REPUBLIC OF TURKEY
SULEYMAN DEMIREL UNIVERSITY
GRADUATE SCHOOL OF EDUCATIONAL SCIENCES
DEPARTMENT OF FOREIGN LANGUAGES EDUCATION

AN INVESTIGATION INTO EFL TEACHERS' TPACK SELF-EFFICACY BELIEFS, WEB 2.0 COMPETENCE AND PERCEPTIONS TOWARDS WEB 2.0 TOOLS

Onur Gökhan ÖZDEMİR

Advisor: Asst. Prof. Dr. Ahmet ÖNAL

MASTER'S THESIS
ISPARTA, 2022

CERTIFICATE OF COMMITTEE APPROVAL

We certify that this thesis under the title of **"An Investigation into EFL Teachers' TPACK Self-Efficacy Beliefs, Web 2.0 Competence and Perceptions Towards Web 2.0 Tools"** prepared by **"Onur Gökhan ÖZDEMİR"** is satisfactory for the award of the degree of **MASTER of ARTS** in the **Department of Foreign Languages Education.**

Advisor **Asst. Prof. Dr. Ahmet ÖNAL** .....
Süleyman Demirel University

Committee Member **Asst. Prof. Dr. Nihan ERDEMİR** .....
Süleyman Demirel University

Committee Member **Asst. Prof. Dr. Yusuf Emre YEŞİLYURT** .....
Mehmet Akif Ersoy University

Director of the Institute Asst. Prof. Dr. Semiha YÜKSEK USTA .....

COMMITMENT

I declare that this thesis has been written by taking ethical rules into consideration and by giving all the references cited from the field by referring them in the thesis.

Onur Gökhan ÖZDEMİR

TABLE OF CONTENTS

ABSTRACT

AN INVESTIGATION INTO EFL TEACHERS' TPACK SELF-EFFICACY BELIEFS, WEB 2.0 COMPETENCE AND PERCEPTIONS TOWARDS WEB 2.0 TOOLS

Onur Gökhan ÖZDEMİR

Master's Thesis, Süleyman Demirel University, Graduate School of Educational Sciences, Department of Foreign Languages Education
Advisor: Asst. Prof. Dr. Ahmet ÖNAL
2022, 130 pages

The rapid advancement of digital technologies and social networks in the past decades has brought a fresh perspective to education and generated innovative opportunities for teachers to move their teaching beyond the conventional practices. The prevalence of innovative web-based technologies and social network platforms has also triggered a prominent shift within the field of language education. Hence, foreign language teachers are required to embrace these opportunities. Considering the notion that teachers are the most important components of adopting modern instructional technologies, this study investigates in-service EFL teachers' TPACK self-efficacy levels and their perceptions towards Web 2.0, and explores the relationship between their TPACK self-efficacy levels with respect to their demographic features and perceptions towards Web 2.0 technologies. The study employed a mixed method design, and the quantitative and qualitative data were collected in two phases. The collection of the quantitative data was carried out through an online survey, consisting of three parts, with 227 EFL teachers from various schools in Isparta. Following the first phase, seven voluntary teachers who partook in the first phase were interviewed. The quantitative data was analyzed via Statistical Package for the Social Sciences (SPSS) and content analysis was utilized for the analysis of qualitative data. The findings suggested that participants had high level of content knowledge, pedagogical content knowledge and pedagogical knowledge, but they reported relatively low level of self-esteem when knowledge of technology was included.

Furthermore, the results indicated statistically significant differences between the participants' TPACK self-efficacy levels and their gender, educational level, school type, perceived digital literacy levels and previous INSET experience on Web 2.0 technologies while their TPACK self-efficacy levels did not differ according to age and teaching experience. Furthermore, a positive and high level of correlation between TPACK self-efficacy of EFL teachers and their self-perceptions towards Web 2.0 tools was reported. Semi-structured interviews demonstrated that despite participants' favorable perceptions towards the use of Web 2.0 tools, these tools are not amply utilized by the participants in teaching mainly due to their inadequate technological and technological pedagogical knowledge.

Keywords: English language teachers, technology, TPACK, web 2.0 tools

ÖZET

İNGİLİZCE ÖĞRETMENLERİNİN TEKNOLOJİK PEDAGOJİK ALAN BİLGİSİ ÖZYETERLİLİK İNANÇLARI İLE WEB 2.0 ARAÇLARI YETERLİLİKLERİ VE ALGILARI ÜZERİNE ÇALIŞMA

Onur Gökhan ÖZDEMİR

Yüksek Lisans Tezi, Süleyman Demirel Üniversitesi, Eğitim Bilimleri Enstitüsü, Yabancı Diller Eğitimi Anabilim Dalı

Danışman: Dr. Öğr. Üyesi Ahmet ÖNAL

2022, 130 sayfa

Dijital teknolojilerin ve sosyal ağların son yıllardaki hızlı gelişimi, eğitime yeni bir boyut kazandırmış ve öğretmenlere öğretim süreçlerini iyileştirme fırsatları vermiştir. Yenilikçi web tabanlı teknolojilerin ve Web 2.0 araçları olarak da adlandırılan sosyal ağ araçlarının yaygınlaşması dil eğitimi alanında önemli bir değişimi tetiklemiştir. Dolayısıyla bu teknolojileri benimsemek yabancı dil öğretmenleri için bir gereklilik haline gelmiştir. Öğretmenlerin modern öğretim teknolojilerini benimsemenin en önemli bileşenleri olduğu düşüncesinden hareketle, bu çalışma hizmet içi İngilizce öğretmenlerinin Teknolojik Pedagojik Alan Bilgisi (TPAB) öz-yeterlik düzeylerini ve Web 2.0'a yönelik algılarını ortaya koymayı ve onların TPAB öz-yeterlik düzeyleri ile demografik özellikleri ve Web 2.0 teknolojilerine yönelik algıları arasındaki ilişkiyi araştırmayı amaçlamaktadır. Bu amaçla karma yöntemler araştırması modeli kullanılmış ve yürütülen çalışmada nicel ve nitel veriler iki aşamada toplanmıştır. Çalışmanın ilk aşamasında çevrimiçi bir anket kullanılmıştır. Üç bölümden oluşan anket, Isparta'daki çeşitli okullarda çalışan İngilizce öğretmenlerine (n=227) çevrimiçi olarak dağıtılmıştır. İlk aşamanın ardından, ankete katılan yedi gönüllü İngilizce öğretmeni ile yarı yapılandırılmış görüşmeler yapılmıştır. Veriler SPSS programı ve içerik analizi ile analiz edilmiştir. Bulgular, katılımcıların yüksek düzeyde alan bilgisi, pedagojik alan bilgisi ve pedagojik bilgiye sahip olduğunu, ancak teknolojik bileşen eklendiğinde nispeten düşük düzeyde yeterlilik bildirdiklerini ortaya koymuştur. Ayrıca, sonuçlar, İngilizce öğretmenlerinin TPAB öz-yeterlik düzeyleri ile cinsiyet, eğitim düzeyi, okul türü, dijital

okuryazarlık ve Web 2.0 teknolojilerinde hizmet içi eğitim alma durumu arasında istatistiksel olarak anlamlı farklılıklar gösterirken, TPAB öz-yeterlik düzeylerinin öğretmenlerin yaş ve deneyimlerine göre farklılık göstermediği görülmüştür. Buna ek olarak, bulgular İngilizce öğretmenlerinin TPAB öz yeterlilikleri ile Web 2.0 araçlarına yönelik öz algıları arasında pozitif ve yüksek düzeyde bir ilişki olduğunu göstermiştir. Yarı yapılandırılmış görüşmelere göre, İngilizce öğretmenlerinin Web 2.0 araçlarının kullanımına yönelik olumlu algılara sahip olmalarına rağmen, esas olarak teknolojik ve teknolojik pedagojik bilgi eksikliğinden dolayı bu araçları öğretimlerinde kullanmadıkları sonucuna varılmıştır.

Anahtar Kelimeler: İngilizce öğretmenleri, teknoloji, TPAB, web 2.0 araçları

ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to my thesis supervisor Asst. Prof. Dr. Ahmet ÖNAL, for his invaluable guidance and support throughout the study. It is an honor to be one of his students.

I would like to thank the thesis committee: Asst. Prof. Dr. Nihan ERDEMİR and Asst. Prof. Dr. Yusuf Emre YEŞİLYURT for their invaluable and useful comments.

I also owe special thanks to Asst. Prof. Dr. Atilla ÖZDEMİR for his constructive assistance and guidance, especially during the analysis procedure.

I am also thankful to my dear colleague Emine ÇETİNEL, for her generous support to the research.

I am also greatly indebted to my family and my beloved daughters who encouraged and supported me to academic life.

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

CALL	Computer Assisted Language Learning
MALL	Mobile Assisted Language Learning
ICT	Information and Communication Technologies
MoNE	Ministry of National Education
EIN	Educational Informatics Network
EFL	English as a Foreign Language
ELT	English Language Teaching
CFA	Confirmatory Factor Analysis
EFA	Exploratory Factor Analysis
INSET	In-service training
WWW	World Wide Web
FATIH	Fırsatları Artırma ve Teknolojiyi İyileştirme Hareketi [The Movement of Enhancing Opportunities and Improving Technology]
TPACK	Technology pedagogy and content knowledge
SPSS	Statistical Package for the Social Sciences
IWB	Interactive White Boards
RSS	Really Simple Syndication
INSET	In-service Training
TESL	Teaching English as a Second Language

OPERATIONAL DEFINITIONS

Computer-Assisted Language Learning (CALL): An approach that comprises the use of computer in language education (Levy, 1997).

Mobile-Assisted Language Learning (MALL): An approach in which language learning is assisted through the employment of handheld mobile devices and technologies (Zhao, 2005).

Web 2.0 tools: A variety of web-based technologies through which individual users can create and share materials on the web and interact with other users across the world (Butler, 2012).

Technological Pedagogical Content Knowledge: It is a framework that focuses on the combination of teachers' knowledge of content and knowledge of pedagogy with knowledge of technology (Koehler & Mishra, 2005).

Self-efficacy: Individuals' beliefs about their capabilities required to accomplish specific performance achievements (Bandura, 1997).

1. INTRODUCTION

1.1. Introduction

This study aims to find out in-service EFL teachers' Technological Pedagogical Content Knowledge (TPACK) self-efficacy levels and their Web 2.0 competence and perceptions towards using Web 2.0 and explores the relationship between their TPACK self-efficacy levels and their demographic features such as age, gender, professional experience, educational level, school type, perceived digital literacy levels and previous INSET experience on Web 2.0 Technologies. The correlation between EFL teachers' TPACK self-efficacy and their Web 2.0 competence and perceptions is also the focal point of the study. In this respect, statement of the problem, purpose of the study, significance of the study, assumptions and limitations will be presented in this chapter of the thesis.

1.2. Statement of the Problem

Recently, the advent of innovative web-based technologies (also called Web 2.0 tools) and their appearance in academic realm put forth novel and valuable pedagogical opportunities both for teachers and students. Many researchers asserted that Web 2.0 tools offer a variety of web-based activities that permit teachers to create dynamic, stimulating and appealing educational atmosphere (Karkoulia, 2016; Kontogeorgi, 2014). The roles of language teachers and learners have been altered by the latest advances in modern technologies. Rather than being passive recipients, contemporary students have the inclination for participating in the educational process actively since modern instructional technologies give them the authority to manipulate their own learning. Incidentally, teachers are expected to be skilled and competent in designing and implementing technology integrated lessons and materials. Put another way, effective Web 2.0 tools integration in educational settings depends on teachers' ability to effectively exploit their digital competence and integrate these new set of technological innovations into their instruction by blending the learning content with technological skills.

Prior research suggests that using technology in ELT classrooms have a wide variety of potential advantages (Golonka et al., 2014), and the preponderance of teachers show favorable attitudes concerning the adaptation of Web 2.0 (Karkoulia, 2016; Majid, 2014).

However, it has been identified that Web 2.0 platforms are not comprehensively utilized in the classrooms, which shows that there exists a disparity between the promising potential of Web 2.0 technologies and the existent instructional practices (Ajjan & Hartshorne, 2008; Conole & Alevizou, 2010). This can be due to limited technology access in classrooms (Albirini, 2006), lack of digital self-efficacy (Ertmer & Ottenbreit-Leftwich, 2010); training (Karkoulia, 2016); technical support (Capo & Orellana, 2012); adequate time (Biancarosa & Griffiths, 2012) or technical and pedagogical knowledge (Hew & Brush, 2007). Similarly, some authors have suggested that inadequate knowledge of educational theories about how to design technology-driven educational environments might be an additional barrier (Albion, 2008; Attwell, 2007).

The notion that technology integration is not equivalent to viability of technology infrastructure at schools is becoming increasingly apparent. Instead, teachers are challenged to decide when and how to use the technology for instructional practices (Neal & Miller, 2006). Similarly, Voogt et al. (2013) maintain that fruitful technology incorporation takes place when apprehensive cooperation of content, pedagogy, and potential of technology is established. In particular, a teacher's mindset about their TPACK and their confidence about their technological competence is pivotal with respect to their effective technology adaptation in the classroom (Lee & Tsai, 2010).

A transformation in educational settings has gained momentum with the multifaceted use of technology for educational purposes in the last two decades. The field of language education has also benefited from this digital transformation. The novel advances in technology and digital devices pose challenges for the traditional way of language teaching by changing the way that the content is delivered. Namely, there are fervent calls for language teachers to utilize these new set of tools to maximize the quality of their teaching practices. However, a large body of research has shown that although the level of access to technology in classrooms has been elevated, the majority of teachers do not give enough room for instructional technology in their professional practice (Capo & Orellana, 2011; Ertmer et al., 2012). Koehler and Mishra (2009) maintain that teachers have a key role in adjusting technology to instructional practices. Moreover, Alimirzaee and Ashraf (2016) assert that it is imperative for teachers to embed technology into their Pedagogical Content Knowledge to construct a fruitful teaching environment and successful learning experiences among students. Thus, exploring EFL teachers' TPACK

self-efficacy beliefs is particularly essential. Although various studies have been conducted on technology integration in the realm of language education (Almekhlafi & Almeqdadi, 2010; Spiris, 2014; Yaratan & Kural, 2010), little research has been done to determine the interrelationship between in-service EFL teachers' TPACK self-efficacy beliefs and their Web 2.0 perceptions (Li, 2021; Mohammad-Salehi et al., 2021). On this basis, the purpose of the current study is to find out TPACK self-efficacy perceptions of in-service EFL teachers and to reveal the relationship between participants' TPACK self-efficacy and their demographic features. This study also aims to explore the correlation between EFL teachers' TPACK self-efficacy and their Web 2.0 perceptions.

1.3. Purpose of the Study

With the preceding background knowledge, the current study serves several purposes. The principal focus of the study is to investigate the TPACK self-efficacy beliefs of in-service EFL teachers and their Web 2.0 competence and perceptions. Furthermore, this study aims to reveal any possible relationship between participants' TPACK self-efficacy beliefs and their demographic features. Then, the research attempts to reveal whether or not TPACK self-efficacy beliefs determine the participants' decisions to utilize Web 2.0 tools. Finally, the current research is an attempt to investigate EFL teachers' opinions about the advantages of Web 2.0 technologies in language teaching and the impediments they experience during the implementation of Web 2.0 tools for the instructional purposes. At this point, this study can shed light on the self-efficacy beliefs and perceptions of in-service English language teachers pertaining to the integration of instructional technology and offer implications for teacher training programmes.

To this end, the following research questions were addressed:

1. What are the TPACK self-efficacy levels of in-service EFL teachers?
2. Is there a meaningful relationship between in-service EFL teachers' TPACK self-efficacy levels and their demographic variables such as:
    a) gender,
    b) age,
    c) professional experience,
    d) educational level,
    e) school type,

f) previous digital literacy level,

g) previous INSET experience on Web 2.0 Technologies.

3. Is there a relationship between in-service EFL teachers' TPACK self-efficacy levels and their Web 2.0 perceptions and competence?

4. What are in-service English language teachers' views on the advantages and challenges of integrating Web 2.0 tools into foreign language education?

1.4. Significance of the Study

The steady progression in technology and the rapid proliferation of information and communication technologies have reshaped many facets of the society since the onset of the new century. In line with this transformation, the nature of education has dramatically evolved with the incorporation of recent technologies into educational settings. In other words, conceptions related to teaching and learning processes like acknowledged roles, skills and competences of the teachers, the students' learning styles and the quality of teaching have been challenged by the emergence of a myriad of innovative instructional technologies. Information and Communication Technologies (ICT) and web-based resources have been progressively benefited in educational environments in recent years due to their ease of access and free authentic materials these technologies provide (Motteram & Sharma, 2009). In an effort to adress the educational needs of contemporary learners' and to exploit the promising potential of instructional technologies, ministries and institutions of the countries have initiated projects in order to assure that these technologies are fully capitalized on by teachers and students. The Ministry of National Education (MoNE) established the FATIH (Movement of Enhancing Opportunities and Improving Technology) project in 2010 in Turkey in order to ensure equality in education and to develop the technological infrastructure of schools (MONE, 2012). MoNE announced Turkey's Education Vision 2023 document in 2018. This document declares that digital infrastructure activities will continue without losing pace, and the technology capacities of the schools will be further enhanced. Regarding foreign language education, the document announces that one of the major objectives is to support English language instruction with online learning environments and mobile technologies (MONE, 2018).

Given the fact that technology infrastructure is well-established in most of the Turkish public schools, teachers are offered a wealth of opportunities to create effective teaching

environments and to modify their instruction in line with their students' needs. Among these, Web 2.0 tools, which offer fresh and exciting avenues both for students and teachers, have bred new scopes in educational field. Student publication, active learning, and social learning are among the reported affordances of Web 2.0 tools, which can reshape the educational environments with the numerous amenities they present (Albion, 2008). Several researchers (e.g. Ferdig, 2007; Yuen et al, 2011) have agreed that Web 2.0 will bring on a transformation in educational settings thanks to their practicality, open nature and capacity for interaction, and will modify the way that educational material is presented to students.

Within the domain of language education, it appears that Web 2.0 tools have been employed for a wide variety of reasons such as promoting linguistic skills and creating collaborative learning environments (Kavaliauskiene & Anusienė, 2009; Özel, 2013). In addition, with the pervasiveness of the internet and the Web 2.0 technologies, students' experiences with foreign languages are not confined to their textbooks or immediate environment. Namely, language learners get valuable opportunities to communicate with native speakers in various online communities and their learning is assisted by authentic and meaningful materials provided by these innovative platforms.

The steady advancement of modern technology has had a substantial impact on the traditional roles of the teacher within their teaching environments. Educators are now facing a challenge in that they have to redesign their teaching environments in accordance with the needs of the 'digital natives', as Prensky (2001) stated. Prensky (2001) argued that as they have been exposed to various technological instruments of the modern age like computers, videogames and cell phones for most of their lives, today's students do not perceive and manipulate information as their predecessors do. Furthermore, Prensky (2001) argues that academic institutions and teachers are demanded to reshape their perspective in accordance with the requirements and competencies of digital natives. Wells et al. (2008) have claimed that teachers' teaching practices and learners' learning ways have notably shifted utilizing technological advancements. Similarly, Motteram and Sharma (2009) posit that it is pivotal for teachers to be cognizant of learners' needs and desires and broaden their expertise and skillset respectively so that they can stay up-to-date with modern trends. There has been a prominent shift in language teachers' practices in that language teachers encounter new demands for embracing these technologies and

reforming their pedagogical practices by incorporating technology into teaching content as a means to respond to the instructional requirements of contemporary language learning environments.

