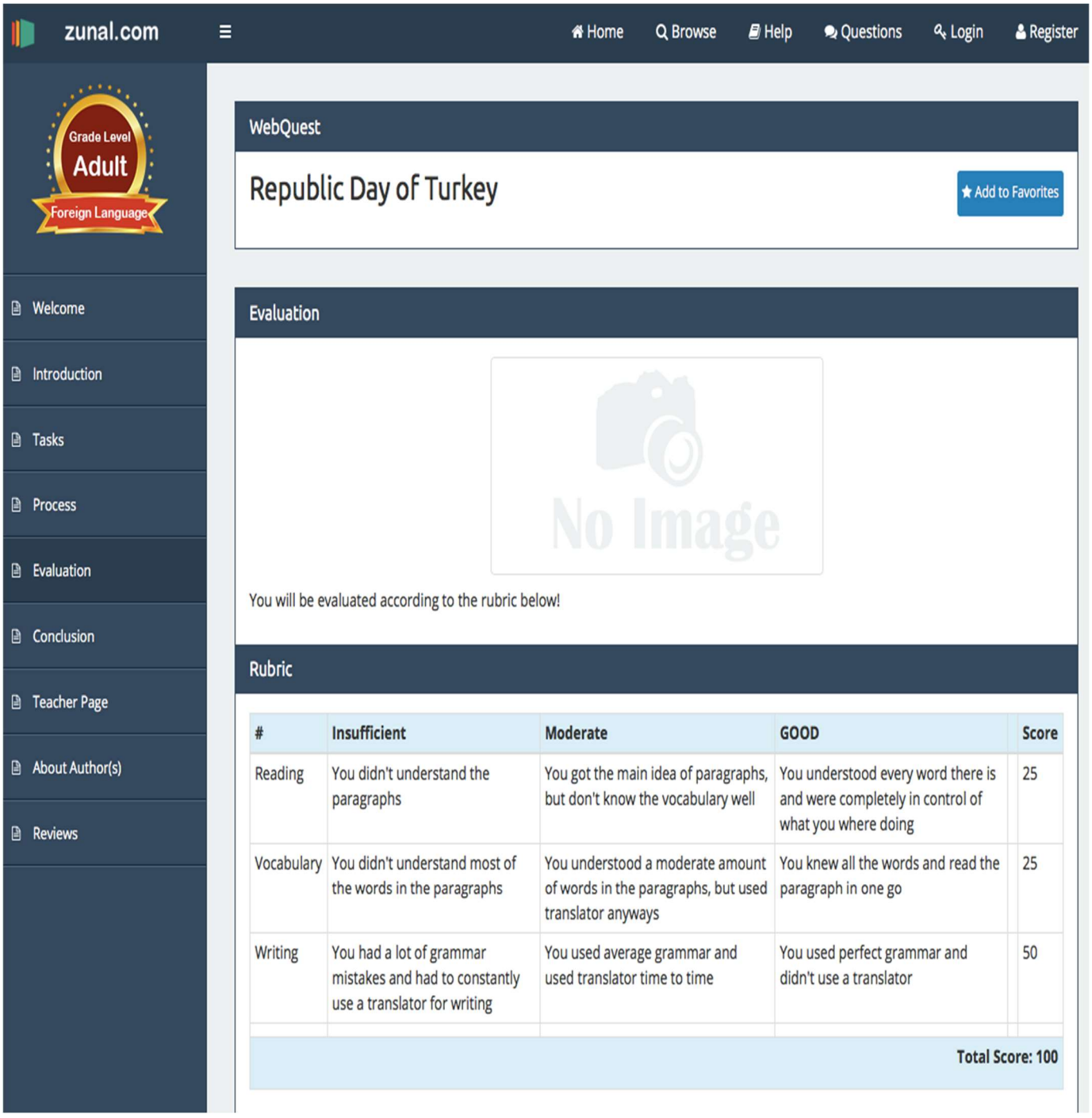
Blog Archive

▼ 2018 (1)
▼ October (1)
Philosophy Version 1.0 Philosophy comes from a Gre...