Considering the fact that the salient responsibility in the employment of educational technologies in classrooms belongs to teachers, the fruitful implementation of technology into education depends greatly on how efficiently teachers use these technologies for teaching. Farjon et al. (2019) claim that technology integration is more than just merging technology into teaching. Similarly, Dare et al. (2016) state that simply equipping classrooms with technological devices and disregarding teachers in this process result in an insufficient integration of technology. Alimirzaee and Ashraf (2016) point out that instructors are obliged to attach technology to their Pedagogical Content Knowledge to establish an eminent teaching environment. More precisely, teachers are required to be equipped with the necessary skills and competences in order to merge technology into their teaching process successfully.

TPACK was built on Shulman's (1997) notion of Pedagogical Content Knowledge (PCK). Shulman's PCK framework was fundamentally centered on how pedagogy and content are affiliated with teaching process. Considering the emergence of digital instructional technologies and their widespread employment in educational realm, Mishra and Koehler (2006) proposed that technology should be included as a third component in PCK; therefore, they developed a new framework called TPACK and explicated the vibrant interconnections among content knowledge (CK), pedagogical knowledge (PK) and technological knowledge (TK). TPACK framework is composed of three major components: content knowledge, pedagogical knowledge and technological knowledge and their intersections indicated as pedagogical content knowledge (PCK), technological pedagogical knowledge (TPK), technological content knowledge (TCK) and technological pedagogical content knowledge (TPACK). (Koehler & Mishra, 2005; Mishra & Koehler, 2006).

There are many studies about EFL teachers' perceptions and attitudes towards ICT and internet use (Shin & Son, 2007; Şahin-Kızıl, 2011) and Web 2.0 tools (Cephe & Balçıkanlı, 2012; Karkoulia, 2016). As for the TPACK, there are numerous studies which give prominence to pre-service EFL teachers' TPACK competency (Öz, 2015; Solak &

Cakır, 2014) and perceptions of pre-service EFL teachers' perceptions towards TPACK (İşler & Yıldırım, 2018; Köse, 2016). Although the studies exploring the perceptions of EFL teachers towards TPACK and Web 2.0 are abundantly found in the literature, the research that highlights the relationship between in-service EFL teachers' TPACK self-efficacy beliefs and their perceptions towards Web 2.0 technologies are inadequate. Furthermore, teacher's perceptions about TPACK are of paramount importance for the technology implementation in the classroom since they are acknowledged primarily responsible for the strategic decision about when and how to utilize technology. To this end, it is important to determine the relationship between their TPACK self-efficacy beliefs and Web 2.0 perceptions. Previous studies have revealed that teachers' TPACK are influenced by demographic features of the participants (Markauskaite, 2006; Teo, 2008). Hence, the current study aimed to reveal in-service EFL teachers' TPACK self-efficacy levels and their Web 2.0 competence and perceptions and explore the relationship between their TPACK self-efficacy levels and their demographic features such as age, gender, professional experience, educational level, school type, previous digital literacy level and previous INSET experience on Web 2.0 technologies. Furthermore, the study investigated the correlation between EFL teachers' TPACK and their Web 2.0 perceptions. Overall, this study can contribute to policy-makers, teacher educators and stakeholders in terms of successful integration of technology into instruction.

1.5. Limitations

It is crucial to mention the limitations of the current study and interpret the findings of this research bearing its potential limitations in mind. The context and nature of the sample were among the limitations of the study. 227 in-service EFL teachers working in public schools in Isparta, Turkey constituted the sample of the present study. Hence, generalizability is limited to in-service EFL teachers in similar contexts. In addition, in terms of qualitative data collection, only 7 EFL teachers became volunteer for the semi-structured interviews, which would be considered as a limitation to the representativeness and generalizability.

Furthermore, an online survey was employed to collect the quantitative data. The link for the online survey was distributed to the participants via e-mail or online instant messengers like Whatsapp and Telegram. In line with that, it was probable that the study

link could not reach the teachers who did not use online instant messaging applications or email and they were not able to take part in the study. Therefore, the participants of the study can be acknowledged as active users of digital technologies and the findings should be elucidated with that in mind.

This study is limited to in-service EFL teachers' perceived self-efficacy beliefs towards TPACK and Web 2.0 technologies instead of objective measurements and observations that reflect their TPACK levels and actual application of Web 2.0 technologies.

2. CONCEPTUAL FRAMEWORK AND RELATED STUDIES

2.1. Computer Assisted Language Learning (CALL)

Language instructors have experienced radical changes in the way languages are taught since the second half of the 20th century (Warschauer & Kern, 2000). The recent developments in technology have profoundly affected every domain of life. One of the greatest impacts that the continued advancement brought on by technological developments has occurred in the educational realm. Language education is a field that has apparently utilized the integration of current technologies. The penetration and considerable progress of the technology have ultimately ushered in the genesis of Computer Assisted Language Learning (CALL) in teaching and learning languages.

There are numerous definitions of CALL proposed by practitioners. Levy (1997) defined CALL as the endeavour to utilize computers in language teaching and learning. The definitions for the term have evolved in accordance with developments in the technology in time. According to Chapelle (2010), for example, CALL comprises diverse applications of technology such as CD-ROMs consisting of interactive media, reference materials such as online dictionaries and communicating in the target language via online platforms. In its simplest terms, CALL is a language learning or teaching activity performed with computers (Schofield, 1995).

CALL took on different purposes and uses in time as a by-product of changing and advancing technologies and functional employment of educational technology in language classrooms. Warschauer (1996) categorized CALL in three phases as follows;

a. Behaviorist CALL which ranged from 1970s and 1980s and provided repetitive language drills. Warschauer (2002) asserted that computer had a role of "tutor" for language learners in behavioristic CALL.
b. Communicative CALL which focused on fluency and encouraged language learners to produce authentic conversations instead of performing ready-made dialogues. Warschauer posits (2002) that during this period the role of the computer was revised to perform as a tool.

c. Integrative Call which was adopted in the early 21st century with the emergence of multimedia and World Wide Web. This type of CALL allows learners to take advantage of various technological tools and adresses all language skills through technology integration into language learning.

The benefits of using CALL in language classes have been touched upon by many researchers. Adding a computer component to language instruction has a diverse range of benefits such as providing feedback, creating opportunities for pair/group work, individualized teaching and authentic materials, enhancing analytical learning, and motivating learners (Warschauer & Healey, 1998). Moreover, CALL programs aid learners to liberate from a single source of information in language learning process (Lee, 2009).

Öztürk (2013) categorized potential advantages of CALL in language learning into 5 groups as follows:

a) Affective factors; Interest and Motivation

CALL programs contribute to language learners to reduce learning stress and anxiety in language learning through games and interactive activities.

b) Learners' differences leading to Individualization and Independence

CALL enables students to decide on which skills to develop and which course to study in accordance with their needs, interests and learning styles

c) Flexible Learning; free from Time and Place

Students are given opportunities to study, review and practice the materials without time and place constraints.

d) An Opportunity for Native Language Input

CALL allows learners to practice authentic language materials

e) Error Analysis and Feedback

CALL gives instant feedback and leads learners to make self-correction without causing any frustration.

It appears that there has been ample research in the literature which examine the use of CALL in the language classroom. Chun and Plass (1996) indicated that the verbal and visual systems in computer programs help overall comprehension of texts. In addition, a study conducted by Cunningham (2000) aimed to assess learners' perspectives about the

word processing experience in the EFL writing class. According to the results, 88 % of the 37 EFL learners who participated in the study stated that their writing capabilities were boosted when the computer was added to their writing practice. In their qualitative study, Bradley and Lomicka (2000) maintain that the computer-enhanced classroom can be used to encourage communication and collaboration on the condition that tasks are structured accordingly.

Teachers' and students' positive attitudes toward CALL have been well-established in the literature (Almekhlafi, 2006; Park & Son, 2011). In a recent study conducted by Baskaran and Shafeeq (2015), English language teachers' pedagogical and technological perceptions of CALL integration in English language teaching were investigated with 105 participants. The survey findings showed that English language teachers held positive opinions about the implementation of CALL in ELT. The research carried out by Öztürk (2012) examined university students' perceptions of CALL provided for them in lab classes at a state university in Turkey. Gathered from 236 participants, the data indicated that students perceived computer technology helpful for language learning and they were satisfied with the content and application of CALL program.

Following the appearance and the ubiquitous use of mobile devices since 2010s, the focus of educational technologies has started to shift from CALL and has given rise to a new approach in language learning and teaching arenas which is Mobile Assisted Language Learning (MALL).

2.2. Mobile Assisted Language Learning (MALL)

The production of compact and handheld smart devices in line with the recent technological advances has resulted in a shift from CALL to a new approach which is Mobile Assisted Language Learning (MALL). In a broad sense, MALL can be portrayed as the utilization of modern portable devices in order to support learning process. Similarly, Rahimi and Miri (2014) define the term as any language learning activity that occurs with the medium of portable devices. Namely, MALL can be deemed to be a sub-field of CALL which indicates the application of mobile technology such as mobile phones, smart phones, tablets, and personal digital media players that contribute to the language learning process. However, Kukulska-Hulme and Shield (2008) explain that

MALL varies from CALL in that it facilitates alternative ways of learning and emphasizes steady and spontaneous access and interaction with the help of portable tools.

Research has ascribed a number of affordances to MALL such as greater learner autonomy (Kukulska-Hulma, 2013), increased learner motivation (Palalas & Olenewa, 2012), enhanced language learning and immediate feedback (Chinnery, 2006), socialisation (Troussas et al., 2014) and collaboration (Naismith et al., 2004). Furthermore, Miangah and Nezarat (2012) state that MALL can be reckoned as an optimal solution to time and space impediments in language learning.

Previous research suggests that MALL has had various significant contributions to foreign language teaching. MALL supports vocabulary learning and practice (Lu, 2008), develops writing proficiency (Edirisingha et al., 2007), improves reading skills (Chen & Hsu, 2008), fosters learners' listening comprehension (Huang & Sun, 2010) and enhances students' speaking abilities (Hwang et al., 2016). However, despite all potential affordances MALL offers, there are various handicaps that hamper the capacity of the utilization of mobile devices in educational settings such as usability issues like small keyboards and small screen size. Limited availability of network access (Bachfischer et al., 2008), distraction of learners' concentration (Dolittle et al., 2009) and the expense of handheld equipments and services (DuVall et al., 2007) are other potential barriers that would impede learning process. Nevertheless, some scholars believe that the employment of mobile instruments can facilitate the language learning when possible obstacles are overcome (Stockwell, 2008; Thornton & Houser, 2005). In the light of the above-mentioned documentation about the benefits and limitations of MALL, it would be safe to argue that MALL could bring more affordances than constraints. Leveraged by steady developments in mobile technology, MALL presents promising potential for the students of the 21st century.

2.3. Internet

Internet communication across the world dates back to 1969 when the US Department of Defence established a special network for military purposes. Based on the concept for a 'web of information', Tim Berners-Lee, a computer scientist who works for CERN (The European Organization for Nuclear Research), introduced the World Wide Web (www)

in 1991 (Flake, 1996). Berners-Lee and his team established the first version of the web consisting of four basic elements: HTML, HTTP, a web server and a browser that are still used today. Marzano and Lizut (2019) described Internet as an enormous network that encloses thousands of individual networks all over the world. August (1995) suggests that the Internet is composed of a cluster of global computer networks that function as a medium for interaction and information transfer. Namely, the rise of online networks invalidates the borderlines among countries and assist people to interact and cooperate globally. Furthermore, the internet technology profoundly revolutionized the way data is collected, information is shared, and social relations are performed.

The rapid explosion of the internet since the last decade of 20th century has been dominating each and any aspect of life. Dudeney (2000) suggests that internet is the most important innovation with respect to communication since the invention of the printing books. The internet technology has progressively gained importance in education in conjunction with the new dimensions and opportunities that World Wide Web offers to instructional environments. Verdugo and Belmonte (2007) state that technology may assist the teachers to reach diverse range of contemporary media in order to reinforce and enrich the conventional educational materials. As a consequence of the ever-evolving nature of technology, the educational environments have gradually witnessed the recognition and acceptance of the Internet as an innovative instructional tool over the last decades. Goertler (2009) notes that the flexibility and accessibility that online computer technologies offer for teaching and learning are exploited by language learners and academic organizations.

The utilization of internet technologies in educational settings and language classes is a natural by-product of the penetration and proliferation of modern technologies with an accelerated speed. With its potential multi-dimensional uses in language classes, the employment of world wide web in language classes is a relatively fresh innovation (Saleh & Pretorius, 2006). Although the earliest web-based language learning materials became visible in the last decade of the 20th century, ELT teachers and language learners have not extensively incorporated the internet into language classes pending the early 2000s (Fidelman, 1997).

The Internet as teaching and learning tools has been exponentially expanding into EFL instruction since the beginning of 21st century owing to its promising potential. Therefore, it has become feasible for language teachers to effectively capitalize on the abundant resources on the Internet. Yang and Chen (2007) suggest that Internet promotes the linguistic skills of language learners along with the opportunity to reach to valuable online materials and get in contact with native speakers.

Many researchers suggest that the Internet, as one of the cornerstones in educational settings, can offer ample opportunity for language teaching and learning (Daugherty & Funke, 1998; Singhal, 1997). Emphasizing the wealth of pedagogical opportunities and the wide availability of real documents that Internet provides for both teachers and students, Dettori and Lupi (2010) state that Internet has become a privileged place for language learning. In the same line, suggesting that technology and education are closely connected, Singhal (1997) asserts that Internet can be used as a medium for authentic interaction and to acquire information from language resources for a range of purposes. Yang (2001) argues, access to the Web provides possible opportunities to promote students' proficiency in linguistic skills along with the skills for searching information and problem solving. Furthermore, Peterson (2010) suggests that the Internet creates multiple opportunities for students to become autonomous learners by accessing to up-to-date materials, to study at their own pace, to get immediate feedback and to enhance their listening skills with authentic learning resources. The ease-of-use and promising potential of visually attractive online materials available on the web enable teachers to create unconventional practices in the class.

The evidence that learners of foreign languages hold positive attitudes towards the utilization of Internet is well-established in the literature. In their study to investigate the potential of internet sites to complement in-class ESL/EFL instruction, Kung and Chuo (2002) indicated that most of the 49 participants' comments were favorable with regards to the implementation of ESL websites into language learning. Similarly, Aydın (2007) investigated the attitudes of foreign language learners' attitudes towards Internet with 115 participants from English Language Department of Balikesir University. The findings demonstrated that EFL learners appreciated the involvement of Internet into language classes and they reported that the Internet is a powerful gateway to get information and it is crucial for cultural exchange.

As for the EFL practitioner's views about the manipulation of web-based technology in language education, the relevant literature yields a plethora of studies. The study carried out by Khassawneh (2012) suggested that despite the fact that the majority of participants were prone to utilizing the Internet, the actual use of Internet in the classroom was restrained by a number of possible impediments such as overpopulated classrooms, lack of time, insufficient computer systems, problems related to classroom management and inadequate training.

In a similar vein of research, Shin and Son (2007) performed a study with secondary school EFL teachers in Korea with an aim to investigate EFL teachers' point of view regarding the use of the Internet for instructional purposes. The findings indicated that an appreciable number of teachers employed websites for teaching, mainly to develop educational materials. Another notable result put forward by the study is that despite their positive perceptions regarding the Internet usage in EFL context, teachers reported that they were perplexed about choosing proper teaching materials and merging online materials into their practices.

Similarly, Al-Mekhlafi (2004) conducted a study with 250 participants in an attempt to examine the incorporation of Internet into language teaching from the perspective of EFL teachers. The findings indicated that despite teachers' close acquaintance with modern educational technologies and their inclination to adapt the Internet into their classes, the majority of the teachers were not actual users of the Internet in instruction.

In sum, it is safe to assert that the Internet can be accepted as a pedagogical tool which offers a plethora of new and exciting possibilities in ELT context. Rich and pertinent materials on the Web offer language teachers considerable convenience and support in their classes. Internet assisted language classes can enhance teachers' effectiveness and facilitate their teaching practice. With the innovative insights and ways that online technology has brought to language education, Internet can play a potentially substantial role to help students engage in a meaningful authentic learning environment. Additionally, it enables learners to further ameliorate their linguistic skills by taking advantage of the instantaneous reach to broad-ranging resources in the target language. Besides, the involvement of the Internet in language learning has increased learner

autonomy and motivation, enhanced critical thinking skills and offered opportunities for collaborative work. Therefore, combining Internet technology with the teaching habits in the language classroom has become a central issue for language teachers.

2.4. What is Web 2.0?

The first-generation web, also referred to as Web 1.0 technology, primarily provided 'one-way' communication between the users and the creators of content. This version of the Internet was characterized by read-only format that allowed users only to view and read information on the Web (Wang & Vasquez, 2012). Visitors of web pages were inactive recipients of the content (West & West, 2009), which was presented by a group of people who had the technical expertise (Goertler, 2009). That is, in Web 1.0 phase of the Internet, users were only confined to gather information from the static web pages without any opportunity to add or edit any content to the material on the web page.

The explosion of new advances in ICT beginning since the onset of the 21st century has facilitated the evolution of the www and has assisted the publication of a next generation web-based services, collectively known as Web 2.0. The term 'Web 2.0' was germinated by Tim O'Reilly in 2004 in an attempt to identify the transformation of Web. However, Web 2.0 has defied a consensus on a singular and widely-agreed upon definition since the popularization of the term by O'Reilly. Anderson (2007) argued that Web 2.0 may be perceived diversely depending on whom you ask. Similarly, O'Reilly (2005) noted that Web 2.0 technology does not convey the same meaning for everyone; it can either be used for self-improvement or to develop occupational qualifications, or it can also be utilized merely for social interaction contingent upon users' individual interpretation.

The literature comprises ample definitions of the term Web 2.0. McLoughlin and Lee (2007) identify Web 2.0 as more individual and social form of the Internet that gives prominence to dynamic involvement, cooperative interaction and knowledge transfer among web users. Focusing on the interactive nature of Web 2.0 technologies, Butler (2012) explains Web 2.0 as a broad range of online software by which users can construct content collectively and interact with other global users of the web. In a similar vein, Anderson (2007) indicates that Web 2.0 is a participatory platform where users get involved in contribution and rearrangement of the information. O'Reilly (2005), often

credited as coining the term, established a description for the term as a set of regularly upgraded software applications which allow individual users to exploit and modify the data obtained from various resources and offer a wealth of valuable digital experience. Therefore, although the term was defined from different angles by numerous scholars, it is safe to suggest that there is a concurrence that generating and publishing content, knowledge sharing, user participation, collaboration along with interactivity are among the distinguishing aspects of Web 2.0 tools.

O'Reilly (2005, p. 1-5) listed the seven principles behind the concepts of Web 2.0 design, including:

1. The Web as a Platform

Web 2.0 technologies are available on the Internet regardless of spatial and temporal constraints and need no additional software to operate.

2. Harnessing Collective Intelligence

In contrast with Web 1.0, which was individualistic by nature, Web 2.0 tools provide users with the opportunity to create and add content to the websites.

3. Data is the Next Intel Inside

Data management has become a key factor in the design of Web 2.0 owing to its features that enable users to generate and share information.