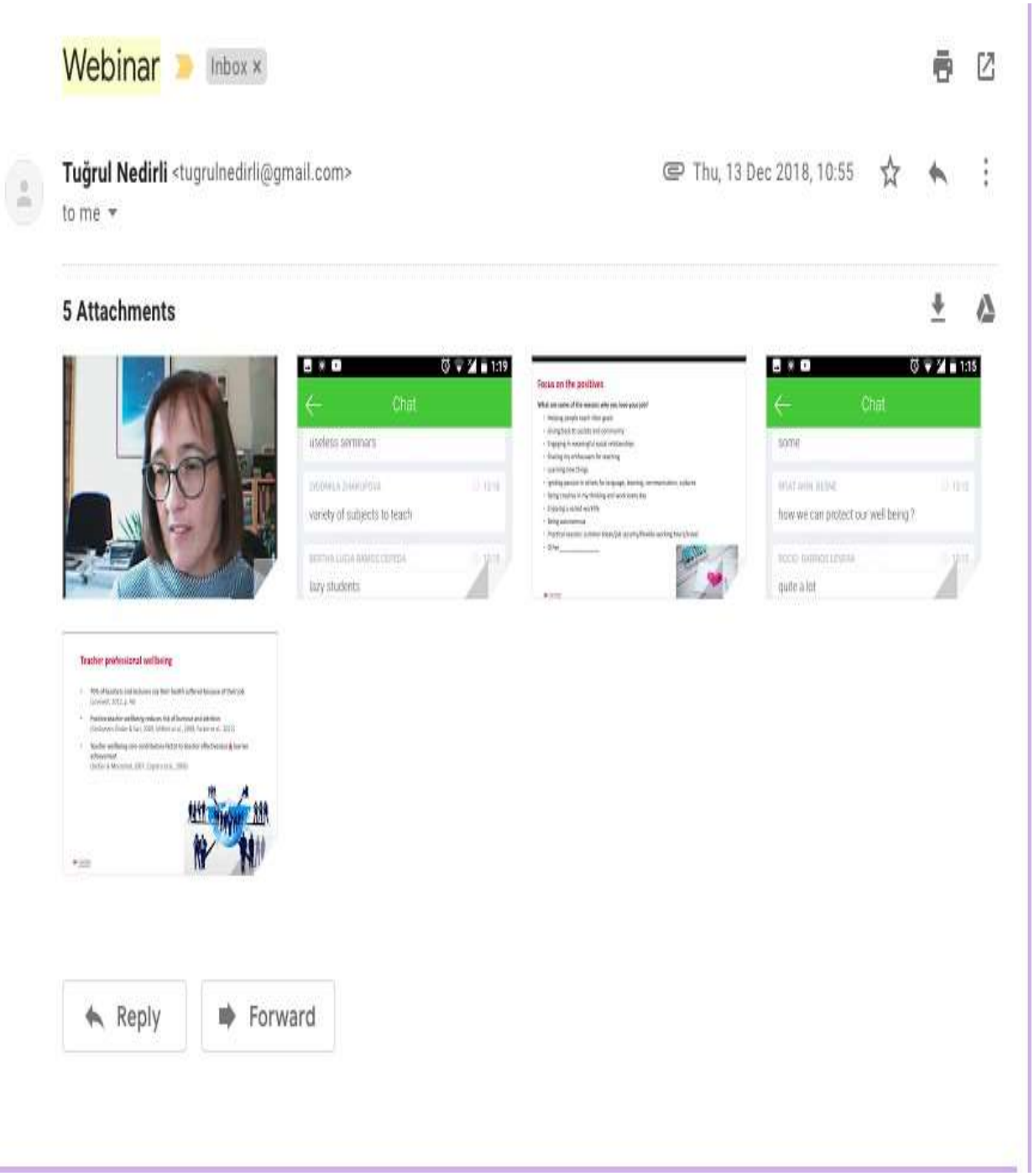
APPENDIX S

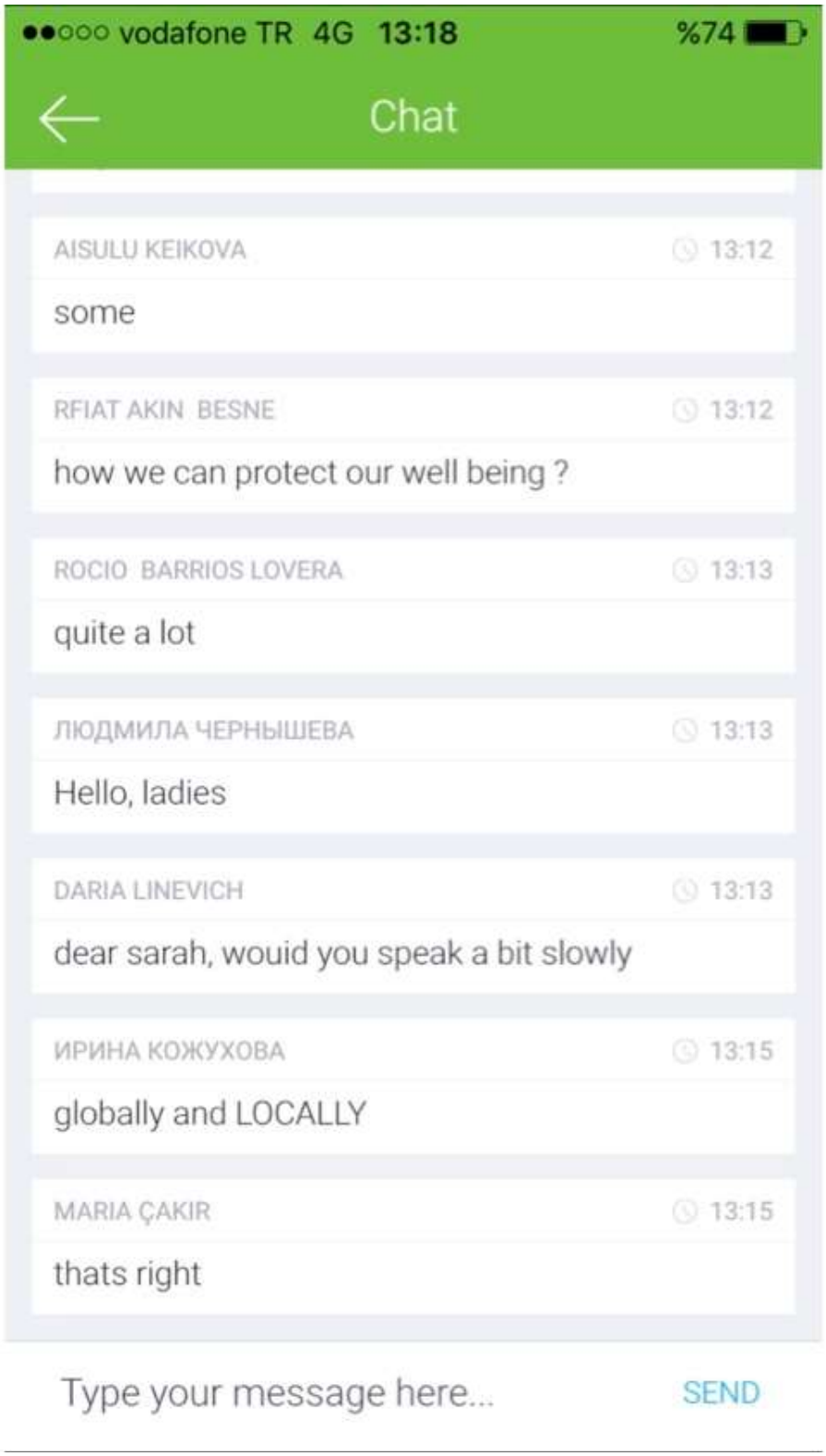
WebQuest Screenshots (produced by Participant 11 and Participant 13)