4. End of the Software Release Cycle

Web 2.0 applications are regularly monitored and updated over the web. As a result, a user does not have to wait for new product releases.

5. Lightweight Programming Models

Programming models for Web 2.0 applications take advantage of ~~of~~ new web technologies that allow applications to be re-coupled or reproduced easily with new functionalities.

6. Software above the Level of a Single Device

Users can gain access to Web 2.0 applications from multiple devices on the condition that they are connected to internet.

7. Rich User Experiences

The abovementioned definitions indicate that Web 2.0 is different from Web 1.0 in the way that users are endowed to play a dynamic role in the formation, editing and publishing of online contents (Kale & Goh, 2014). According to Goertler (2009), the

evolution of the internet from one-way data flow to a domain in which multiple users create and modify the online published materials contributes to the democratization of the Internet. On the same page with Goetler, Karpati (2009) claims that the change in the direction of the transmission of communication is the most remarkable facet of Web 2.0 technologies. To be more precise, the transformation of the Web from "read only" (Thompson, 2007, p. 1) to "read/write" (Thompson, 2007, p. 1) has altered the role of users from simple data consumers to dynamic producers of knowledge (Huffman, 2017).

Unlike the static pages of Web 1.0 in which multimedia and interactivity were limited, Web 2.0 brings about powerful interactive media functions thanks to introduction of new web technologies. Faizi (2018) notes that unlike Web 1.0 in which the content was produced by web specialists, Web 2.0 technologies do not demand any extensive amount of technical skills or publishing skills. In addition, thanks to their user-oriented and participatory aspects, users of Web 2.0 tools are empowered to practice 21st century skills such as creativity, critical thinking, problem-solving and collaboration. The comparison of Web 1.0 and Web 2.0 that was drawn by Solomon and Schrum (2007, p. 23) is presented in Table 1:

Table 1. Comparison of Web 1.0 and Web 2.0.

Web 1.0	**Web 2.0**
Application-based	Web-based
Isolated	Collaborative
Offline	Online
Licensed or purchased	Free
Single created	Multiple collaborators
Proprietary code	Open source
Copyrighted content	Shared content

Due to the ever-expanding nature of Web and the increasing number and diversity Web 2.0 tools that are available on the Internet, it is complicated to list these tools concisely. However, it is still possible to categorize a range of core Web 2.0 technologies available on the Internet. Some of the more widely recognized platforms tools include blogs, wikis, podcasts, RSS (Really Simple Syndication) feeds, social networking sites, microblogging and social bookmarking.

2.4.1. Web 2.0 in education

Education on a par with the other domains of the society has been revolutionized by the increased digitalization and unprecedented growth of Web 2.0 technologies over the past years. Initially originated without a relevance to education, the influence of Web 2.0 tools has become more apparent in educational context with the growing trend to incorporate these new interactive and socially constructed technologies in education. According to Gaffar et al. (2011), the popularity of Web 2.0 technologies has rapidly increased in recent years and they have altered the way how www is handled and have eventually penetrated into education. Web technologies offer diverse fresh options for students and teachers that are not identical to their former experiences in the past (Uzunboylu et al., 2011). Many researchers assert that thanks to the salient features proposed by Web 2.0 platforms, they bear profound potential as far as education is concerned (Ferdig, 2007; Yuen et al., 2011).

The arrival of the two-way Web (also known as read-write Web), accompanied by a variety of new technologies, have notably shifted teaching practices and the landscape of learning. Lemke et al. (2009) maintain that institutions that employ Web 2.0 as a pedagogical tool would elevate student commitment to school, differentiate learning settings for students, allow students to enhance their analytical thinking skills, broaden the education beyond the boundaries of school and create new ways for lifelong learning. Similarly**,** Klamma et al. (2007) noted that Web 2.0 tools sustain more fruitful learning and support constant development of knowledge.

The explosion of socially constructed and interactive Web 2.0 platforms has challenged the methodology of the Web 1.0 period and introduced teachers with novel ways to develop their pedagogical practices and to provide more collaborative and interactive learning environments for students. According to An and Williams (2010), web-based educational technologies facilitate more cooperative learning atmosphere, in which learners socialize, communicate and work as a team with other students from all over the world instead of getting knowledge from the tutors who are acknowledged as the primary source of information. It is evident that the design and the social nature of these innovative platforms bear a potential for educational settings.

Discussed from different perspectives abundantly in the literature, the utilization of Web 2.0 technologies in the field of education:

- empowers learners to connect, build, utilize, and make a contribution to data, multimedia, and software globally (Greenhow et al., 2009).
- enables learners to go beyond the closed framework of the classroom and allows individuals to convey their opinions accordingly with their time and preferences (Aşıksoy, 2008).
- assists the process of equipping learners with prerequisite skills for 21st century such as creative and inventive thinking, higher-order thinking, communication and teamwork (Karkoulia, 2016).
- permits learners to reach most updated and functional knowledge (O'Reilly, 2007).
- enhances creativity and enthusiasm in learning process (Kontogeorgi, 2014).
- provides alternative ways to go beyond traditional delivery patterns and develop learner centered individualized learning environments (Faizi et al., 2013).
- reduces the effort to access information and facilitate teamwork, social interaction, and feedback, which make them functional to use in educational settings (McLoughlin & Lee, 2007).
- enables individuals to possess the control of their learning and rearrange and reuse the content in accordance with their needs and interests (An & Williams, 2010).

2.4.2. Limitations of web 2.0 in education

Although studies conducted on the use Web 2.0 technologies in educational contexts have abundantly proven that these web applications have potential pedagogical advantages (Buffington, 2008; Solomon & Schrum, 2007), the related literature documented various disadvantages of implementing Web 2.0 in educational settings. For example, Drayton et al. (2010) conducted a three-year study and employed a mixed method design. The researchers investigated how technology is adapted by 14 high school teachers from three different high schools. The analysis of the data indicated that augmented pressure to find and integrate well-suited Web 2.0 tools that correspond the curriculum is one of the disadvantages of technology use in classroom. The study indicated that the evolving nature of Web technologies causes a challenge for teachers to identify, to learn how to

use and to evaluate the new resources and tools. The need for technical support, students' perspectives towards technology-integrated learning and lack of time were other frequently reported disadvantages of technology use by the teachers.

In a review paper on the educational use of Web 2.0 technologies in classrooms, Grosseck (2009) listed benefits and pitfalls of utilizing Web 2.0 tools in tertiary-level education. Although flexibility, easy and accelerated access to information, liberation from the platform, practicality and wide availability of Web 2.0 were listed as the advantages, the requirement for network connection and time, inadequate content quality, security concerns and complicated selection process due to exceedingly diversified technologies were among the impediments listed in the study.

Though a number of handicaps were documented in several studies, it is evident that the educational profits of Web 2.0 platforms prevail over their drawbacks. Nevertheless, these technologies need to be employed proficiently with appropriate methods and clear objectives in order to capitalize on their full potential (Reynard, 2009).

2.5. Web 2.0 in Foreign Language Education

The educational paradigm has become gradually digitalized in parallel with the transformation in modern technology and multimedia devices. The inclusion of technology into educational settings has grown new aspects and practices pertaining to the methodology of teaching and learning. By the same token, the unprecedented speed in the advancement of educational technology has led language pedagogy to employ a variety of technological innovations for the last decades. Starting from the second half of the 20th century, the field of language education has undergone exceptional innovations regarding language pedagogy (Kern & Warschauer, 2000). The emergence of modern technologies such as computer and Internet has given the opportunity to language teachers and learners to take advantage of highly digitalized language teaching and learning. According to Levy (2009), all of the major linguistic skills have benefited from the new opportunities brought by the emergence of recent technologies. The continual advancement in technologies has eventually ushered in the fresh infusion of Web 2.0 technologies in language classes.

Over the last decade, the Internet has altered the design that educational procedures are presented to students and has brought revolutionary and innovative learning technologies and alternatives that were not formerly available (Perikos et al., 2015). As an evolved form of internet, Web 2.0 offers valuable opportunities to elicit a better and richer language learning process owing to their practicality, viability, and versatility (Aşıksoy, 2018). The interactive and social nature of Web 2.0 has provided new learning environments in which learners become socially connected and participative, which, in turn, has widened communicative opportunities for language learners to engage with native speakers in an authentic social context (Ducate & Lomicka, 2008). In a similar vein, Simon (2008) asserts that Web 2.0 technologies bear tremendous potential for foreign language instruction as they are influential tools for social interaction.

The related literature presents a variety of diverse educational advantages of using Web 2.0 technologies in language classroom. To illustrate, Faizi (2018) states that Web 2.0 platforms hold the possibilities that can create more effective, interesting and enjoyable language learning or teaching process on the grounds of the social features they possess. Faizi also continues that Web 2.0 technologies provide experiences in which language learners can boost their language skills beyond the physical boundaries of the classroom and enhance their autonomy and lifelong skills. Furthermore, Morgan (2012) suggests that Web 2.0 tools enhance the opportunities to help language learners actively develop four basic skills: speaking, writing, listening, and reading. Some researchers noted that increased cultural knowledge and cultural competence are among the potential benefits that Web 2.0 yields (Jauregi & Banados, 2008; Lee, 2009). Overall, language teaching methodology has undergone a notable transformation with the penetration of Web 2.0 technology in language learning contexts (Warschauer & Grimes, 2007).

There are several studies in the literature highlighting the benefits of Web 2.0 platforms in language education. To begin with, it has been reported that incorporating Web 2.0 technologies into writing practices has positively impacted learners' overall writing skills (Ducate & Lomicka, 2008). In addition, many researchers have concluded that Web 2.0 platforms develop learners' speaking, reading and listening skills (Shishkovskaya & Sokolova, 2015; Watkins & Wilkins, 2011). Besides the favorable consequences on the development of linguistic skills, some researchers indicated that employment of these

technologies improves the levels of satisfaction, motivation and confidence of language learners (Pinkman, 2005; Yang & Chen, 2007).

There has been a wealth of research studies on different aspects of Web 2.0 tools in English language teaching over the last few years. To illustrate, Parvin and Salam (2015) conducted an action research with 23 teachers and 810 students in an attempt to put forward participant students' learning outcomes following the incorporation of e-content in the language classrooms and teachers' perceptions towards the incorporation of technology into their teaching. The teachers and students were provided with flash-based e-content that consisted of interactive English lessons. The data analysis revealed that students became attentive and excited through the use of the technology in the classrooms. It was also reported that technology integration in language classrooms improved students' listening, reading and speaking skills, enriched their vocabulary knowledge and created a more enjoyable learning environment.

Furthermore, Wang and Vasquez (2012) carried out a review study to identify the literature that majored in Web 2.0 and the second language (L2). The researchers explored seven databases and listed 43 empirical studies between 2005 and the first quarter of 2010. They found that the implementation of Web 2.0 platforms in language classrooms assists in designing relaxing, participatory and social learning atmosphere. The results also indicated that Web 2.0 technologies increase interaction and cooperation among learners, promote learners' interest and motivation in language learning and broaden their cultural awareness and cultural competence. Similarly, Luo (2013) implemented a review study and listed the educational advantages of the utilization of Web 2.0 in language-specific framework such as facilitating group-learning, elevating performance and promoting self-awareness of learning.

The research studies conducted in the Turkish context have yielded similar findings. Several researchers indicated that various Web 2.0 tools have improved languge learners' academic writing skills (Kavandı, 2012; Şahin Kızıl, 2015). In addition, both parties of foreign language education have been reported to maintain a positive mindset with respect to Internet and Web 2.0 utilization within the language classes (Özel & Arıkan, 2015).

The mixed method study by Küfi and Özgür (2009) investigated the perceptions 200 first-year students about the utilization of interactive web environment in English courses. According to the findings of the study, the majority of the students appreciated the use of interactive web environment in their language classes and they think their linguistic language skills can be improved through interactive Web 2.0 tools.

Furthermore, Cephe and Balçıkanlı (2012) conducted a study to analyze the perspectives of 139 participant student teachers in an ELT program in Turkey about the infusion of Web 2.0 technologies to the language learning contexts. The findings of the research suggest that the participants considered Web 2.0 technologies as innovative mediums for enhancing interaction and motivation, increasing student engagement in the educational process, improving cognizance towards digital literacy and developing their qualifications related to their future profession.

The following section comprises the detailed features of most commonly used Web 2.0 tools; blogs, wikis, podcasts, and social network sites.

2.5.1. Wikis

With cooperative features they offer, wikis are among the most popular Web 2.0 tools that captivate users' attention in web-based platforms. A Wiki is a collaborative web-based environment that permits to build an array of pages on the web, contribute and revise ~~to~~ the online content, provide feedback, observe and monitor the changes and publish information online with minimal technical skills (Ahmadi & Marandi, 2014). The term "wiki" originates from the Hawaiian word "wiki wiki" meaning "fast" or "quick". Wikis are similar to blogs. However, the major difference between wikis and blogs is that the former permits users to edit or contribute to the content. Empowering the users with both reader and author privileges, a wiki can provide a flexible and effective medium for knowledge construction and exchange.

Wikis have progressively attracted attention in educational settings with the collaborative and communicative environments they offer. The ease of use or the transparency of the interface, the capability of creating hyperlinks, the use of the discussion area for reflection, and the ability to track prior changes are some features that make their use

appealing in educational contexts (Achtermann, 2006). With the help of Wikis, teachers are able to organize knowledge for learners and students are empowered to produce the knowledge collectively (Bower et al., 2010). Due to their organizational features and the pedagogical affordances, wikis can develop students' social skills and empower them to construct knowledge through presenting and sharing ideas, to exchange materials, to think analytically and to work as a team (Roussinos & Jimoyiannis, 2011). According to Baird and Fisher (2005), a wiki provides a student-centered learning atmosphere in which it becomes possible for learners to work alongside others and collaborate on evolving ideas and projects. Duffy and Bruns (2006) underlined several uses of wikis in educational settings that include development of research project, building annotated bibliographies, sharing reflections, group authoring, creating summaries and brainstorming.

The promising educational potential of wikis has also been acknowledged in foreign language education (Franco, 2008; Godwin-Jones, 2003). Wikis can transform the traditional approach of presenting the course content and provide a learning process in which autonomy and responsibility of the learners in the construction of information and peer interaction are promoted (Kessler, 2009). Wang et al. (2013) suggest that wikis can encourage communication with the help of authentic input and social interaction and provide opportunities to use the target language and get feedback from native speakers. Lin and Yang (2011) maintain that compared to traditional learning processes, the Wiki-based English writing projects may enhance learners' grammar and collaborative writing skills, promote student-to-student communication, and motivate students to reflect upon themselves through peer interaction. Kovacic et al. (2007) discuss that the innovative nature of wikis can promote interactive and student-centered learning, which can lead to improvements in their language skills.

The employment of Wikis in language education has been amply investigated in research studies. For example, Kost (2011) carried out a study to investigate the utilization of wikis for collaborative writing projects. The findings demonstrated that learners held favorable perceptions towards the involvement of wikis in their writing sessions. Similarly, Franco (2008) explored the use of Wikis in a collaborative and cooperative writing process. The findings revealed that taking part in an online community attracted the students' interest, developed social skills such as cooperation and improved their writing skills. Furthermore, Chen (2008) investigated the potential of applying wikis in language

learning with respect to students' educational outcomes and their perspectives towards language learning. According to the findings, statistically significant differences in language performances of the students were observed between the groups in which wikis were used and the one that did not use wikis. The group that applied wiki displayed better performances in listening and reading and improvement in the target language was observed. Additionally, the students in the wiki group indicated more positive attitudes towards the class and they felt comfortable in wiki environments.

As for the Turkish context, Şahin-Kızıl (2015) investigated whether the inclusion of wikis into an English writing course had an influence on students' writing performance. 17 of 37 participating students got involved in the control group in which process-oriented writing instruction was implemented while 20 students in the experimental group used wiki tools during their writing process. The findings collected through pre-test and post-test writing performance of the students demonstrated that using wikis encouraged the participants to take part in the writing process effectively and their overall writing performance was positively affected.

In their study, Aydın and Yıldız (2014) explored the impact of wikis in group writing tasks in foreign language learning classrooms. 34 intermediate level university students participated in the research and the participants were asked to work in groups of four and complete three different wiki-based writing tasks. In order to elucidate participants' overall experience with respect to the implementation of a wiki-based collaborative writing activity in the process of language learning, focus-group interviews and questionnaires were performed ensuing the assessment of students' wiki pages. The results of the study suggested that participants had positive views on utilizing wikis in writing and they reported that their writing performance and skills were improved.

2.5.2. Blogs

As the innovative aspect of technology has become a contributing element within the educational realm, various Web 2.0 technologies are becoming increasingly popular in educational settings. Blogs are among the many frequently employed used tools in educational contexts (Pardamean & Susanto, 2012).

Blog, which is an abbreviation of "web log" (coined by Barger in 1997), is an online journal or diary on which an individual can record their opinions and experiences or make frequent entries on a specific topic that are presented in a chronological order. Taguchi (2006) defines blogs as free individualized journals published online in chronological order to convey their ideas. Besides the text-based content, blogs enable the owners of the blog –the bloggers- to add videos, images and other multimedia files as well. Since their first emergence at the end of the 1990s, blogs have become ubiquitous and used for various purposes because they allow instant and easy publishing due to their simple interface (Zhang, 2009).

Williams and Jacobs (2004) maintain that blogs have the capacity to reshape teaching and learning practices. Godwin-Jones (2003) acknowledges that owing to the advantages offered by blogs such as interactivity, practicality, creativity and flexibility, these platforms can be applicable for instructional purposes. According to Chang et al. (2012), blogs reinforce students to exchange ideas and to discover novel notions and new fields of interest within a flexible platform.

Blogs are considered to be useful tools for language teaching since they can provide a genuine audience (Ward, 2004); afford students with a sense of pride and ownership (Lee, 2009); encourage learners to be more creative writers (Bloch, 2008); expand opportunities to interact in the target language (Miceli et al., 2010); stimulate reading and motivate learning (Yang, 2009); establish an authentic space for education (Noytim, 2010) and promote student learning (Williams & Jacobs, 2004). Pinkman (2005) states that blogs allow language learners to interact in an authentic context where they are given the chance to comment and review the content.

Previous research suggests that the use of blogs develops learners' reading and writing skills. For instance, in their quasi-experimental study, Arslan and Sahin-Kızıl (2010) investigated the results of employing blogs in writing instruction on students' writing achievement with 50 participants. The results of the research demonstrate that the writing performance of the students using blogs in their writing classes was more favorable than those students who merely pursued in-class writing instruction. In a similar study conducted by Kazancı and Caner (2020), the contribution of a blog-enhanced writing course to the learners' writing skills was investigated. The findings indicate that

embedding blogs into writing instruction ameliorated learners' writing skills. The researchers also stated that increased motivation and peer collaboration are additional positive outcomes of the employment of blogs in writing courses. Pinkman (2005) explored the the efficacy of including blogs in the foreign language classroom and suggested that integrating blogs in language learning process assisted in establishing an encouraging atmosphere to use the target language and broadened reading and writing skills of the learners.

2.5.3. Podcasts

Podcasting is another prominent Web 2.0 platform favored by individual users. A podcast is an online media file that can be replayed on a computer or on a variety of handheld media players. The term 'podcast' was formed by amalgamating the words 'iPod' (brand for a portable media player)' and 'broadcast' and it was first introduced by BBC journalist Benn Hammersley in 2004 (Hammersley, 2004). Podcasting can be described as generating an audio or a video file, transferring the file to a web page and distributing of digital media files using RSS feeds, which enable users to get information about new content as they become available (Lee, 2009). Furthermore, internet users with a computer or a mobile gadget can easily create or listen to a podcast at their convenience, which presents flexibility and practicality.

The educational potential for podcasts appears to be vast since they support dynamic and innovative instruction, and create opportunities for learners to control their learning (Palenque, 2016). Podcasts have been integrated in traditional instructional practices by either recording the lectures or catering the students with supplementary materials to listen at their convenience outside of the classroom (Copley, 2007). Donnelly and Berge (2006) list the benefits of podcasting in education as: communicating orally creates greater personal attachment; podcasts provide new opportunities to become independent learners; they permit learners to concentrate on other tasks simultaneously while listening to the portable files and train beyond traditional classroom environment. Podcasts improve students' motivation and promote more self-regulating and self-directing learners (Cooper, 2008); contribute to students who have diverse educational needs (Copley, 2007) and raise a sense of affinity (Van Zanten et al., 2012).

Podcasting has turned out to be an appealing medium in foreign language education as well due to aforementioned benefits. Including extracts from real life situations, podcasts can also create valuable opportunities to discover the target language without any spatial and temporal boundaries, and to listen to authentic recordings on any convenient device with their flexible and cost-effective format. Besides, podcasts enable students to record and publish their own talks, which provides avenues to produce meaningful output in the target language, to enhance students' pronunciation and to promote their speaking ability. Rosell-Aguilar (2007) states that from language learning perspective, podcasts can support language learners with diverse learning styles and they can offer worthwhile activities to improve their grammar, vocabulary and pronunciation along with the chance to delve into the culture of the target language. In addition, O'Bryan and Hegelehimer (2007) express that the motivation of learners is increased and their listening comprehension is improved through the use of podcasts.

Previous research indicates that podcasts have the potential to develop learners' language skills. The study carried out by Lebron-Lozada (2012) concluded that the use of student-produced podcasts improved learners' accuracy in speech and assisted them to develop their communicative capabilities and pronunciation. Alm (2013) investigated the potential of podcasts with 28 participants. The results revealed that participants favored the chance to select the collection of audio files to listen and were capable of combining them with their individual listening practices. Kavaliauskienė and Anusienė (2009) carried out a study to investigate students' opinions about listening to podcasts. The participants were the 1st year full-time students of two different specializations. The findings indicated that 76% of the participants appreciated the use of podcasting as a means to develop listening skills.

2.5.4. Social network sites

Social Networking Sites (SNS), a revolutionary innovation featured by Web 2.0 technology, are flourishing in the world and are becoming new platforms for communication. A social network is an online platform where users with common interests and opinions get together. Social networking sites have created interactive virtual networks which allow users to connect and share their ideas, photos, videos, and events with people from all over the world without any geographical barriers. Today,

there are plenty of social networking sites, encompassing various technological and social affordances that have modified the communication, interaction and collaboration among users.

The "Digital in 2021" report published by We Are Social and Hootsuite (Data Reportal, 2021) presents the statistics related to social media usage in the world. The report reveals that 4.20 billion of 4.66 billion internet users in the world are active social media users. According to the report, there are 60 million active social media users in Turkey, which is the 70,8 % of the population (Data Reportal, 2021). Figure 1 illustrates that the most commonly preferred social networking websites in Turkey are YouTube, Instagram, WhatsApp and Facebook respectively. Bearing the usage rate of social media platforms in mind, it would be safe to imply that these applications may be beneficent for educational use.

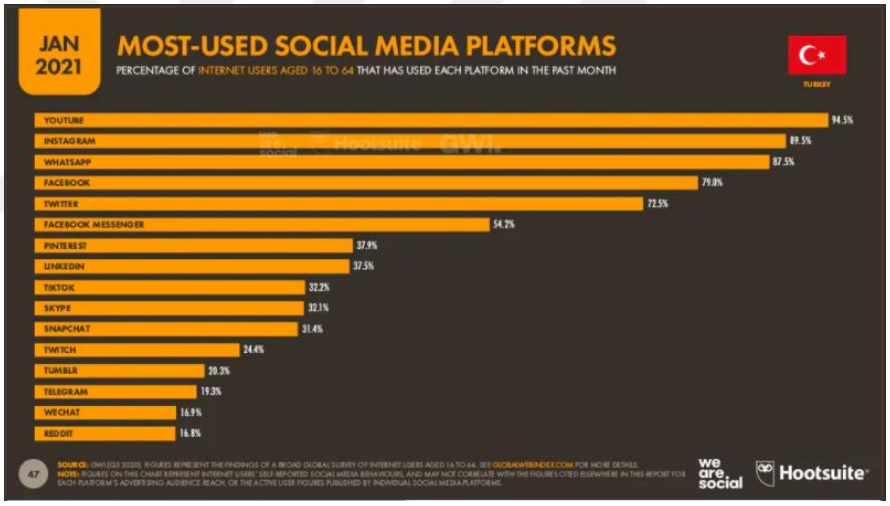

Figure 1. Most-frequently used Social Media Platforms (Data Reportal, 2021)

As for the educational context, according to Duffy (2011), social network sites stimulate users to design activities in cooperation on the Internet. Furthermore, social networks have the potential in teaching and learning because these technologies are already used by many students for socialization and communication and they empower students to come together and participate into networks of learning in accordance with their interests which is not frequently taken into account in their immediate educational settings. According to Donmus (2010), social network sites bring dynamism to learning with its features that enable change and interaction.

As for language education, social networking sites create promising opportunities for teachers and learners. The involvement of social networking platforms in language education enables language learners to engage in intercultural communication (Alvarez Valencia, 2016); offers authentic settings to maintain genuine communication with native speakers and to practice language skills (Liu et al., 2013); facilitates language learning (Stevenson & Liu 2010); generates meaningful output and arouses attentiveness in language learning context (Chartrand, 2012) and enhances motivation and language performance (Blattner & Fiori 2009).

Ota (2011) examined the SNS communities which are convenient for L2 learners of Japanese. According to the findings, social network communities provide wider communication possibilities by expanding users' interconnection with peers on the same platform. It is also stated in the study that SNS present safe portals in which second language learners access additional and natural information and sources in the target language (Ota, 2011). Yunus et al. (2012) carried out a study with fifteen third-year Teaching English as a Second Language (TESL) students to explore the positive and negative aspects of implementing social networks into ESL writing classroom. The results indicate that students' widened knowledge, boosted motivation and confidence in learning ESL writing were reported as the benefits while distracted concentration of users, deficiency in necessary infrastructure, and teachers' insufficient interaction with the students due to time restraints were stated as the major impediments.

2.6. Web 2.0 and the Changing Roles of Students and Teachers

With the emergence and the widespread use of technological innovations in the 21st century, the impact of modern technologies has become prevalent in educational sphere as well. The nature of education has undergone a profound evolution along with implementation of contemporary computer technologies and new generation of Internet into educational settings, which remarkably altered teachers' teaching practices and the way students learn. Current advances in the educational process, due in part to the arrival of two-way Web, has modified the pedagogical role of the learners and the teachers in the third millennium and both learners and teachers have been challenged by the advent of these recent technologies.

The proliferation of instructional technologies and the elevation of the second generation of WWW are reshaping how students search, obtain and comprehend the data (Greenhow et al., 2009). The classrooms are filled with 21st century learners who are proficient in Web 2.0 and they use these services to communicate, create, and share information (Cheon et al., 2010). Prensky initiated 'digital natives versus digital immigrants' notion claiming that contemporary students are divergent from earlier generations in that today's students ponder and treat knowledge dissimilarly (Prensky, 2001). Several other sobriquets such as 'NetGen' (Oblinger & Oblinger, 2005, p. 13); 'Net Generation' (Tapscott, 1998, p.2); 'Millenial Generation' (Greenhow et al., 2010, p. 63) are used to describe today's technology-savvy learners. Rosen and Nelson (2008) suggest the term *Web 2.0 students* and identify these students as a new generation of learners who are avid users of modern technologies and do more than simply consuming information. Tapscott (2009) asserts that conservative model of pedagogy has been compelled to change by the contemporary generation and teacher-centered approach is being replaced with student-centered model. Today, Web 2.0 applications have been adopted and increasingly used on a regular basis by the 'digital natives' (Pence, 2007).

Through the exponential growth in prominence Web 2.0 technologies, accompanied by a raft of assets that expand the way to communicate, learn, construct and access knowledge, students are offered new opportunities to be dynamic, autonomous and creative in their learning process. According to Heafner and Friedman (2008), Web 2.0 technologies stimulated a shift from traditional teacher-centered approach to learner-oriented pedagogy and made it possible for learners to become equal partners in the classroom instead of being inactive recipients of information. West and West (2009) state that modern students have remarkably experienced Web 2.0 technologies throughout their lives and they expect more than one-way communication that traditional learning environments present. Similarly, Dede et al. (2007) suggest that as contemporary learners get involved in multidimensional and interactive learning opportunities apart from their immediate learning environment, they acknowledge regular formal education as dull and monotonous.

Since the daily lives of modern learners are pervaded by technology, it has become indispensable for teachers to keep up the pace with their students and reformulate their pedagogical strategies and instructional delivery modes so as to trigger collaborative and self-directed learning. In this regard, according to Richardson (2006), Web 2.0 services are able to reduce the imbalance that exists between students and teachers because they can easily be utilized in the class without any technological expertise.

The attainability and employment of Web 2.0 technologies as instructional tools have become more pervasive in the 21st century school context. According to Solomon and Schrum (2007), as students have adjusted themselves to the developing world, traditional education system will not able to accomplish to educate students of the contemporary times. Teachers have encountered new challenges owing to the expanding possibilities of the technology (Albion et al., 2015). The decentralized and collaborative nature of Web 2.0 platforms have reshaped teachers' roles in the classroom. As Tinio (2003) suggests, owing to the notable shift in the pedagogy, teachers are expected to become a facilitator and a mentor during the process of knowledge instruction instead of being the only provider of information and authority.

Prensky (2001) labeled teachers as digital immigrants who are different from their digital native students with respect to their needs and use of technology. Since modern students are superior to the majority of their teachers pertaining to technology practice, contemporary teachers are required to be equipped with the necessary skills to effectively teach the 21st century students (Wan & Gut, 2011). Namely, it has become pivotal for the teachers to embrace new technologies and update their pedagogical practices in order to appeal to contemporary students.

2.7. Technology Integration

New technological products and proliferation of Internet technology have opened new horizons in the field of education. The literature highlights the positive impact of educational technology use on academic achievements of the students (Cavas et al.,2009; Mercier & Higgins, 2013). More recently, a new stage of internet technology, Web 2.0 tools, have gained popularity in pedagogical practices because of their flexibility, practicality and focus on interaction (Yuen et al., 2011). Due to the demands for the

effective implementation of modern technologies in education because of the profound educational potential they yield in supporting instructional processes, it has become mandatory for policy makers to make some amendments to teaching and learning environments. In this respect, many countries have undertaken various large budget projects to equip educational settings with modern technological facilities to assure that schools keep pace with technology development and to enhance the quality of education since the beginning of the twenty-first century.

As technology becomes more pervasive in education due to the sheer increase in the availability of ICT infrastructure in schools, effective technology integration into instructional practices has turned into a fundamental component in successful instruction (Almekhlafi & Almeqdadi, 2010). In today's digital environment, it is not reasonable to treat education and technology in isolation and it has become necessary for stakeholders of education to incorporate technology into education (Dumpit & Fernandez, 2017). However, it is becoming increasingly evident that simply merging technology into the educational environments is not sufficient to ensure meaningful technology integration (Farjon et al., 2019). More precisely, effective technology integration into teaching is not confined to the establishment of ICTs. The focus of technology integration has evolved into a decision about when and how to use technology for instructional purposes (Neal & Miller, 2006).

Wachira and Keengwe (2011) define technology integration into education as implementing proper technologies into facets of instruction such as teaching processes and giving feedback. According to Davies and West (2014), technology integration is the meaningful involvement of educational technology to obtain desired learning outcomes. Reigeluth and Joseph (2002) come up with two concepts, which are *technology integration* and *technology transformation*. The former is about the utilization of modern technology to contribute to the process of teaching, while the latter represents utilizing technology to make pivotal alterations in teaching practices that were not previously feasible (Reigeluth & Joseph, 2002). Many researchers have reached a consensus on the fact that the responsibility of teachers is of utmost importance in implementation of technology into instruction (Dillenbourg, 2013; Lawless & Pellegrino, 2007). Usluel et al. (2007) maintain that the incorporation of ICT into formal educational settings is a complex and multidimensional process in which teachers' role is of utmost importance.

Disregarding teachers during the incorporation process, passing over the pedagogical value of technology and merely introducing technological tools to the educational process may turn the technology integration process into a futile endeavor (Ellis et al., 2016). Teachers are the key to the successful and effective employment of educational technologies in instruction (Zhao et al., 2001).

Given the fact that educational technologies are valuable pedagogical instruments in educational settings, practitioners are expected to implement these technologies in an effective way as a means to support their instructional processes. The literature presents ample evidence that the majority of teachers have favorable attitudes towards the use of technology in the classroom (Karkoulia, 2016; Nim Park & Son, 2009). Despite general enthusiasm among instructors and evident educational benefits of ICTs and Web 2.0 tools, it has been found that teachers hesitate to employ modern technologies in their actual practice (Conole & Alevizou, 2010). That is, though teachers view modern technologies and Web 2.0 tools useful and valuable in teaching and learning, they seldom incorporate educational technologies in their teaching practices (Ajjan & Hartshorne, 2008). Similarly, prior studies show that although effectiveness of Web 2.0 in language classes is extensively recognized, these technologies are reported to be rarely utilized by language practitioners in their classes (Katerini, 2013; Spiris, 2014). When they do, their use of Web 2.0 is constricted to a limited set of applications such as SNS and social video tools (Spiris, 2014; Yuen et al., 2011).

Previous research suggests that there are a large variety of determinants that influence the integration of technology and Web 2.0 tools into the curriculum. The factors such as teachers' knowledge and skill of technology, self-efficacy, teachers' perception or attitude towards technology, work load and time, support from school administration, availability of technology infrastructure at school have been quoted as the significant predictors to integrate technology in educational settings (Chen, 2008; Lee & Tsai 2010; Sadaf et al., 2015). Teachers encounter several challenges that may prevent them from using digital equipments in their teaching practices. The potential impediments that hamper the meaningful incorporation of Web 2.0 tools and technology in general in education have been investigated in empirical research under the framework of technology integration (Almekhlafi & Almeqdadi, 2010). When the researches are examined, restricted access to technology (Hur et al., 2016), shortage of time to design

and use the educational technologies (Lindberg et al., 2017), teachers' inadequacy in digital skills (Cavas et al. 2009; Moore-Hayes, 2011), deficiency in the knowledge of educational use of technology (Hew & Brush, 2007; Kale & Goh, 2014), inadequate in-service trainings (An & Reigeluth, 2011); lack of ability and confidence (Alkhawaldeh & Menchaca, 2014), and inadequate technical support (Copley & Ziviani, 2004) have been reported as the determining reasons that make negative impact on fruitful technology incorporation.

According to Hew & Brush (2007), barriers related to the technology integration are mainly due to insufficient knowledge and skills of technology and inadequacy in combining technology with the current pedagogy. Voogt et al. (2013) suggest that technology incorporation signifies the harmonization of technology, content and pedagogy, and teachers need to be proficient in all three domains so that they can effectively employ technology in their teaching practice. Koehler and Mishra (2009) stipulated that teachers should coordinate their technology competencies with pedagogy and content knowledge so as to ensure meaningful technology integration. Lee and Tsai (2010) assert that technology integration is apparently pertained to a teacher's TPACK and self-efficacy beliefs regarding technology use.

2.7.1. Technology integration in Turkish context

2.7.1.1. Ministry of national education (MONE)

With the penetration and rapid progress of the communication and information technologies since the beginning of the twenty-first century, the past three decades have witnessed serious amendments in educational settings, which have ultimately dictated a need for educational institutions and other stakeholders to renew themselves so that they would narrow the gap between the remarkable developments in educational technology and the current pedagogical practices. In other words, as the prevalence of technology-based tools has increased, the stakeholders in the teaching process have been seeking ways to profit from the benefits of technology to reshape the educational realm. The quest for transformation to promote quality in education has triggered many governments in the world to take initiatives to integrate technology into the classrooms and to equip schools with up-to-date technological tools. Turkey has also become aware of the prominence and

potential of educational technology and has made serious investments on integrating technology into education over the last two decades. As a component of technology incorporation in education, MoNE has set up a number of projects to equip the schools with technological infrastructure since the beginning of 21st century. Following the establishment of 5800 ICT classes between the years of 1998 and 2007, MoNE initiated a new project called "The Movement of Enhancing Opportunities and Improving Technology" (FATIH) in 2010 which mainly attempts to ensure the efficient exploitation of technology in teaching and learning process. Furthermore, MoNE announced its 2023 Educational Vision Program in 2018 which comprises an array of goals to be fulfilled by 2023. Abundantly underlining the importance of technology in educational settings, the document suggests that digital infrastructure movement will be pursued without losing momentum, and the technology capacities of schools will be expanded. Similarly, the document sets the adoption of modern educational technologies and online learning environments in order to support language learning as one of the goals with regards to ELT.

2.7.1.2. The movement of enhancing opportunities and improving technology project (FATIH)

"The Movement of Enhancing Opportunities and Improving Technology" (FATIH Project) is an important strategic step taken by MoNE to integrate the technology into educational contexts. The FATIH Project was devised in accordance with the goals that are declared in the Strategy Document of the Information Society, MoNE Strategic Plan and IT (Information Technology) Policy Report, which outlines the steps to be taken to become an information society (Akıncı et al., 2012).

The pilot applications of the project started in 2012 and with the aim of combining technology with learning/teaching processes, it proposes the following objectives:

(i) to complete infrastructure of ICT in formal and informal educational institutions belonging to the Ministry of National Education,

(ii) to increase the students' IT (information technology) competencies and to develop educational programs that supported ICTs,

(iii) to provide ICTs which students and teachers can use effectively (Ministry of National Education, 2011).

Extending from the abovementioned objectives, the project has five components: (1) to furnish the schools with necessary equipment and software, (2) to produce and monitor educational e-content, (3) to ensure meaningful utilization of technology in teaching programs, (4) to train teachers, (5) and to sustain safe and measurable ICT implementation (Ministry of National Education, 2011). To this end, Interactive White Boards (IWB) and network infrastructure were established in schools, and tablet computers were distributed to students.

However, merely equipping the classes with modern technological devices is not adequate for technology integration (Kaya & Koçak-Usluel, 2012; Perkmen & Tezci, 2011). Therefore, with respect to in-service training phase, in-service trainings (INSET)s have been designed so that teachers would be able to improve their skills for using the technological devices and pedagogical e-content.

The relevant literature indicates that there are diverse findings on the establishment of the FATIH Project into Turkish education system. Eksi and Yesilyurt (2018) maintain that FATIH Project provided a plethora of opportunities to gain access to a diverse range of resources and internet, which motivated English Language teachers and learners. According to Şahin et al. (2013)'s study on the views of teachers', students' and parents' on the FATIH project, teachers and students reported that if the technological devices provided by the FATIH project are used according to the purposes set for them, they can make a positive contribution to education. On the other hand, according to some studies, some teachers are hesitant about the achievement of the project (Karatekin et al., 2015). On the same note, Çiftçi et al. (2013) report that although most of the teachers are aware of the significance of the FATIH project, nearly half of the teachers disbelieve the project would achieve its goals due to several determinants like teachers' insufficient ICT proficiency and negative attitudes towards ICT.