zunal.com
Home
Browse
Help
Questions
Login
Register
Grade Level
Adult
Foreign Language
Welcome
Introduction
Tasks
Process
Evaluation
Conclusion
Teacher Page
About Author(s)
Reviews
WebQuest
Republic Day of Turkey
Add to Favorites
Evaluation
No Image
You will be evaluated according to the rubric below!
Rubric
| Insufficient | Moderate | GOOD | Score
Reading | You didn't understand the paragraphs | You got the main idea of paragraphs, but don't know the vocabulary well | You understood every word there is and were completely in control of what you where doing | 25
Vocabulary | You didn't understand most of the words in the paragraphs | You understood a moderate amount of words in the paragraphs, but used translator anyways | You knew all the words and read the paragraph in one go | 25
Writing | You had a lot of grammar mistakes and had to constantly use a translator for writing | You used average grammar and used translator time to time | You used perfect grammar and didn't use a translator | 50
Total Score: 100

APPENDIX T
Webinar Screenshots (by Participant 7 and Participant 21)




●●○○○ vodafone TR 4G 13:18 %74
Chat
AISULU KEIKOVA 13:12
some
RFIAT AKIN BESNE 13:12
how we can protect our well being ?
ROCIO BARRIOS LOVERA 13:13
quite a lot
ЛЮДМИЛА ЧЕРНЫШЕВА 13:13
Hello, ladies
DARIA LINEVICH 13:13
dear sarah, wouid you speak a bit slowly
ИРИНА КОЖУХОВА 13:15
globally and LOCALLY
MARIA ÇAKIR 13:15
thats right
Type your message here...
SEND

APPENDIX U
Website Evaluation Papers (by Participant 20 and Participant 11)

CALL FALL, 2018

PhD Candidate, Seda ALTINER

Lab Time- Exploring Educational Software and Websites

Student Name and Surname: Gamze Susur

A. Web 2.0 Cool Tools for Schools

http://cooltoolsforschools.wikispaces.com/

Resources for Teachers

B. Free Educational Software and Games

http://www.educational-freeware.com/

C. Free Education Software

http://www.schoolforge.net/education-software

D. Top 100 Tools for Learning 2013

https://www.opensesame.com/blog/top-100-tools-learning-2013

E. The 100 Best Free Online Learning Tools

http://edudemic.com/2010/07/the-100-best-and-free-online-learning-tools/

F. (Nitro PDF Reader)

*Browse through the websites and software for education and select **5 top** software and/or websites that are new to you and you would like to use for ELT.*

1.

Name:	Vocabulary.com
Primary Use:	Teaching vocabulary and practice
How can it be used in ELT?	It can accelerate learning process by enhancing vocabulary skills
Why did you like it?	It is easy to use. It is also help you to practice your skills.

2.

Name:	Librivox.org
Primary Use:	Audio books
How can it be used in ELT?	It can help to improve listening skills
Why did you like it?	It has extensive catalog for every level.

CALL

FALL, 2018

PhD Candidate, Seda ALTINER

Lab Time- Exploring Educational Software and Websites

Student Name and Surname: Zeynep Öksüz

A. Web 2.0 Cool Tools for Schools

http://cooltoolsforschools.wikispaces.com/

Resources for Teachers

B. Free Educational Software and Games

http://www.educational-freeware.com/

C. Free Education Software

http://www.schoolforge.net/education-software

D. Top 100 Tools for Learning 2013

https://www.opensesame.com/blog/top-100-tools-learning-2013

E. The 100 Best Free Online Learning Tools

http://edudemic.com/2010/07/the-100-best-and-free-online-learning-tools/

F. (Nitro PDF Reader)

*Browse through the websites and software for education and select **5 top** software and/or websites that are new to you and you would like to use for ELT.*

1.

Name:	vocabulary.com
Primary Use:	Its primary use is finding word lists about a random word.
How can it be used in ELT?	It can be used for searching for synonyms of a word and developing vocabulary skills.
Why did you like it?	I liked it because it is so easy to search a word and find its synonyms.

2.

Name:	duolingo.com
Primary Use:	Its primary use is learning a new language.
How can it be used in ELT?	It can be used for learning grammar skills or developing your already

APPENDIX W
Wiki Grading Paper (by Participant 1)

2018 CALL Course- Wiki Grading Rubric

Your Wiki: gizembasturk.pbworks.com

Points

3 points – content _____

3 pts – topic fully discussed with several examples from your experiences and research

2 pts – topic only cursorily discussed with only one example provided

1 pt – topic barely discussed with no examples provided

3 points – coherency and organization _____

3 points – coherent and well-organized

2 points – somewhat difficult to follow

1 point – not organized

3 points – accuracy _____

3 points – few errors in spelling and grammar

2 points – many spelling or grammar errors, but still comprehensible

1 point – meaning unclear due to spelling or grammar errors

3 points – creativity _____

3 points – creative presentation of topic including pictures or links to other websites

2 points – semi-creative presentation without pictures or links

1 point- completely uncreative presentation

Total Points _**9**____/12



APPENDIX X
Mobile Application Grading Paper

Copyright. Burden, K., Kearney, M., & Hopkins, P. (2017). IPAC App Evaluation Rubric.

EVALUATION RUBRIC: Educational Mobile Apps (Printed version)

The purpose of this instrument is to assist school teachers in evaluating educational applications ('apps') for mobile devices, *particularly the potential of the app to support mobile pedagogies*. This instrument could also be used for teacher education purposes.
NB. This abridged version contains the rubric (only). A longer online version of the instrument contains 10 preliminary questions and can be found at: http://www.mobilelearningtoolkit.com/app-rubric1.html

Directions: Use the following rubric to examine how *use of the app's design features* might facilitate students' experiences. [Circle *one* option per row]
NB. To help with your evaluation, further notes, including examples of design features, are presented on the following pages (2-3).

	3	2	1
	The features of this app have the potential to enable:	**The features of this app have the potential to enable:**	**The features of this app have the potential to enable:**
COLLABORATION	Learners talking with peers online	Limited online peer discussion	No online peer discussion.
	Learners working together to create/modify digital content	Limited opportunities for learners to work together to create/modify content	No creation/modification of content together
	Learners sharing/exchanging digital content online	Limited opportunities for learners to share/exchange digital content online	No opportunities for learners to share/exchange digital content
PERSONALISATION	Learner choice/control over the activity	Restricted learner choice / control over the activity	No learner choice/control. External control only
	Learner customisation of the app	Restricted access to app settings or preferences	No possibilities for learner to modify / personalise the app. 'Once size fits all'.
	Learner access to unique information tailored to them	Similar / identical information provided to all learners	No access to personalised information for learners
AUTHENTICITY	Learners' participation in real-life activities	Restricted realism and relevancy in activities	Artificial activities only
	Realistic use of the mobile device by learners, similar to real-world experts	Restricted real-world use of mobile device by learners; only similar to experts in a small way	Contrived use of the mobile device by learners, unrelated to discipline / real life
	Opportunities for students to learn in a realistic learning space, relevant to the topic / real-life.	Restricted opportunities for learning in a realistic learning space, relevant to the topic / real-life.	Learning in a decontextualized learning space, unrelated to the topic / real-life.

Copyright. Burden, K., Kearney, M., & Hopkins, P. (2017). iPAC App Evaluation Rubric.

Notes / Sample features of Apps (to assist with your rubric responses on page 1)

	3	2	1
COLLABORATION	Pedagogical features of the app design that may promote online peer learning conversations e.g. role-play design encourages communication; or technical features such as extensive, networked chat or discussion facilities e.g. in social media or multi-player game apps.	Pedagogical features of the app design that promote online peer learning conversations in a limited way; or technical facilities such as SMS, texting & message boards; & access to camera and microphone to support small group video-conferencing	Pedagogical or technical features promoting online peer learning conversations are absent.
	Pedagogical features of the app design promote co-creation of digital artefacts; or technical features such as co-editing facilities e.g. in a wiki or multi-player simulation app	Pedagogical features of the app design promote limited ways of co-creating digital artefacts; or technical features such as single-user editing features e.g. in iMovie app or Kahoot app.	Pedagogical or technical features promoting co-creating digital artefacts are absent.
	Pedagogical features of the app design that may promote online sharing of digital artefacts with others e.g. multi-player game suggests learner sharing; or technical features such as in-built links to social media or online communities; or screen sharing facilities e.g. in multi-player game apps	Pedagogical features of the app design that may promote online sharing of digital artefacts with others in a limited way; or technical facilities to share content on a small scale, such as use of email or screen sharing e.g. in Skype or Google Hangout apps	No opportunities for learners to share/exchange digital content Pedagogical or technical features promoting sharing of digital artefacts are absent.
PERSONALISATION	(More likely) Pedagogical features of the app design that may promote learner autonomy, such as allowing learners to choose a question or problem to explore. Also, technical features such as access to a range of ways to work / express (write, draw, narrate, animate etc.)	(More likely) Pedagogical features of the app design that may promote restricted learner autonomy, such as allowing learners to adjust limited parts of the activity. Also, technical features allowing learners to make minor activity adjustments such as challenge/difficulty levels, grade/age levels or time limits / rate of progress.	Pedagogical or technical features promoting learner autonomy are absent. e.g. Features suggest teacher control e.g. 'remote presentation' apps like Nearpod
	Pedagogical features or (more likely) technical features of the app design that allow learners to customise the app or user interface, such as access to numerous app settings or preferences for learners to tailor to their individual liking e.g. background images/music, building personal profile using motif or avatars	Pedagogical features or (more likely) technical features of the app design that allow learners to customise the app in a restricted way, such as turning location settings on/off.	Pedagogical or technical features promoting app customisation are absent.
	Pedagogical features of the app design that promote personalised information to learners informed by their past use (e.g. adaptive feedback), or technical facilities presenting personal information to learners based on their location, such as real-time weather data based on the user's geographical position; or facilities collecting and showing user's heart rate or personal travel information (e.g.	Pedagogical features such as limited choice of pathways / feedback based on past use; or technical features of the app design that allow learners access to personalized information in a restricted way e.g. facility to trigger information based on learner's location, or an image / QR code.	Pedagogical or technical features promoting personally tailored information are absent.