Sarıtepeci et al. (2016) maintained that the INSETS that were organized within the compass of the FATIH Project have failed to meet the participant teachers' needs. The study further discloses that the in-service training activities should focus on the effective

utilization of technology and internet for educational purposes. Furthermore, Aktaş et al. (2014) concluded that instructors were in need of useful and extensive in-service training by experts.

2.7.1.3. Educational informatics network (EBA)

The technological transformation that proceeded with equipping the classes with high technology tools and network infrastructure has underlined the necessity for e-content. In this context, Educational Informatics Network (EBA) was introduced in 2012 to meet the need of online materials. Established by the General Directorate of Innovation and Educational Technologies, EIN is an online social educational platform that basically aims to fulfill e-content requirements which were expected to be used in conjunction with the integrated technologies.

Designed to provide appropriate, reliable and accurate e-content, EIN offers numerous advantages for both parties of teaching and learning process. EIN enables teachers to reach and make use of different and rich educational materials and resources for more qualified instruction. On the other hand, with the interactive materials that are offered on this platform, students are provided with enriched learning practices both in and out of the classroom. Educational e-contents supported by a variety of multi-media components, such as visuals, videos, e-courses, course books, presentations, animations, simulations, applications and games are presented in EIN ecosystem.

Apart from MoNE, the main digital source provider of EIN, volunteer stakeholders of education and teachers also have the chance to contribute to the content through the materials they create. By the same token, private publishing companies participate in this platform and provide considerable e-content materials in English and German languages. These materials include interactive videos, audios, games, flash cards, activity and reference books, and dictionaries.

Relevant literature indicates that although teachers express positive attitudes towards EIN (Çakmak & Taşkıran, 2017), they also state that e-content is inadequate and needs to be enriched (Ateş et al., 2015; Ayan, 2018). A recent study conducted by Kuloğlu and Bay (2018) investigated ELT teachers' usage of Educational Informatics Network (EIN) with

the participation of 105 English language teachers working in Karabük and Safranbolu. As a result of the research, it was found that most of the ELT teachers' usage of EIN is at moderate and low level and they mainly utilize the platform to provide e-content. In addition, EFL teacher's attitudes towards the EIN platform are positive, and their self-efficacy levels for using the portal are at satisfactory level; however, teachers do not generate and share any content on this platform. Finally, English language teachers consider the course e-contents available on EIN to be adequate in number but inefficient in quality and expect higher quality e-contents to be available in EBA.

2.8. Self Efficacy

Bandura (1997) describes self-efficacy as the beliefs of individuals towards organizing and performing the necessary skills to achieve the intended outcomes. According to Evers et al. (2002), self-efficacy refers to the belief to perform a certain action under particular circumstances along with one's capabilities or skills. What is more, Bandura (1997) points out that many aspects of behavior such as the choice of action and the amount and duration of effort to be devoted are influenced by self-efficacy beliefs. A teacher's level of self-efficacy is a fundamental component in educational sphere as it influences the effort teachers will devote to their teaching practice. With the multifaceted and widespread use of digital technologies in educational activities for pedagogical purposes, self-efficacy beliefs of teachers have become an important factor when adopting and implementing instructional technologies.

The relevant literature illustrates ample evidence that teachers' self-efficacy beliefs play a pivotal role in teachers' behavior and decisions related to the integration process of technology into learning and teaching (Albion, 1999; Ertmer, 2005). For example, Lee and Lee (2014) maintain that teachers' self-efficacy beliefs for technology integration are among the most important determinants of their intention to implement and use technology in their teaching practices. Similarly, Abbitt (2011) and Lee and Tsai (2010) assert that the self-efficacy beliefs of teachers are considered as one of the core factors influencing their decisions about effective integration of technology into their instructional activities. Furthermore, the study conducted by Pan and Franklin (2011) to find out the relationship between teachers' self-efficacy and integration of Web 2.0 tools in public schools with 461 participants illustrated that self-efficacy is a strong predictor

for the integration of Web 2.0 tools into the classrooms. Kim et al. (2013) underscore the value of self-efficacy beliefs for technology integration by stating that teachers who lack self-efficacy beliefs for using any technological tool will not be able integrate technology effectively into their teaching practices. Therefore, it would be reasonable to claim that if teachers are expected to be effective users of contemporary technologies, it is essential that they have high self-efficacy perceptions in using them.

2.9. Technological Integration in Teacher Education

2.9.1. Technological pedagogical content knowledge (TPACK)

The developments in technology have triggered a transformation and the qualities expected from teachers have altered in line with this alteration. As access to new technology becomes more prevalent in teaching and learning environments, teachers are required to update their knowledge and competencies in line with modern standards, adopt technology within their curriculum and teaching practices effectively and enhance their teaching quality by integrating technology. That is, contemporary educational environments demand that teachers embrace the knowledge of technology in tandem with their content and pedagogical knowledge and develop the necessary skills in combining and connecting technology with pedagogy and course content so as to meet the diverse educational needs of tech-savvy students. Effective technology integration in educational establishments will not be achieved without teachers' meaningful engagement with modern educational technologies. Therefore, several technology integration models have been devised in order to better understand teachers' technology integration processes and further guide effective pedagogical use of technology (Mazman & Usluel, 2011). TPACK, which focuses on meaningful technology integration in the teaching process regarding teacher skills, is one of the most prominent technology integration models in educational settings.

TPACK, which was introduced by Mishra and Koehler (2006), is a theoretical framework that was predicated on Shulman's (1986) concept of pedagogical content knowledge (PCK) with the inclusion of technological knowledge as a seperate knowledge base. Shulman (1986) asserted that teachers' field knowledge and pedagogical knowledge cannot be considered as isolated constructs and claimed that these two sources of

knowledge are interconnected and teachers should master the intersection of both bases of knowledge: pedagogical content knowledge (PCK) in order to address students' learning needs. As an inevitable consequence of the increasing popularity of digital technologies in educational settings, Mishra and Koehler (2006) embedded knowledge of technology as the third kind of knowledge into Shulman's PCK and proposed TPACK model to elucidate the active interrelation among the three knowledge bases.

Mishra and Koehler (2006) defined TPACK as a technology integration model that comprises harmonized knowledge of three knowledge bases: content, pedagogy and technology and the multifaceted interplay and intersection among the bodies of knowledge within TPACK framework. Similarly, Schmidt et al. (2009) defined TPACK as comprehensive knowledge required to merge educational technologies into teaching practice successfully. In essence, TPACK model emphasizes the interrelationships that are mounted between the domains of technology, pedagogy and content knowledge, which are required in organizing instructional activities (Koehler & Mishra, 2009).

This model is mainly a fusion of three major components of teacher knowledge: content knowledge (CK), pedagogical knowledge (PK), and technology knowledge (TK). The interaction and interplay that take place between and among these principal knowledge domains engender four intersected domains, which comprise pedagogical content knowledge (PCK), technological pedagogical knowledge (TPK), technological content knowledge (TCK), and technological pedagogical content knowledge (TPACK) (Koehler & Mishra, 2005; 2008; Mishra & Koehler, 2006).

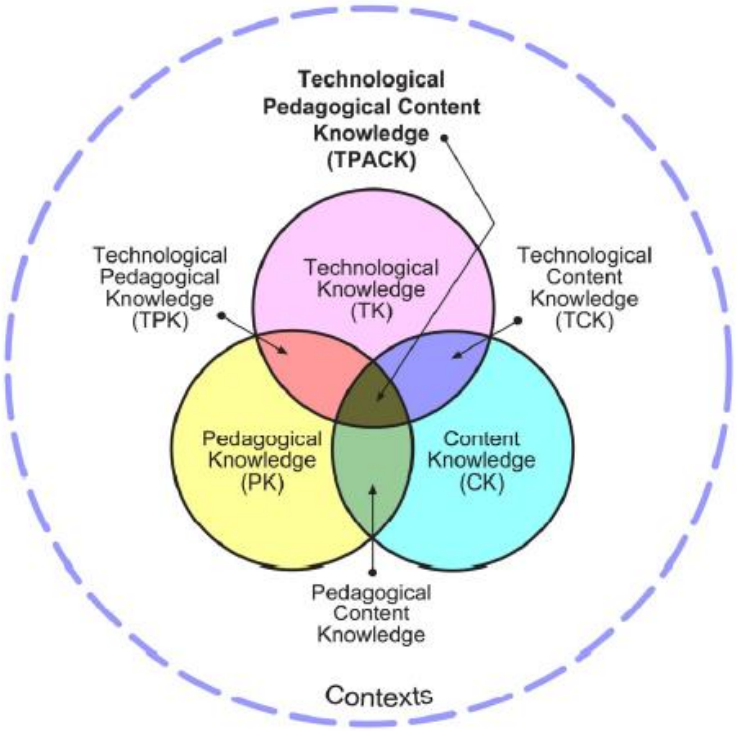

Figure 2. The TPACK framework and its knowledge components (Koehler & Mishra, 2009, p.63)

The seven constructs that TPACK framework integrates are summarised in Table 2.

Table 2. TPACK constructs

The Constructs	Abbreviation	Definitions
Content knowledge	CK	knowledge of subject matter
Technology knowledge	TK	knowledge of using digital technologies
Pedagogical knowledge	PK	knowledge about practices and methods of teaching
Technological content knowledge	TCK	knowledge of the affordances of technologies to represent content
Technological pedagogical knowledge	TPK	knowledge of using technologies to improve teaching and learning

Table 2. (continued)

The Constructs	Abbreviation	Definitions
Pedagogical content knowledge	PCK	knowledge of implementing proper teaching methods to specific content
Technological pedagogical content knowledge	TPACK	knowledge of using digital technologies to enrich teaching and learning for particular subject matter
		(Koehler & Mishra, 2009)

Recent previous studies have indicated that TPACK can be positively associated with teachers' pedagogical use of technology and could enhance teachers' acquisition of knowledge for technology integration (Koehler & Mishra, 2009; Lee & Tsai, 2010). Several researchers believe that teachers are required to possess a well-developed TPACK as a means to make the best use of appropriate high-tech tools in teaching (Cox & Graham, 2009; Mishra & Koehler, 2006).

A growing number of researchers' focuses have been placed on TPACK framework recently, particularly TPACK knowledge of teachers (Hsu et al., 2017; Schmidt et al., 2009). For example, a study conducted by Abbitt (2011) with 45 participants put forth that a noteworthy relationship exists between pre-service teachers' knowledge in the TPACK domains and their self efficacy beliefs about technology incorporation. A recent local study by Kozikoğlu and Babacan (2019) investigated the correlation between Turkish EFL teachers' TPACK skills and their attitudes towards technology with 721 participants from 81 provinces of Turkey. The study revealed that Turkish EFL teachers' TPACK competencies and attitudes towards technology were high and there was a positive and low correlation between their TPACK skills and attitudes towards technology. In sum, the notion that teachers should have high level of TPACK and positive self-efficacy beliefs for profitable implementation of technology and Web 2.0 technologies into education has been well established in prior studies. Therefore, it becomes crucial to determine the correlation between TPACK knowledge of language teachers' and their Web 2.0 self-efficacy beliefs.

3. METHODOLOGY

This chapter aims to present the design implemented in this research and comprises six main components: research design, participants, data collection tools, reliability and validity of the data collection tools, data collection procedures and data analysis procedures.

3.1. Introduction

The present study implements a mixed method design and aims to examine in-service EFL teachers' TPACK self-efficacy levels and their Web 2.0 competence and perceptions towards using Web 2.0. The study also explores the relationship between EFL teachers' TPACK self-efficacy levels and their demographic features such as age, gender, professional experience, educational level, school type, perceived digital literacy level, previous INSET experience on Web 2.0 technologies and their Web 2.0 competence and perceptions.

To this end, the following research questions were addressed:

1. What are the TPACK self-efficacy levels of in-service EFL teachers?

2. Is there a meaningful relationship between in-service EFL teachers' TPACK self-efficacy levels and their demographic variables such as:

a) gender,
b) age,
c) professional experience,
d) educational level,
e) school type,
f) perceived digital literacy level,
g) previous INSET experience on Web 2.0 Technologies

3. Is there a meaningful relationship between in-service EFL teachers' TPACK self-efficacy levels and their Web 2.0 perceptions and competence?

4. What are in-service English language teachers' views on the advantages and challenges of integrating Web 2.0 tools into foreign language education?

The goal of this chapter is to explain the research methodology of the current study and comprises five sections: the research design, participants and sampling, data collection tools, data collection and data analysis procedures are described respectively in this chapter.

3.2. Research Design

This descriptive and correlational research study employs a mixed method design. First, this study is descriptive as it attempts to put forth in-service EFL teachers' TPACK self-efficacy levels and their Web 2.0 competence and perceptions. As Gall et al. (2007) assert, descriptive research does not concentrate on the question of 'how' or 'why', but instead, it aims to offer the answer to the question of 'what'. Next, the study adopts a correlational design. In correlational survey model, the main objective is to figure out the presence and the degree of correlation between two or more components (Karasar, 2015). Correlational research designs are reckoned appropriate for educational sciences because researchers can investigate and indicate the degree of interplay among the numerous parameters of the study (Gall et al., 2007). Therefore, in practical terms, the correlational design is feasible in this study as the study seeks to explore the relationship between the TPACK self-efficacy levels of in-service EFL teachers' and the demographic variables and their Web 2.0 competence and perceptions.

According to Creswell et al. (2014), mixed methods research focuses on gathering, analysing and blending both quantitative and qualitative data so as to better understand the research problem and to get better and more reliable results. Similarly, a mixed method research can help to clarify and explain or to explore the existing relationships between variables and to confirm or cross-validate the discovered relationships between variables (Fraenkel et al., 2012). More specifically, the present study conducted an online survey for Turkish in-service EFL teachers in Isparta to obtain the quantitative data. The

quantitative step was followed by the qualitative data which were gathered by means of semi-structured interviews to get a broader elucidation of the quantitative data results. The participants of the interviews were in-service EFL teachers in Isparta who previously responded to the survey voluntarily. The ensuing phase was to elucidate the collected data isolatedly, and to harness the qualitative data in order to elaborate the numerical data.

3.3. Participants

The study was applied during 2021-2022 academic year in Isparta, Turkey. The study employed two data collection tools: an online survey consisting of three sections and semi-structured interviews. The respondents of the online survey were (n=227) in-service EFL teachers from Isparta. As for semi-structured data collection, 7 EFL teachers from 6 different schools got involved in the interviews.

The participants were identified following a convenience sampling procedure because of their accessibility and proximity. This procedure, also known as accidental or opportunity sampling, involves the withdrawn of individuals within the reach to become participants (Cohen et al., 2007). The data collection tool was formed through Google Documents, and distributed online through either participants' e-mail addresses or online instant messengers like Whatsapp and Telegram. The online survey link was sent to 287 in-service EFL teachers, and 227 teachers (79 %) supplied information for the survey, which constitutes a sufficient level of involvement (Dillman, 2007). Table 3 provides the demographic information about the participants of the study in detail.

Table 3. Information about the participants of the study

Demographic Information	N = 227	
Gender	Frequency (N)	Valid Percent (%)
Female	139	61,2
Male	88	38,8
Age		
20-29	58	25,6
30-39	98	43,2
40+	71	31,3

Table 3. (continued)

Demographic Information	N = 227	
Professional Experience		
1-5 year(s)	35	15,4
6-10 years	58	25,6
11-15 years	64	28,2
16-20 years	36	15,9
20+ years	34	15,0
Educational Level		
Bachelor's Degree	183	80,6
Postgraduate Degree	44	19,4
School Type		
Elementary School	55	24,2
Secondary School	88	38,8
High School	84	37,0
Perceived Digital Literacy Levels		
Basic	33	14,5
Average	154	67,8
Advanced	40	17,6

Previous INSET Experience on WEB 2.0 Technologies	Frequency (N)	Valid Percent (%)
Yes	140	61,7
No	87	38,3

3.3.1. The interviewees' profiles

The participants that took part in the interviews were 5 female and 2 male English language teachers. Two teachers belonged to the 30-40 age group, three teachers were between the ages of 40-50 and two teachers were above 50 years old. All of the participants have a Bachelor's degree in ELT and one has completed a Master's Degree in Educational Administration. Three of them have been teaching at primary school, two of them have been working at secondary school and two of them have been teaching at high school.

3.4. Data Collection Tools

The study employed a survey consisting of three parts in the first phase and then deeply investigated reflections of voluntary participants on their competence and experiences of Web 2.0 technologies through semi-structured interviews. Both of the tools were implemented in English.

The initial part of the survey was devised by the researcher to obtain demographic data about the participants' gender, age, professional experience, educational level, type of school they are working, perceived digital literacy levels and previous INSET experience on Web 2.0 technologies.

3.4.1. TPACK-EFL scale

In the second section of the survey, the participants were requested to respond to TPACK-EFL scale which was originally developed by Baser et al. (2015) so as to assess in-service EFL teachers' TPACK. The scale comprises 7 dimensions in order to get information about certain knowledge types. Those are: content knowledge, pedagogical knowledge, technological knowledge, pedagogical content knowledge, technological content knowledge, technological pedagogical knowledge and technological pedagogical content knowledge. The scale consists of 39 nine-point Likert scale items with the labels varying between *"Nothing (1)* to *A Great Deal (9)"* (see Appendix A). The necessary permission to utilize the survey instrument was obtained via e-mail from the authors of TPACK-EFL (see Appendix F).

3.4.2. TPUWL scale

The final part of the survey employed Teachers' Perceptions towards Using Web 2.0 Tools in Lectures (TPUWL) scale which was developed by Yıldırım and Akkuş (2020) to assess the teachers' perceptions towards using Web 2.0 tools at lectures. The TPUWL scale comprises 2 dimensions in order to assess in-service EFL teachers' perceptions about Web 2.0 tools, which are Perception towards Using (PU) and Professional Competence Perception (PCP). There were 22 items accompanied by five-point Likert scale with the following labels: *'strongly agree (5)', 'agree (4)', 'neutral (3)', 'disagree*

(2)', and 'strongly disagree (1)'. The participants were asked to rate their agreement according to statements describing their perceptions. (see Appendix B).

3.4.3. Semi-structured interview form

Following the phase of gathering quantitative data, semi-structured interviews were performed with voluntary in-service EFL teachers concerning their Web 2.0 self-efficacy beliefs, frequency of use and attitudes towards Web 2.0 tools in order to provide in-depth interpretation of the quantitative data. The questions of semi-structured interviews were developed in parallel with the research questions regarding interviewee's self-efficacy, attitudes, and preferences about Web 2.0 tools. Semi-structured interview questions addressed participants' personal, behavioral and environmental aspects and prior experiences about Web 2.0 platforms. The interviewer chose a non-threatening atmosphere for the interviews and interviewees were not stressed out.