	activity tracker apps)		
AUTHENTICITY	Pedagogical features of the app design that may promote meaningful, relevant activities for the learner e.g. community projects; or technical features such as facilities to collect/access 'real data' for/from experts e.g. citizen science apps; in-built links to real-life 'online communities' / experts	Pedagogical features of the app design that promote meaningful, relevant activities in a limited way e.g. prompts to record a 'selfie' or publish work to a real audience beyond the class; or technical features such as simulations resembling a real-world activity; or learners' adoption of realistic avatar profiles	Pedagogical or technical features promoting meaningful, relevant activities are absent.
	Pedagogical features of the app design that promote realistic use of the device in a similar way to experts (e.g. inquiry approach encourages collection of real data); or technical features such as links to 'professionally relevant', discipline-specific tools e.g. the camera facility to support observation process (like real scientist); or the microphone to take audio notes in the field (like real historian) or translate speech to text (like journalist)	Pedagogical features of the app design promote use of device in only a minor realistic way; or technical features such as limited in-built links to 'real-life' tools such as Google Maps, Calculator & clock e.g. 'timestamping' student-generated reports	Pedagogical or technical features promoting realistic use of the device are absent.
	Pedagogical features of the app design that promote numerous opportunities for situated learning (e.g. astronomy apps that suggest learners go outside at night to analyse the stars); or technical features such as Augmented Reality (AR) facilities to enhances relevance of physical setting	Pedagogical features of the app design promote limited opportunities for use in an authentic learning space; or technical features such as Virtual Reality (VR) facilities create a relevant, albeit simulated, virtual space, such as in Google Cardboard apps	Pedagogical or technical features promote irrelevant setting to topic / learners. e.g. Features suggest use in a classroom or contrived online space, such as a LMS

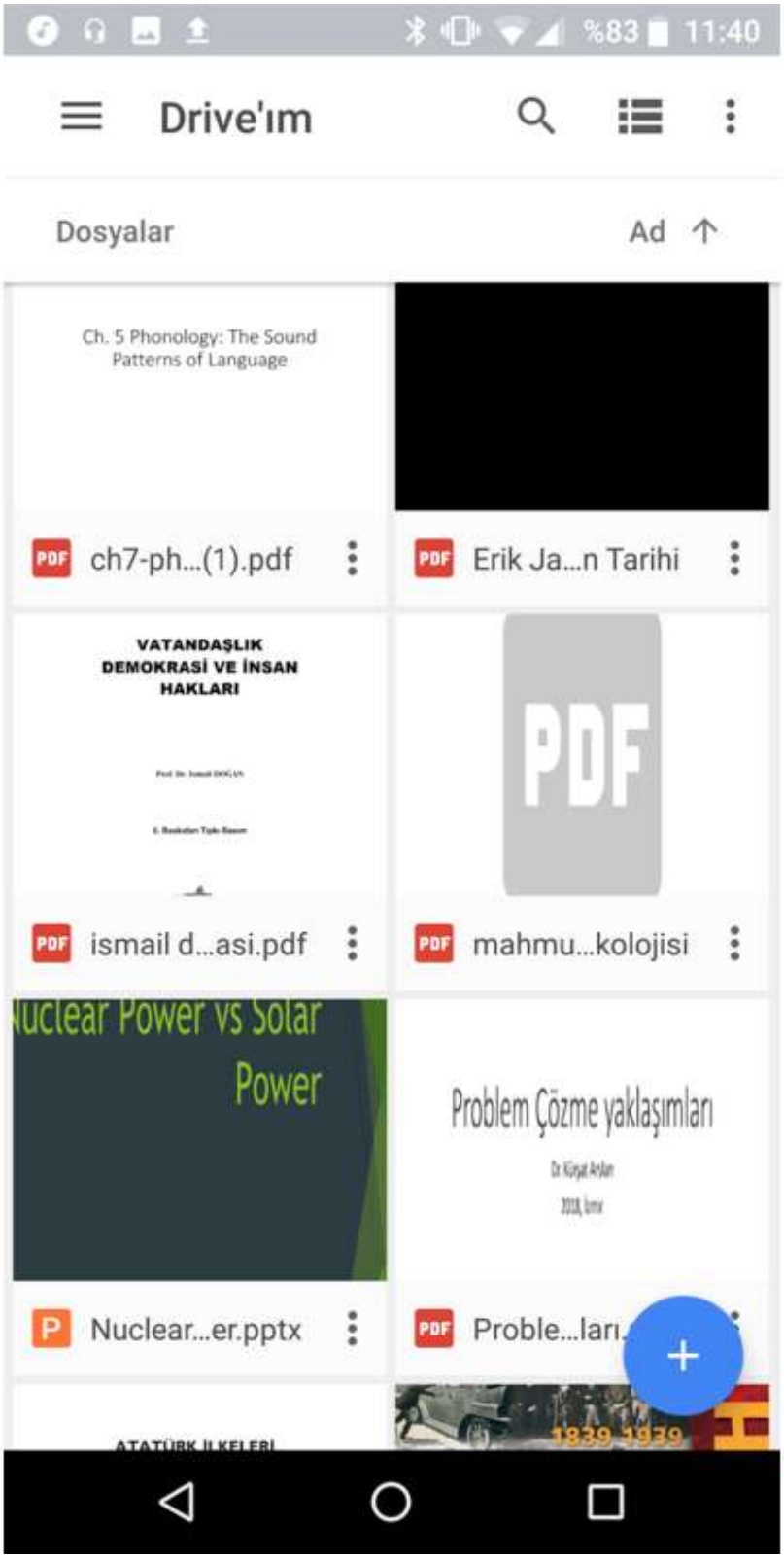
Disclaimer:

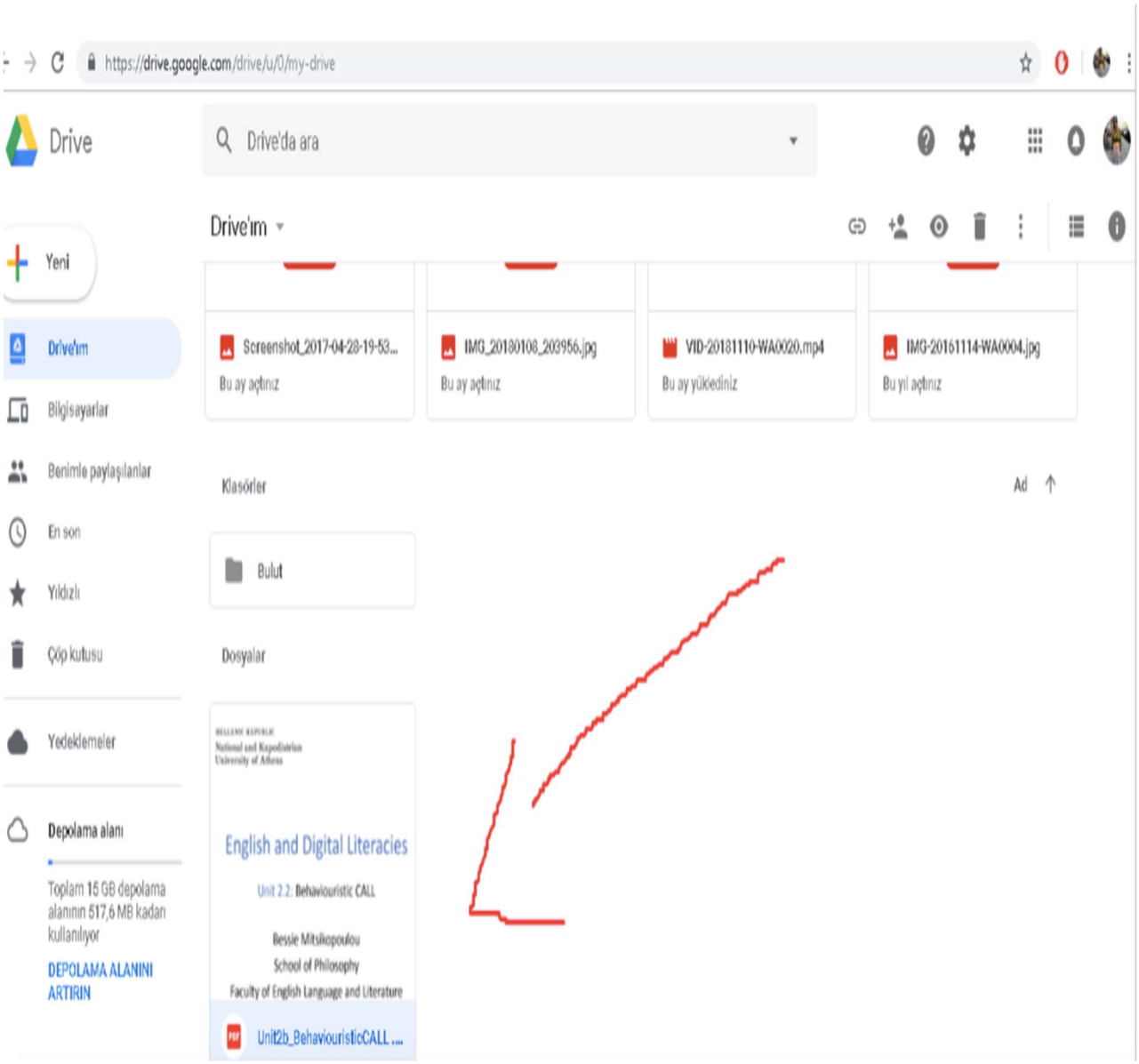
Any ratings emerging from use of this instrument should be considered as a *guide only*. An app's 'effectiveness' as a learning tool is ultimately a function of the *context of its use and the way it is used*. Therefore, the language used in many of the items in this instrument attempts to avoid 'techno-determinism' by using words such as 'potentially' and 'likely'.