3.5. Reliability and Validity of the Data Collection Tools

3.5.1. TPACK-EFL scale

Reliability is a pivotal measure of quality in a quantitative study which refers to the ability to obtain similar results when the same instruments are applied on repeated occasions. In order assure the reliability in quantitative research, the instrument needs to be consistent and stable over time (Sürücü & Maslakçı, 2020). This study utilized Cronbach's alpha to create a coefficient of internal consistency. In order to determine the internal consistency of the TPACK-EFL scale, a reliability analysis was conducted via SPSS. Cronbach Alpha Coefficients need to be over .70 so as to assert that the survey is internally consistent (Muijs, 2004). When the items for each factor of the original TPACK-EFL were analyzed separately, it was seen that the reliability coefficients for the seven TPACK dimensions ranged between .81 and .92. The Cronbach's alpha values for the seven dimensions of TPACK-EFL were listed in Table 4.

Table 4. Reliability values for the TPACK-EFL dimensions

Dimensions	Number of Items	Cronbach's alpha value
1. Technological knowledge (TK)	9	.94
2. Content knowledge (CK)	5	.93
3. Pedagogical knowledge (PK)	6	.95
4. Pedagogical content knowledge (PCK)	5	.94
5. Technological content knowledge (TCK)	3	.91
6. Technological pedagogical knowledge (TPK)	7	.96
7. Technological pedagogical content knowledge (TPACK)	4	.94
Total	39	.98

As indicated in Table 4, the reliability of the seven dimensions of TPACK-EFL scale ranged from .91 to .96. That is, all dimensions of TPACK-EFL scale proved an acceptable reliability (> .70) to measure internal consistency of this instrument.

In the original study, the suitability of 39-item scale for factor analysis was examined with Kaiser-Meyer-Olkin (KMO) and Bartlett test. The KMO value was calculated as .93, which was accepted as relatively large according to Tabachnick and Fidell (2001). Bartlett's test (BTS value= 5837.00, $p<0.001$) was found to be significant. The exploratory factor analysis (EFA) conducted by Baser et al. (2015) suggested that the seven-factor solution explained 70.42% of the variance in the model. Therefore, the researchers labeled the seven factors: Technological knowledge (TK) (items 1-9), Content knowledge (CK) (items 10-14), Pedagogical knowledge (PK) (items 15-20), Pedagogical content knowledge (PCK) (items 21-25), Technological content knowledge (TCK) (items 26-28), Technological pedagogical knowledge (TPK) (items 29-35), and the last factor, Technological pedagogical content knowledge (TPACK) (items 36-39).

3.5.1.2. Confirmatory factor analysis results

First-order confirmatory CFA was employed to measure the construct validity of the items of the scales. Accordingly, the measurement model was examined based on the items of each construct and then good fit indices were provided. CFA was carried out on the 7-factor model which originally originated from the EFA. The following table indicates fit values for TPACK-EFL scale obtained by the Confirmatory Factor Analysis.

Table 5. Confirmatory factor analysis results for TPACK-EFL

Index	Perfect Fit Criteria	Good Fit Criteria	Research finding	Result
x2/df	0-3	35	2.517	Perfect fit
RMSEA	.00 ≤ RMSEA ≤ .05	.05 ≤ RMSEA ≤ .10	0.082	Good fit
CFI	.95 ≤ CFI ≤ 1.00	.90 ≤ CFI ≤ .95	0.904	Good fit
SRMR	0≤ SRMR ≤.05	.05≤ SRMR<0.10	0.054	Good fit
NFI	.95 ≤ NFI ≤ 1.00	.90 ≤ NFI ≤ .95	0.907	Good fit
NNFI	.95 ≤ NNFI (TLI)≤ 1.00	.90 ≤ NNFI (TLI)≤ 0.95	0.924	Good fit
RFI	.95 ≤ RFI ≤ 1.00	.90 ≤ RFI ≤ .95	0.918	Good fit

When Table 5 is analyzed, the value ($\chi 2$ / df = 2.517) derived from the equation in which the chi-square fit index value is proportioned to the degree of freedom indicates that it is below 9, which is regarded as an acceptable or perfect value (Marsh & Hocevar, 1988). Furthermore, the analysis of RMSEA, CFI, SRMR, NNFI, NFI, RFI values indicate that the model features good fit or perfect fit (Fan et al., 1999).

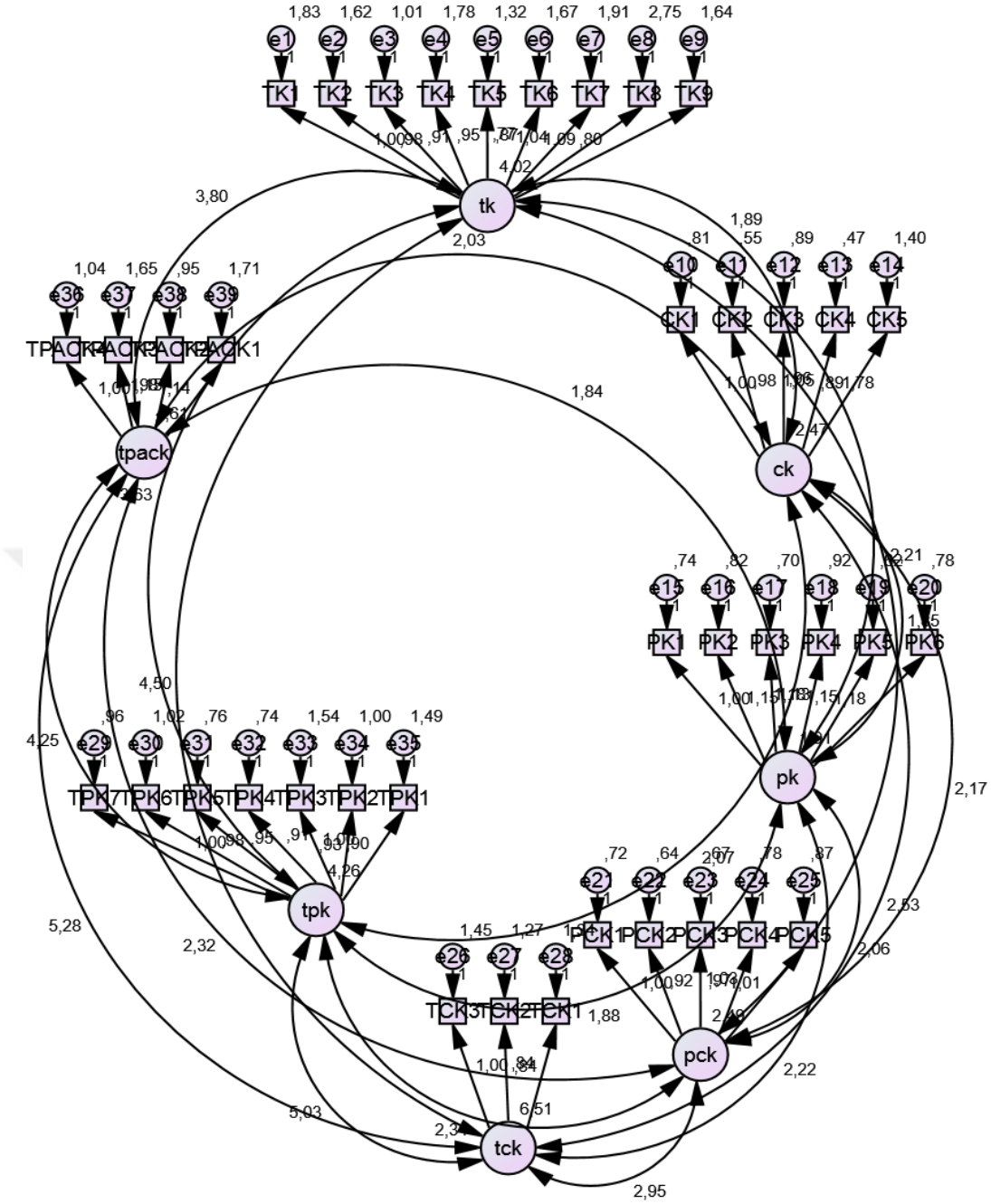

Figure 3. The seven-factored latent structure of TPACK-EFL

Figure 3 presents the correlation between the factors of the TPACK-EFL and the items in each factor. It has been noted that the correlation coefficients calculated between the factors and their items range between .77 and 1.15. According to Büyüköztürk (2002), in order to postulate a high-level correlation, the relationship coefficient should be above .60. The analysis of numerical values indicates that the correlation coefficients calculated between the factors and their items are perfectly acceptable. As a result of the analyses, it is seen that $\chi 2 = 1714.272$, $p = .000$, $df = 681$, $\chi 2 / df = 2.517$ are significant.

3.5.2. TPUWL scale

As for the TPUWL scale, Cronbach's alpha was employed to create a coefficient of internal consistency. The reliability analysis was conducted via SPSS so as to decide the internal reliability of the TPUWL scale. In the original study, the Cronbach's Alpha value for the entire TPUWL scale was .95. The two dimensions of the TPUWL scale obtained a high reliability of Cronbach Alpha. That is, the Cronbach's alpha values of Perception towards Using (PU) and Professional Competence Perception (PCP) were found to be .93, and .94 respectively in the original study. The Cronbach's alpha values for the TPUWL scale and its subscales in this study were listed in Table 6.

Table 6. Reliability values for the TPUWL scale

Dimensions	Number of Items	Cronbach's alpha value
1. Perception Towards Using (PU)	12	.97
2. Professional Competence Perception (PCP)	10	.97
TPUWL Total	22	.97

As indicated in Table 6, the Cronbach's alpha value of overall TPUWL scale is .97. The two dimensions of the TPUWL scale also obtained a high reliability of Cronbach Alpha. That is, the Cronbach's alpha values of both Perception towards Using (PU) and Professional Competence Perception (PCP) were found to be .97. With the alpha values, the instrument as a whole was considered reliable.

In the original study, the suitability of 22 items for factor analysis was examined with Kaiser-Meyer-Olkin (KMO) and Bartlett test. The KMO value of 22 items was calculated as .94 and the Bartlett test result was found to be significant ($\chi 2 = 3431.326$, df=231, $p < .05$) which indicated that the data were appropriate for factor analysis. The exploratory factor analysis (EFA) conducted by Yıldırım and Akkuş (2020) suggested that the two-factor solution explained 61.81% of the total variance in the model. As a result, the researchers labeled the two factors: Perception Towards Using (PU) consisting of 12 items and Professional Competence Perception (PCP) which comprises 10 items.

3.5.2.1. Confirmatory factor analysis results

CFA was carried out on the 2-factor model which originally originated from the EFA. The following table indicates fit values for TPUWL scale obtained by the Confirmatory Factor Analysis.

Table 7. Confirmatory factor analysis results for TPUWL

Index	Perfect Fit Criteria	Good Fit Criteria	Research finding	Result
x2/df	0-3	35	2.233	Perfect fit
RMSEA	.00 ≤ RMSEA ≤ .05	.05 ≤ RMSEA ≤ .10	0.074	Good fit
CFI	.95 ≤ CFI ≤ 1.00	.90 ≤ CFI ≤ .95	0.961	Perfect fit
SRMR	0≤ SRMR ≤.05	.05≤ SRMR<0.10	0.032	Perfect fit
NFI	95 ≤ NFI ≤ 1.00	.90 ≤ NFI ≤ .95	0.932	Good fit
NNFI	.95 ≤ NNFI (TLI)≤ 1.00	.90 ≤ NNFI (TLI)≤ 0.95	0.957	Perfect fit
RFI	.95 ≤ RFI ≤ 1.00	.90 ≤ RFI ≤ .95	0.924	Good fit

When Table 7 is analyzed, the value ($\chi 2$ / df = 2.233) derived from the equation in which the chi-square fit index value is proportioned to the degree of freedom indicates that it is below 9, which is regarded as an acceptable or perfect value. Furthermore, the analysis of RMSEA, CFI, SRMR, NFI, NNFI, RFI indicate that the model features good fit or perfect fit.

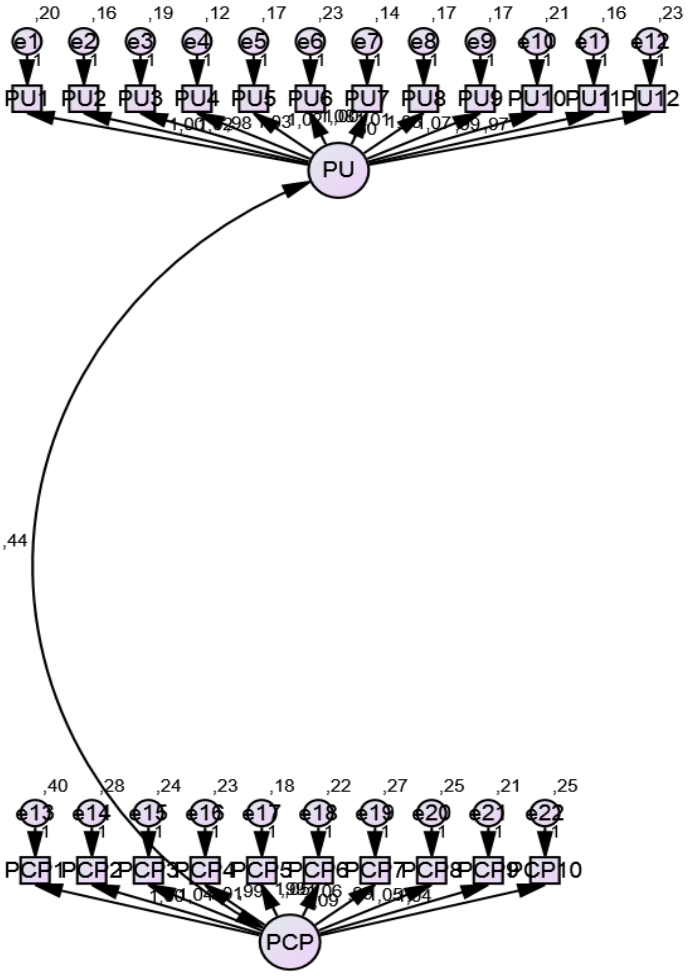

Figure 4. The two-factored latent structure of TPUWL

Figure 4 presents the correlation between the factors of the TPUWL and the items in each factor. It has been noted that the correlation coefficients calculated between the factors and their items vary between .97 and 1.07. The analysis of numerical values indicates that the correlation coefficients calculated between the factors and their items are perfectly acceptable. As a result of the analyses, it is seen that $\chi 2 = 464.453$, $p = .000$, $df = 208$, $\chi 2 / df = 2.233$ are significant.

3.5.3. Semi-structured interview

After the implementation of the quantitative phase, semi-structured interviews were conducted to find out participants' views on Web 2.0 technologies. Interview questions were generated by the researcher in an attempt to determine the opinions of participants about Web 2.0 tools on their instructional practices. In order to get feedback and ideas

about the precision and the content validity of the draft interview form, three field experts were consulted. A number of items were modified and necessary revisions were made with reference to the gathered feedback. (See Appendix C)

A pilot application with three volunteer participants were employed so as to implement a valid and reliable qualitative data collection procedure. The rationale behind the pilot study was to make use of respondents' objective opinions about semi-structured interview questions and fix the potential problems such as ambiguous and/or leading questions. Several items were modified slightly and rephrased in accordance with respondents' feedbacks concerning ambiguity, wording, and clarity, thereby providing a well-defined and effective description along with clear and organized set of questions in order to achieve effective communication.

In qualitative research, reliability refers to the repeatability and stability of responses to multiple coders of data sets obtained. In an effort to assure internal reliability of the qualitative data, the researcher; (a) professed his mere role in the study as the researcher who carried out the interview and analyzed the data, (b) clearly stated the variables pertaining to the participants in the research, (c) meticulously described data collection and data analysis procedure, (d) used verbatim quotations from the semi-structured interviews, and (e) compared current research and previous related research findings while analysing data.

3.6. Data Collection

Data collection process was initiated during the fall semester of 2021-2022 academic year. Prior to gathering data, permission to use the instruments was obtained from the developers and researchers. The necessary approvals both from the institutional ethics board of Süleyman Demirel University (Appendix D) and the Provincial Directorate for National Education, Isparta-Turkey (Appendix E) were received by the researcher before proceeding to data gathering step.

Once the official permissions were granted, the items of the instruments were transformed into an online survey via Google Forms and the survey link was either e-mailed to participants or sent via online instant messengers (e.g., Whatsapp and Telegram). In the

e-mail and messages, the researcher provided a short explanation of the purpose and content of the study, the informed consent form, a statement that the researcher would keep the data submitted by them strictly confidential and would use the collected data just for research purposes, and the survey link. The web link remained active for three weeks.

The pilot semi-structured interview was conducted with three volunteer participants who did not take part in the main data collection. The interview took place at volunteer teachers' schools and lasted for 15-20 minutes. The interview was audio recorded and some questions were improved and rewritten to make them more clearly comprehended for the interviewees after the feedback of the pilot study of the interview.

Then, semi-structured interviews were carried out with 7 EFL teachers, all of whom participated in the survey. Prior to data collection, all the participants were asked if they would like to take part in the interviews. 7 EFL teachers from 6 different public schools volunteered to participate in the interviews. The participants were interviewed face-to-face on school days within a certain amount of time ranging from 25 minutes to 35 minutes. Interviews were audio recorded so that the data would be transcribed for analysis and coded subsequently.

3.7. Data Analysis

In this study, mixed method design was employed for obtaining the quantitative and qualitative data in order to reduce possible problems that might be caused by applying a single research method. Creswell (2014) notes that the qualitative and quantitative data can be modified into one large database or the results can be used synchronously to strengthen each other. In line with this notion, the statistical data is accompanied by the interpretations extracted from the interviews conducted in this study. Thus, the data in this study are analyzed separately as being quantitative or qualitative.

3.7.1. Quantitative data

The data for the quantitative phase were obtained via an online survey consisting of three sections. The data that were received from Google Forms application were transformed into a SPSS file. Once the data set was entered into SPSS, it was cleared up, sorted, and

organized in SPSS and checked to make sure that there were no missing data. Then, the reliability coefficients of the scales were computed via Cronbach's Alpha. Two scales were applied in the present study and the factor analyses of the scales were performed separately.

The research questions of the present study were answered by using descriptive and inferential statistics. Descriptive statistics were run and frequencies, means, percentages and standard deviations were used to describe and to provide better insight to participants' demographic features.

For inferential statistics (independent t-test and One-Way ANOVA), composite scores were created for each construct. T-test and One Way ANOVA were employed so as to unearth the correlations between participants' TPACK self-efficacy beliefs and the demographic components such as age, gender, professional experience, educational level, school type, perceived digital literacy levels, previous Web 2.0 INSET experience and Web 2.0 competence and self-efficacy beliefs.

3.7.2. Qualitative data

Qualitative data was gathered with the help of semi-structured interviews that were carried out with seven volunteer participants, who took part in quantitative data collection procedure. The interviews were applied personally and recorded with a mobile phone recorder app so that the reliability would be assured. The data was later transferred to a word processing program for examination and coding purposes.

Content analysis technique was employed for the collected data subsequent to reading the transcription several times. The qualitative data analysis process in this study followed the following steps: organizing the data, pre-reading the data set, formulating themes and coding clearly, depicting and interpreting the data accordingly.

The themes were previously defined according to the theoretical framework in this study. The codes were determined, listed and presented theoretically under the appropriate theme with regards to participants' similar expressions in their statements that were identified during the reading of the transcribed data. Direct quotations from the participant

responses were also presented to strengthen the identified themes. Therefore, each interview form was coded with a number of the participant such as “P.1., P.2...” instead of the respondents’ real names to ensure the anonymity of the interviewees.