This instrument mainly focuses on *pedagogical* aspects of mobile learning. Therefore, it does not contain items focusing on aspects such as age appropriateness, content accuracy, curriculum 'fit', cultural bias, language, technical attributes, navigation, user-friendly design (menus, buttons, user interface etc.), aesthetics, use of sound, graphics, and accessibility. It also does not contain items on motivation, engagement, assessment, reporting or reflection.

If you would like to evaluate *other* aspects of your app, we suggest you also use an instrument that suits your needs from http://www.ipads4teaching.net/critical-eval-of-apps.html

APPENDIX Y
A Screenshot of Online Storage Use

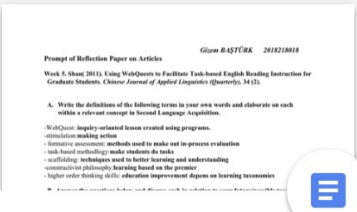



https://drive.google.com/drive/u/0/my-drive
Drive
Drive'da ara
Drive'ım
Yeni
Drive'ım
Bilgisayarlar
Benimle paylaşılanlar
En son
Yıldızlı
Çöp kutusu
Yedeklemeler
Depolama alanı
Toplam 15 GB depolama alanının 517,6 MB kadarı kullanılıyor
DEPOLAMA ALANINI ARTIRIN
Screenshot_2017-04-28-19-53...
Bu ay açtınız
IMG_20180108_203956.jpg
Bu ay açtınız
VID-20181110-WA0020.mp4
Bu ay yüklediniz
IMG-20161114-WA0004.jpg
Bu yıl açtınız
Klasörler
Ad
Bulut
Dosyalar
National and Kapodistrian University of Athens
English and Digital Literacies
Unit 2.2: Behaviouristic CALL
Bessie Mitsikopoulou
School of Philosophy
Faculty of English Language and Literature
Unit2b_BehaviouristicCALL ...

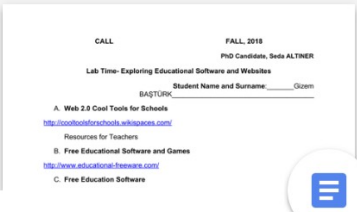
vodafone TR 13:24 %84

Drive'ım

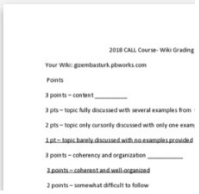
Hızlı Erişim



w5-article prompt-...
Bu hafta düzenlediniz



Week_4_Lab_CALL-...
Bu hafta düzenlediniz



wiki grading r
Bu hafta düzer

Dosyalar AD



Harry_Potter_and_Twilight_720p.mp4
Değiştirilme tarihi: 11 Ara 2018

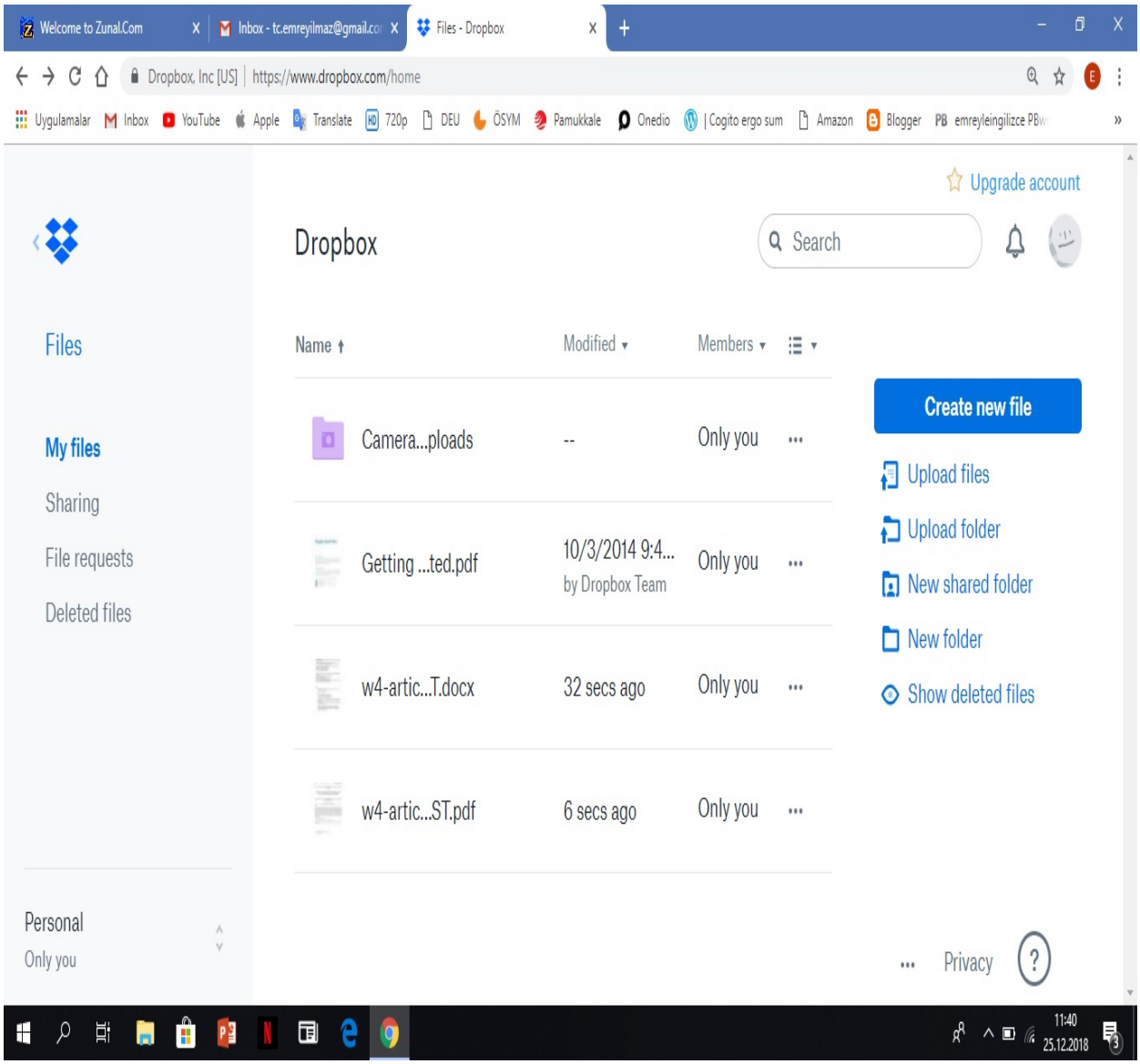
tyt cevap.pdf
Değiştirilme tarihi: 3 May 2018