4. FINDINGS

4.1. Introduction

This chapter comprises the findings pertaining to in-service EFL teachers' TPACK self-efficacy levels and the relationship between their TPACK self-efficacy levels and their demographic features like age, gender, professional experience, educational level, school type, perceived digital literacy levels and previous INSET experience on Web 2.0 tools and the correlation between participants' TPACK self-efficacy levels and their Web 2.0 competence and perceptions are presented and discussed in detail. It is aimed to reach a broader interpretation of the phenomenon by harnessing both quantitative and qualitative methods in compliance with the triangulation of the data. Findings of the analyses are presented in tables and evaluated quantitatively. Qualitative data regarding teacher interviews are also presented. The organization of this chapter was predicated on the research questions of the study.

4.2. The Findings of the Quantitative Data

4.2.1. Research question 1

What are the TPACK self-efficacy levels of in-service EFL teachers?

The first research question aims to determine the self-efficacy levels of Turkish EFL teachers with respect to their TPACK. In an effort to answer the first question, the mean scores, standard deviation and highest/lowest scores of participant responses were calculated. Table 8 indicates the analysis of TPACK components according to participants' responses to TPACK-EFL scale.

Table 8. Descriptive analysis of the scores of the TPACK components

TPACK Components	N	Minimum	Maximum	Mean	Std. Deviation
TK	227	2.11	9.00	5.91	1.92
CK	227	1.00	9.00	7.42	1.58
PK	227	1.67	9.00	7.07	1.60
PCK	227	1.40	9.00	7.21	1.60
TCK	227	1.00	9.00	5.83	2.37
TPK	227	1.86	9.00	6.15	2.00
TPACK	227	1.00	9.00	5.50	2.37
TPACK Overall	227	2.13	9.00	6.44	1.65

According to the findings gathered, the respondents had scores diverging from 1.00 and 9,00. The findings also indicate that while Content Knowledge (CK) has the highest mean score (*M*=7.42), the TPACK has the lowest mean score (*M*=5.50). Following the TPACK, TCK and TK are the second and third lowest components with the (*M*=5.83) and (*M*=5.91) mean scores, respectively. These findings indicate that whereas in-service EFL teachers acknowledge themselves proficient enough concerning the field they teach and the corresponding curriculum, they do not believe they are efficient enough for combining educational technologies with their pedagogical and content knowledge.

Apart from the dimensions of TPACK, each item of the TPACK-EFL scale were analyzed in detail in terms of mean scores, standard deviation and highest/lowest scores of participant responses. Table 9 indicates the analysis of each item of TPACK-EFL scale.

Table 9. Descriptive analysis of the scores of the TPACK items

Item No	Items	N	Minimum	Maximum	Mean	Std. Deviation
1	TK1.	227	1	9	6.10	2.42
2	TK2.	227	1	9	6.01	2.34
3	TK3.	227	1	9	6.70	2.09

Table 9. (continued)

Item No	Items	N	Minimum	Maximum	Mean	Std. Deviation
4	TK4.	227	1	9	5.46	2.33
5	TK5.	227	1	9	7.06	1.93
6	TK6.	227	1	9	6.44	2.17
7	TK7.	227	1	9	5.30	2.50
8	TK8.	227	1	9	4.33	2.75
9	TK9.	227	1	9	5.79	2.06
10	CK1.	227	1	9	7.32	1.81
11	CK2.	227	1	9	7.61	1.71
12	CK3.	227	1	9	7.49	1.78
13	CK4.	227	1	9	7.65	1.78
14	CK5.	227	1	9	7.04	1.83
15	PK1.	227	1	9	7.18	1.63
16	PK2.	227	1	9	7.14	1.83
17	PK3.	227	1	9	7.14	1.76
18	PK4.	227	1	9	7.08	1.89
19	PK5.	227	1	9	7.07	1.77
20	PK6.	227	1	9	6.82	1.86
21	PCK1.	227	1	9	7.24	1.79
22	PCK2.	227	1	9	7.35	1.66
23	PCK3.	227	1	9	7.17	1.82
24	PCK4.	227	1	9	7.13	1.76
25	PCK5.	227	1	9	7.18	1.85
26	TCK1.	227	1	9	6.48	2.43
27	TCK2.	227	1	9	5.93	2.42
28	TCK3.	227	1	9	5.11	2.82
29	TPK1.	227	1	9	5.93	2.22
30	TPK2.	227	1	9	6.19	2.17
31	TPK3.	227	1	9	5.78	2.41
32	TPK4.	227	1	9	6.44	2.07
33	TPK5.	227	1	9	6.24	2.14

Table 9. (continued)

Item No	Items	N	Minimum	Maximum	Mean	Std. Deviation
34	TPK6.	227	1	9	6.07	2.25
35	TPK7.	227	1	9	6.43	2.29
36	TPACK1.	227	1	9	4.98	2.78
37	TPACK2.	227	1	9	5.89	2.32
38	TPACK3.	227	1	9	5.10	2.79
39	TPACK4.	227	1	9	6.05	2.38

As indicated in Table 9, the 8th item "I can use collaboration tools (wiki, edmodo, 3D virtual environments, etc.) in accordance with my objectives.", which is under the TK dimension has the lowest mean score (*M*=4.33) when compared to the other items. The CK items "I can understand texts written in English." and "I can express my ideas and feelings by writing in English." have the highest mean scores which are (*M*=7.65) and (*M*=7.61) respectively. According to the results, it can be suggested that in-service EFL teachers consider that they are proficient in the subject matter they teach and they have the necessary skills for teaching whereas they believe that they do not have adequate technological knowledge and they perceive a hindrance in blending educational technologies into their instruction. These findings concur with the results of the descriptive analysis of the TPACK components.

4.2.2. Research question 2

4.2.2.1. *Is there a meaningful relationship between in-service EFL teachers' TPACK self-efficacy levels and their gender?*

Mann-Whitney U test has been employed to determine the relationship between in-service EFL teachers' TPACK self-efficacy levels and their gender. Table 10 reports in-service EFL teachers' TPACK self-efficacy levels according to their gender.

Table 3. Mann-Whitney U test results for TPACK-EFL according to gender

Gender	N	Mean Rank	Sum of Ranks	U	p	Effect size
Female	139	121.84	16936.00	5026.00	.024	0.304
Male	88	101.61	8942.00			
Total	227					

Mann-Whitney U test results given in Table 10 indicate that the mean scores of female in-service EFL teachers ($\bar{X}$= 121.84) is higher than their male counterparts ($\bar{X}$= 101.61). Furthermore, the test results indicate that TPACK self-efficacy levels of in-service EFL teachers differ significantly (U=5026.00, p=0.024, <0.05) with respect to their gender. It has been revealed that the mean scores of female teachers is higher than the mean scores of their male colleagues, with a moderate level difference observed. Therefore, it is possible to conclude that the female in-service EFL teachers have higher self-efficacy of TPACK and they are more inclined to use educational technologies in educational settings.

4.2.2.2. *Is there a meaningful relationship between in-service EFL teachers' TPACK self-efficacy levels and their age?*

In an attempt to reveal the relation between in-service EFL teachers' TPACK self-efficacy levels and their age, Kruskal-Wallis H test has been performed. Table 11 reports in-service EFL teachers' TPACK self-efficacy levels according to their age.

Table 4. Kruskal-Wallis H test results for TPACK-EFL according to age

Age	N	Mean Rank	H	df	p	Significant difference
20-29	58	107.28	.818	2	.664	No difference
30-39	98	116.07				
40 +	71	116.63				
Total	227					

Table 11 illustrates that the mean scores of teachers who are older than 40 is the highest ($\bar{X}$= 116.63) whereas the mean scores of teachers who are between 20 and 29 is the lowest ($\bar{X}$= 107.28). The findings demonstrate that there is not a statistically significant difference (H= 0.818 p=0.664, >0.05). It can be interpreted that participants' TPACK self-efficacy levels do not differentiate according to the age group they belong to.

4.2.2.3. *Is there a meaningful relationship between in-service EFL teachers' TPACK self-efficacy levels and their professional experience?*

In an attempt to determine if there was any significant relationship between in-service EFL teachers' TPACK self-efficacy levels and their duration of professional experience, Kruskal-Wallis H test was performed. Table 12 reports in-service EFL teachers' TPACK self-efficacy levels according to their professional experience.

Table 12. Kruskal-Wallis H test results for TPACK-EFL according to professional experience

Professional Experience	N	Mean Rank	H	df	p	Significant difference
1-5 year(s)	35	106.73	9.401	4	.52	No difference
6-10 years	58	122.89				
11-15 years	64	97.83				
16-20 years	36	114.15				
21+ years	34	136.60				
Total	227					

According to Table 12, the teachers who have professional experience more than 20 years have the highest mean scores ($\bar{X}$= 136.60) whereas the mean scores of teachers who have professional experience between 11 and 15 years is the lowest ($\bar{X}$= 97.83). It is possible to conclude that participants' TPACK self-efficacy levels do not differ according to their professional experience.

4.2.2.4. *Is there a meaningful relationship between in-service EFL teachers' TPACK self-efficacy levels and their educational level?*

Mann-Whitney U test has been utilized to examine the relationship between TPACK self-efficacy levels of EFL teachers and their educational levels. Table 13 reports in-service EFL teachers' TPACK self-efficacy levels according to their educational levels.

Table 13. Mann-Whitney U test results for TPACK-EFL according to educational level

Educational Level	N	Mean Rank	Sum of Ranks	U	p	Effect size
Bachelor's Degree	183	106.52	19493.00	2657.00	.000	0.478
Postgraduate Degree	44	145.11	6385.00			
Total	227					

Table 13 indicates that the mean scores of in-service EFL teachers with Postgraduate degree ($\bar{X}$= 145.11) is higher than their colleagues with Bachelor's degree ($\bar{X}$= 106.52). Furthermore, a difference which is statistically significant (U=2657.00, p=0.00, <0.05) was indicated by the test results. The findings illustrate that the difference is at moderate level. It can be interpreted that participants with Postgraduate degree have higher self-efficacy of TPACK and it is more likely that they are more inclined to use educational technologies like Web 2.0 technologies in their classes.

4.2.2.5. *Is there a meaningful relationship between in-service EFL teachers' TPACK self-efficacy levels and their school type?*

Kruskal-Wallis H test has been performed to reveal whether in-service EFL teachers' TPACK self-efficacy levels differ according to the school levels they teach at. Table 14 reports in-service EFL teachers' TPACK self-efficacy levels according to the school type.

Table 14. Kruskal-Wallis H test results for TPACK-EFL according to school level

School Type	N	Mean Rank	H	df	p	Significant difference	Effect size
Elementary School	55	64.16	42.31	2	.000	Elementary-High	0.47
Secondary School	88	133.40				Elementary-Secondary	0.43
High School	84	126.30				Secondary-High	0.03
Total	227						

As revealed in Table 14, the mean scores of in-service EFL teachers who serve at Secondary schools is the highest ($\bar{X}$= 133.40). On the other hand, the mean scores of in-service EFL teachers working at elementary schools is the lowest ($\bar{X}$= 64.16). Furthermore, findings illustrate that there is a statistically significant difference among groups (p=0.00, p< 0.05). Mann-Whitney U test has been employed to find out the level of difference between and among the groups. The findings indicate that the mean scores of in-service EFL teachers working at high schools ($\bar{X}$= 126.30) is higher than the mean scores of in-service teachers who work at elementary schools, with the difference being at moderate level. Similarly, the mean scores of EFL teachers who teach at secondary schools is higher than the mean scores of EFL teachers working at elementary schools, with the difference being at moderate level. Furthermore, the mean scores of in-service EFL teachers working at secondary schools is higher than the mean scores of in-service EFL teachers who teach at high schools, with the difference being at low level. All in all, it can be concluded that EFL teachers who serve at secondary schools have the highest TPACK self-efficacy, indicating that the instructors working at secondary schools have more positive attitude towards ICT usage than their colleagues who serve at elementary or high schools.

4.2.2.6. *Is there a meaningful relationship between in-service EFL teachers' TPACK self-efficacy levels and their perceived digital literacy levels?*

Kruskal-Wallis H test has been employed to determine the relationship between in-service EFL teachers' TPACK self-efficacy levels and their perceived digital literacy. Table 15 reports in-service EFL teachers' TPACK self-efficacy levels according to their perceived digital literacy levels.

Table15. Kruskal-Wallis H test results for TPACK-EFL according to perceived digital literacy levels

Perceived Digital Literacy Levels	N	Mean Rank	H	df	p	Significant difference	Effect size
Basic	33	62.55	61.77	2	.000	Basic-Average	0.494
Average	154	107.93				Basic-Advanced	1,722
Advanced	40	179.83				Average-Advanced	0.872
Total	227						

As revealed in Table 15, the mean scores of in-service EFL teachers with advanced levels of digital literacy is the highest ($\bar{X}$= 179.83) whereas the mean scores of in-service EFL teachers with a basic level of digital competence is the lowest ($\bar{X}$= 62.55). Furthermore, test results reveal that the difference observed is statistically significant (p=0.00, p< 0.05). Mann-Whitney U test has been utilized to determine the level of difference between and among the groups. According to the findings, the mean scores of EFL teachers with average levels of digital literacy ($\bar{X}$= 107.93) is higher than the mean scores of EFL teachers who have basic level of digital competence, with the difference being at moderate level. Similarly, the mean scores of EFL teachers with advanced levels of digital literacy is higher than the mean scores of EFL teachers with basic computer skills, with the difference being at strong level. Furthermore, the mean scores of EFL teachers who have advanced levels of digital literacy is higher than the mean scores of EFL teachers with average digital literacy levels, with the difference being at strong level. To put it

concisely, it can be concluded that EFL teachers with advanced digital literacy levels have the highest self-efficacy towards TPACK, which indicates that the instructors with advanced digital competence have more favourable perceptions about Web 2.0 tools than their colleagues with basic and average levels of perceived digital literacy. That is, the more digital literate EFL teachers perceive themselves, the more likely they are to become avid users of instructional technologies.

4.2.2.7. *Is there a meaningful relationship between in-service EFL teachers' TPACK self-efficacy levels and previous INSET experience on Web 2.0 Technologies?*

Mann-Whitney U test has been performed to determine the relationship between in-service EFL teachers' TPACK self-efficacy levels and previous INSET experience on Web 2.0 technologies. Table 16 reports in-service EFL teachers' TPACK self-efficacy levels according to previous INSET experience on Web 2.0 Technologies.

Table 16. Mann-Whitney U test results for TPACK-EFL according to previous INSET experience on Web 2.0 technologies

Previous INSET Experience on Web 2.0 Technologies	N	Mean Rank	Sum of Ranks	U	p	Effect size
Yes	140	122.15	17101.50	4948.50	.018	0.319
No	87	100.88	8776.50			
Total	227					

As revealed in Table 16, the mean scores of in-service EFL teachers with previous INSET experience related to Web 2.0 technologies ($\bar{X}$= 122.15) is higher than their counterparts who have not participated in any previous INSETs experience on Web 2.0 technologies ($\bar{X}$= 100.88). Furthermore, according to the test results, there is a difference which is statistically significant (U=4948.50, p=0.18, <0.05). The mean scores of in-service teachers who have partaken in any INSET on Web 2.0 technologies is higher than the mean scores of those with no former INSET experience related to Web 2.0 technologies, with the difference being at moderate level. It can be inferred that in-service teachers with

a Web 2.0 INSET background have higher self-efficacy of TPACK and they are more inclined to use educational technologies in educational settings.

4.2.3. Research question 3

Is there a meaningful relationship between in-service EFL teachers' TPACK self-efficacy levels and their Web 2.0 perceptions and competence?

For the third research question, Spearman rank correlation coefficient was employed in order to assess the relationship between in-service EFL teachers' TPACK self-efficacy levels and their Web 2.0 perceptions and competence since the data were not distributed normally. In correlation tests, correlation forces are interpreted as a small relationship between .10 and .29, moderate between .30 and .49, and high correlation between .50-1.00 (Cohen, 1988). Further, Cohen (1988) interprets that correlation coefficient between .10 and .29 is considered to suggest a weak interrelation; a correlation coefficient of .30 and .49 is regarded as a moderate correlation; and a correlation coefficient of .50 and 1.00 or larger illustrates a strong or large correlation.

Table 17 indicates Pearson correlation between in service EFL Teachers' TPACK self-efficacy levels and attitudes of the EFL teachers towards Web 2.0 tools use.

Table 175. Spearman Correlation Analysis between in service EFL teachers' TPACK self-efficacy levels and Web 2.0 tools perceptions and competence

			TPUWL	TPACK
Spearman's rho	TPUWL	Correlation Coefficient	1.000	.614**
		Sig. (2-tailed)	.	.000
		N	227	227
	TPACK-EFL	Correlation Coefficient	.614*	1.000
		Sig. (2-tailed)	.000	.
		N	227	227

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

The results of the correlational analysis examined in Table 17 indicate that there is a positive and significant correlation between the in-service EFL teachers' TPACK self-efficacy levels and their Web 2.0 perceptions and competence ($r = .614$; $p < .001$). When

the relationships with TPACK-EFL and TPUWL scales are examined, the results reveal that there is a positive and strong level of relationship at the .01 and the .05 significance level ($p < .001$). Thus, it can be said that a correlation between TPACK self-efficacy of the in-service EFL teachers and their self-perceptions towards Web 2.0 tools exists. The results show that in-service EFL teachers who have higher self-esteem in TPACK have more favorable perceptions towards Web 2.0 technologies and show superior capability in technology integration.

4.3. The Findings of the Qualitative Data

4.3.1. Research question 4

What are in-service English language teachers' views on the advantages and challenges of integrating Web 2.0 tools into foreign language education?

For the fourth research question, semi-structured interviews were implemented and the participants were asked to respond to open-ended questions with the purpose of getting deeper interpretation of the EFL teachers' perceptions about the advantages of Web 2.0 technologies in language teaching and the challenges they encounter during the implementation of these tools into their teaching. Each participant's responses were examined separately and content analysis was employed to describe the data set. More specifically, the meaningful words, phrases and sentences in the data set were identified, labelled and coded during the analysis of the interviews. Then, emerging codes were divided into categories to be analyzed: a) Perceived advantages of using Web 2.0 tools in language teaching and b) Perceived challenges that hinder integrating Web 2.0 tools in language teaching

4.3.1.1. EFL teachers' views on the advantages Web 2.0 tools

In an attempt to determine EFL teachers' opinions towards incorporating Web 2.0 tools into their teaching, open-ended questions were asked in the interview. The findings revealed that the participants listed a variety of educational benefits that Web 2.0 platforms bring into their teaching. Table 18 indicates six perceived advantages of utilizing Web 2.0 tools stated by participants.