tyt.pdf
Değiştirilme tarihi: 3 May 2018

TYTOrnekSoruKitapcigi03122017
Değiştirilme tarihi: 3 Ara 2017

w3-article prompt-wiki
Değiştirilme tarihi: 4 Ara 2018

w4-article prompt-DST
Değiştirilme tarihi: 5 Ara 2018


Welcome to Zunal.Com
Inbox - tc.emreyilmaz@gmail.com
Files - Dropbox
Dropbox, Inc [US] | https://www.dropbox.com/home
Upgrade account
Dropbox
Search
Files
My files
Sharing
File requests
Deleted files
Name
Modified
Members
Camera...ploads
--
Only you
Getting ...ted.pdf
10/3/2014 9:4...
by Dropbox Team
Only you
w4-artic...T.docx
32 secs ago
Only you
w4-artic...ST.pdf
6 secs ago
Only you
Create new file
Upload files
Upload folder
New shared folder
New folder
Show deleted files
Personal
Only you
Privacy
11:40
25.12.2018

CURRICULUM VITAE

PERSONAL INFORMATION

Surname, Name:	Altıner, Seda
Nationality:	Turkish (T.C.)
Date and Place of Birth:	10 July, 1984
Phone:	+90 532 795 15 68
e-mail:	sedaaltiner@gmail.com

EDUCATION

Degree	Institution	Year of Graduation
Ph.D.	Bahçeşehir University, Department of English Language Education, Istanbul, Turkey	2019
M.A.	Abant Izzet Baysal University, Department of English Language Education, Bolu, Turkey	2008
B.A.	Abant Izzet Baysal University, Department of English Language Education, Bolu, Turkey	2006

WORK EXPERIENCE

Year	Place	Enrollment
2018- Present	Bilim College, Izmir, Turkey	English Language Teacher
2017- 2018	Bahçeşehir University, School of Foreign Languages, Istanbul, Turkey	English Language Instructor
2014 -2017	Izmir University, English Language Teaching Department, Izmir, Turkey	English Language Instructor
2009- 2013	Kocaeli University, English Language and Literature Department, Izmir, Turkey	English Language Instructor
2008- 2009	Bolu Çimento Çaydurt Secondary School, Bolu, Turkey	English Language Teacher

2007- 2008	Bolu Science High School, Bolu, Turkey	English Language Teacher

CONFERENCE PRESENTATIONS

Altıner, S. (2016). Pre- service EFL Teachers' Engagement with Research. GlobELT 2016: An International Conference on Teaching and Learning English as an Additional Language, Antalya, Turkey.

Altıner, S. (2014). Evaluation of Two ESP Textbooks with Reference to Biber's Text Typology. 8th ELT Research Conference, Çanakkale Onsekiz Mart University, Çanakkale, Turkey.

Altıner, S. (2013). It's a piece of cake; chocolate or caramel? Understanding of Transparent and Opaque Idioms in English By Turkish Learners of English. First International ELT Conference, Gazi University, Ankara, Turkey.

Altıner, S. (2013). E-games in EFL. The European Conference on Technology in the Classroom, Brighton, UK

Altıner, S. (2013). Barriers to the Implementation of CALL in EFL Courses: Turkish EFL Teachers' Attitudes and Perspectives. The Fourth International ELT Students Conference, Çukurova University, Adana, Turkey

FOREIGN LANGUAGES

Advanced English, Elementary French