Table 18. EFL Teachers' views on the advantages of Web 2.0 tools

Category	Codes		*f*
Perceived advantages of using Web 2.0 tools in language teaching	Enhanced learning opportunities	P1, P2, P3, P4, P5, P7	6
	Authentic Material and Language Use	P1, P2, P4, P6	4
	Ease of use/Practicality	P2, P3, P4, P6	4
	Increased Motivation / Attention	P2, P3, P5,	3
	Increased interaction and collaboration	P1, P7	2
	Immediate Feedback	P2	1

Findings of the content analysis in Table 18 indicate six main advantages expressed by the participants. The potential of Web 2.0 to enhance students' learning opportunities was the most frequently stated advantage of integrating Web 2.0 technologies into their teaching. Some of the views justifying their opinions were as in the following:

> *They present numerous options for students to learn English in and out of the classroom. (P2)*
> *They help teachers to provide the students with a variety of interesting and enjoyable activities. (P3)*
> *I think Web 2.0 technologies are valuable because students can learn the language with the enriched content and activities that traditional language education cannot provide. (P5)*

Another noteworthy finding in Table 18 suggests that EFL teachers believe that Web 2.0 tools provide authentic materials for language instruction and enables authentic language use. The participants' statements were as in the following:

"....Well, WWW and Web 2.0 tools offer a wealth of authentic materials such as songs, short videos and films. For example, there are websites in which students can learn with these authentic materials and choose activities depending on their levels. (P1)

"...I teach to young learners and my students love learning with songs. Web 2.0 tools help me a lot when I need authentic and enjoyable songs for the kids." (P4)

"...My colleague and I have found penpals for our students from Spain. Our students were quite excited to use English for a genuine communication. They communicated through emails. It was a great experience for them." (P6)

Participants also expressed that Web 2.0 tools are practical platforms which enable them to use it without sophisticated ICT expertise. The participants' statements were as in the following:

"I think these platforms are easy and practical to utilize. I don't have advanced level of technological knowledge. However, I can use some of these technologies easily." (P4)

"Well, I am quite interested in technology, so I don't find it challenging to use these tools in my teaching. However, some of my colleagues are afraid of these platforms and they get shocked when they find out how some of these tools are easy to use." (P6)

Furthermore, the participants noted that the implementation of these technologies in language classes can increase students' motivation and attention. Some of the participants' statements were as in the following:

"Using these technologies helps students to participate in the activities willingly." (P2)

"The students really like it when these technologies are used during the lessons. They are drawn to the activities more easily. When they are motivated, they can learn better." (P3)

"I observe that students can easily get bored when we lecture. Web 2.0 applications promote their attention." (P5)

According to the some of the participating teachers, Web 2.0 enhances interaction and collaboration while learning a foreign language. The statements of such opinions as in the following:

> *"I think students become more energetic when I use Web 2.0. They learn in an entertaining atmosphere and interaction among my students is improved." (P7)*

Finally, one of the participating teachers pointed out that Web 2.0 tools provide immediate feedback which is a remarkable benefit of Web 2.0 platforms. The statements of the teacher were as in the following:

> *"I think it is valuable to give feedback to the students immediately. For example, sometimes I prepare online quizzes and students play them in the lesson. I notice that students get motivated when they get the immediate feedback. (P1)*

4.3.1.2. EFL teachers' views on the challenges of integrating of Web 2.0 tools

The findings of the semi-structured interviews revealed that participating teachers complained about a number of factors that are stated as pitfalls to implement Web 2.0 into their classes. Table 19 indicates six perceived challenges that participating teachers encounter during the incorporation of Web 2.0 tools.

Table 19. EFL teachers' views on the challenges of integrating of Web 2.0 tools

Category	Codes		*f*
Perceived challenges that hinder integrating Web 2.0 tools in language teaching	Lack of knowledge about Web 2.0 technologies	P1, P2, P5, P7	4
	Lack of technological skills and knowledge	P1, P2, P5, P7	4
	Lack of TPACK in integrating Web 2.0 tools	P1, P2, P5, P7	4
	Lack of in-service training about Web 2.0 tools	P1, P2, P5	3
	Lack of adequate time	P3, P4, P6	3
	Lack of infrastructure at schools	P3	1

Findings of the content analysis in Table 19 indicate that participating teachers revealed six reasons that prevent them from utilizing Web 2.0 tools in their teaching practices regularly. The most frequently stated factor in the first place is participants' restricted knowledge about Web 2.0 tools. Some of the statements of such opinions were as in the following:

> *"I am hesitant about my knowledge about Web 2.0 tools. Therefore, I am afraid I will not be successful if I try teaching through Web 2.0 technologies." (P5)*

> *"To tell the truth, I am not knowledgeable about Web 2.0. I have heard about them and see some of my colleagues use it. However, I am not sure that I will be able to use them in my lessons." (P7)*

The majority of participating teachers also expressed that they lack necessary technological skills and knowledge, which impede incorporation of Web 2.0 platforms into their classes. The opinions on these teachers were as in the following:

> *"I don't feel confident about technology. I only have basic technology skills…" (P1)*
>
> *"I am a late adapter of technology. Therefore, I don't have sufficient knowledge of technology..." (P2)*
>
> *"Technology keeps changing and I can't keep up with new technological developments…" (P7)*

Insufficient TPACK knowledge in integrating Web 2.0 platforms is another impediment expressed by the participants. The statements of these teachers were as in the following:

> *"I am not highly knowledgeable about how to use these tools efficiently in the class. I don't know which Web 2.0 platform to choose before or during the lesson..." (P1)*
>
> *"It is really challenging for me to implement these tools and to decide in which context I should use them. There are various Web 2.0 tools and I don't have any idea to use them appropriately." (P5)*

"I think it is not enough to have adequate technological knowledge if we want to use these technologies in the class sufficiently. When and how to employ these technologies in our classes is an important issue. I believe that I and most of my colleagues have inadequate knowledge of integrating technology into pedagogy…" (P7)

Additionally, some of the participants complained about the scarcity of INSETs for Web 2.0 tools. They stated that provided that they have periodic INSETs regarding Web 2.0 technologies, their self-esteem will increase. Some of the views justifying this finding were as in the following:

"…I think that taking trainings about the Web 2.0 tools would make me feel more confident to use them in the classroom." (P1)

"…If I take more INSETs about how to use these tools and gain more experience during these INSETs, I believe that I can use these tools in my teaching…" (P5)

Another remarkable finding in Table 19 suggests that participating teachers do not have adequate time for using these tools in their classes. The participants' statements were as in the following:

"I have no time to prepare activities with these technologies and use them in the class because my current workload is heavy with 28 hours of courses in a week." (P3)

"…Time is a problem for me because I can only make time to get ready for my heavy schedule. Furthermore, I have lots of extra paper work to do." (P4)

"Planning with technology takes a long time, but I am so busy with other tasks that I can't create time for these tools." (P6)

Finally, one of the participating teachers pointed out that slow and restricted internet connection is an obstacle for using the Web 2.0 tools. The opinion on this teacher was as in following:

"Because of the restricted internet connection supplied by the MoNE, I can't access a website that I need. Additionally, we sometimes experience problems related to the speed of the internet connection." (P3)

5. DISCUSSION

5.1. Introduction

This section comprises the comprehensive overview of the study. To begin with, it presents the discussion of the main findings in harmony with the research questions. In addition, relevant previous researches carried out both in the national and global setting are discussed and correlations are presented in comparison with the results of the present study.

5.2. Summary of the Study

The present study aimed to investigate in-service EFL teachers' TPACK self-efficacy levels and their Web 2.0 competence and perceptions towards using Web 2.0 and the relationship between their TPACK self-efficacy levels and their demographic features. The study, additionally, focused on the correlation between in-service EFL teachers' TPACK self-efficacy levels and their Web 2.0 competence and perceptions. The research contexts for this study were the schools located in Isparta in Turkey, and the participants were in-service EFL teachers working in Isparta.

5.3. Discussion of Findings for the Research Question 1

Research question 1 was to find out in-service EFL teachers' self-efficacy regarding TPACK. Data analysis of the first research question revealed that in-service EFL teachers' perceptions are high in CK, PCK and PK while their scores on TPK, TK, TCK and TPACK are just above the medium level. The findings demonstrated that participants possessed high level of content knowledge, pedagogical content knowledge and pedagogical knowledge, but they reported relatively low level of self-esteem when technological component was embedded. It is possible to deduce that the pedagogical and content knowledge of in-service EFL teachers prevail over their knowledge of technology. This is in conformity with Rouf and Mohamed (2018) who indicated that teachers had basic level of digital competence but were found to be deficient in implementing their technological knowledge properly into their classes. In addition, the overall results of TPACK-EFL scale indicated that in-service EFL teachers hold average

competency levels of TPACK self-efficacy. The findings of the first research question commensurate with the study carried out by Aniq and Drajati (2019) who concluded that although EFL teachers' perceptions were higher towards the knowledge of content and pedagogy, they had lower levels of knowledge when technology knowledge is added. On the other hand, the TPACK self-efficacy of in-service EFL teachers in this study appeared to be lower than the previous studies conducted by Kozikoğlu and Babacan (2019) and Delen (2016) who reported highly developed knowledge of TPACK among Turkish EFL teachers.

5.4. Discussion of Findings for the Research Question 2

Research question 2 aimed to reveal if there was any relationship between in-service EFL teachers' TPACK self-efficacy levels and their demographic features. The results revealed that the average score of female EFL teachers' TPACK self-efficacy higher than the scores of male teachers. These results tie well with the previous research carried out by Prasojo et al. (2020) who reported the surpassing capability of female teachers in TPACK. However, this result contradicts the results of various studies that reported there is a noteworthy variation in favor of male EFL teachers (Jang & Tsai, 2013; Luik et al. 2018). It can be implied that with equal educational opportunities in today's era and the prevalence of computers, female teachers present more tendency and comfort in using technologies.

Another finding of the current study revealed that EFL teachers' TPACK self-efficacy levels do not differentiate according to the age group they belong to. These results support the previous research conducted by Koh and Sing (2011) who suggested that demographic features such as age and gender did not significantly influence TPACK perceptions of participating pre-service teachers. On the other hand, in another study, Lee and Tsai (2010) explored TPACK perceptions of Taiwanese in-service teachers with regards to their implementation of web-based technology. According to the results, older teachers were found to have lower levels of confidence in utilizing web-based technology.

Another important finding was that the teachers' TPACK self-efficacy levels do not differ significantly with respect to their professional experience. This finding is compatible with the result of the research carried out by Alharbi (2020) in which there were not statistically significant differences among 191 Saudi EFL teachers attributable to the experience.

Similarly, Kozikoğlu and Babacan (2019) carried out a study with 721 ELT teachers in Turkey and indicated that teachers' experience is not influential in their TPACK levels. Lee and Tsai (2010), on the contrary, asserted that novice teachers had more elevated TPACK competences than more experienced teachers. Furthermore, Nazari et al. (2019) found that Iranian teachers who were amply experienced in teaching were more competent concerning the pedagogical skills while less experienced teachers were more proficient in technology, which indicated that experience might negatively correlate with TPACK competence. Their findings are compliant with the findings of Hervey (2015), indicating that teachers with a great deal of professional experience are more knowledgeable in knowledge of pedagogy and content, but less capable in technology as a knowledge base.

Regarding the correlation between teachers' TPACK self-efficacy levels and their educational levels, the results indicated a difference at moderate level in favor of EFL teachers with a postgraduate degree. Namely, EFL teachers with a postgraduate degree showed higher perceived self-efficacy in TPACK in comparison to other group of EFL teachers with Bachelor's degree. A similar pattern of results was obtained in a previous study conducted by Mailizar et al. (2021) where findings indicated that mathematics teachers with higher educational levels presented higher levels of TPACK self-efficacy. Similarly, a study by Lavidas et al. (2021) on perceptions of Greek preschool teachers' TPACK revealed that teachers' education level appeared as a powerful factor in their self-efficacy beliefs towards TPACK.

The findings further revealed that there existed a notable difference in EFL teachers` levels of TPACK self-efficacy according to the school type they serve. The analyses of the data disclosed that teachers who work at secondary schools possessed more favorable self-efficacy perceptions of TPACK compared to their colleagues working at primary and high schools. Regarding the correlation between TPACK and the stage that EFL teachers teach in, Alharbi (2020) asserted that statistically significant differences exist among EFL teachers in favor of the teachers working at the secondary schools. Similarly, this finding is in conformity with the study of Cekerol and Ozen (2020) in which significant differences in TPACK factors were reported between secondary school teachers and primary and high school teachers. However, Mailizar et al. (2021) examined mathematics teachers' TPACK in relation to demographic factors and found no significant differences between participants' TPACK levels and their school level.

Furthermore, remarkable differences in TPACK self-efficacy levels of EFL teachers in relation to their perceived digital literacy levels were revealed in the current study. The results indicated a difference at strong level in favor of EFL teachers with 'advanced' levels of perceived digital literacy compared to EFL teachers with 'basic' and 'average' levels of perceived digital literacy. This is consistent with what has been found in a previous study conducted by Cekerol and Ozen (2020) who found significant differences between the means of teachers who considered their technology use as 'very good' and their colleagues who defined their technology competence as "medium" and "good". The teachers who find themselves competent in technology also find themselves competent in TPACK. Accordingly, this finding shows that teachers' TPACK self-efficacy can be improved with the integration of technology use into their content and pedagogy knowledge.

The results of the study presented a direct correlation between teachers' participation in previous INSET experience on Web 2.0 and their TPACK self-efficacy levels. The responses provided by in-service EFL teachers showed that those who attended an INSET on the topic of Web 2.0 significantly differed from those who did not in terms of their TPACK self-efficacy. EFL teachers with in-service training experience on Web 2.0 technologies had higher means, which indicates higher TPACK self-efficacy. These findings are in agreement with previous studies indicating that the INSETs on Web 2.0 tools and technology use made remarkable amendments in the levels of TPACK self-efficacy of EFL teachers (Cekerol & Ozen, 2020; Najjari et al., 2021).

5.5. Discussion of Findings for the Research Question 3

Research question 3 endeavored to unveil if there was any relationship between in-service EFL teachers' TPACK self-efficacy levels and their Web 2.0 perceptions and competence. The current study demonstrated that a positive and strong level of correlation exists between TPACK self-efficacy of the in-service EFL teachers and their Web 2.0 self-perceptions. The sub-dimensions of TPACK were reported as powerful predictors of Web 2.0 self-efficacy beliefs and in-service EFL teachers with higher TPACK self-efficacy have more favorable perceptions towards Web 2.0 technologies and show higher capability of technology integration. The body of literature indicated that many previous researches are in line with the findings of the current study. For example, Alazcioglu (2016) carried out a study with 514 pre-service teachers in an attempt to identify the

relation between pre-service teachers' TPACK efficacy levels and Web 2.0 applications usage, and detected a positive connection between TPACK proficiency levels of teacher candidates and their use of Web 2.0 applications. Similarly, Wright and Akgunduz (2018) carried out a study with 344 final year pre-service science teachers to figure out pre-service science teachers' TPACK self-efficacy levels in connection with their Web 2.0 usage. A positive moderate correlation was revealed between TPACK self-efficacy and teachers' perceptions about the implementation of Web 2.0 applications according to the results of the study. Consequently, it can be interpreted that availability of knowledge of technology does not necessarily equate to efficient teaching. Practitioners need to possess highly-developed TPACK in order to exploit modern technologies beneficially and choose appropriate Web 2.0 platforms to fulfill the instructional objectives of their classrooms.

5.6. Discussion of Findings for the Research Question 4

Research question 4 sought to explore English language teachers' perspectives on the advantages and challenges of integrating Web 2.0 tools into foreign language education. In an effort to shed light on the final research question, semi-structured interviews were implemented, participant's responses were organized and content was analyzed to elicit the meaning of the data set. Findings of the content analysis revealed six main advantages of Web 2.0 technologies indicated by the participant teachers: (1) They enhanced learning opportunities, (2) They enabled authentic material and language use, (3) They increased student motivation/attention, (4) They are practical and easy to use, (5) They increased interaction and collaboration, (6) They provided immediate feedback.

The most frequently declared positive influence of Web 2.0 in English language teaching was enhanced learning opportunities. This is in accord with Mouza (2008)'s mixed method study in which teachers reported that technology use in the class provides rich and active learning environments. In other words, Web 2.0 tools enable English language teachers to expand learning opportunities for students through secure and private virtual language learning platforms.

The second major benefit was reported as the access to the authentic material and language use. This finding is supported by Kayar (2009) who reported that Web 2.0

technologies were valuable in establishing authentic and meaningful learning experiences. Similarly, Daşkın (2017) conducted a mixed method study with 101 participants from ELT departments and school of foreign languages of various universities in Turkey. The results of the study revealed that the rich and authentic content that Web 2.0 platforms provide is among the benefits of using Web 2.0 technologies in language classes.

Another important advantage listed by the participating teachers is that Web 2.0 tools elevated learners' motivation and attention. Compatible with the results, Zakaria et al. (2018) suggested that student motivation was enhanced when Kahoot, a game-based learning platform, was employed as an online assessment tool. Parvin and Salam (2015) conducted an action research with a focus on participants' ideas regarding the amenities of merging technology into their classrooms. Increased student engagement and motivation was reported as one of the seven benefits of incorporating Web 2.0 technologies in education. Furthermore, Katerini (2013) concluded that most of the Greek EFL teachers who participated in the study appreciated the positive influence of web-based lessons on learners' motivation.

In addition, participants expressed that Web 2.0 tools are practical and user-friendly. The body of literature indicated that the perceived ease of use and practicality are seen among the advantages of Web 2.0 tools. Ajjan and Hartshorne (2008) investigated the perceptions of 136 university instructors concerning the pedagogical benefits of Web 2.0. According to the instructors that took part in the study, Web 2.0 tools were simple to integrate into the classroom. Additionally, the mixed method study conducted by Yaprak (2020) with 202 EFL teachers in Turkish context revealed that ease of use and perceived usefulness were the most powerful factors affecting their Web 2.0 usage. Similarly, the study by Onbasili (2020) indicated that Web 2.0 tools were labelled as simple and enjoyable by the participants of the study and they wanted to use these tools in other courses.

Participating teachers of the current study also indicated that interaction and collaboration were proliferated among the students through the utilization of Web 2.0 tools. The previous research also echoed similar findings by reporting that Web 2.0 tools stimulate communication and interaction in the class. The study by An and Williams (2010) which

endeavored to investigate instructors' ideas about the benefits and drawbacks of technology usage in their classrooms showed that participants considered Web 2.0 as an agency to augment the social interaction in the classroom. In a similar vein, Ajjan and Hartshorne (2008) found that teachers perceived social networking sites and wikis to be valuable for improving student-student interactions.

Enabling opportunities for immediate feedback was the last reported advantage of Web 2.0 tools. This finding is in conformity with the study of Göktürk Sağlam and Sert (2012) in which the participants indicated that the opportunity to give continuous feedback is one of the advantages that technology brings into the classroom. Additionally, the study carried out by Daşkın (2017) revealed that ELT instructors found Web 2.0 tools feasible as a means to give immediate feedback.

The data obtained from semi-structured interviews indicated that participating teachers perceived a number of factors as drawbacks during the incorporation of Web 2.0. 'Lack of knowledge about Web 2.0 technologies', 'Limited technological skills and knowledge' and 'Limited TPACK to incorporate Web 2.0 tools into instruction' were all identified as major impediments to the incorporation of Web 2.0 tools into their teaching practice by four of the seven participating teachers. These findings corroborated the previous studies with respect to the obstacles that teachers come up against when they use technology in their classrooms. More specifically, Kim (2002) asserted that teachers' actual use of web-based applications was impeded due to the barriers such as insufficient digital competence, lack of experience and low level of confidence. Similarly, the research carried out by Archambault and Crippen (2009) with 596 teachers in the USA showed that despite being highly proficient in pedagogy and content, teachers were not sufficient in terms of knowledge of technology. Similar results were obtained by Sadaf et al. (2012) who indicated that the majority of participants of their study were knowledgeable about the benefits of using Web 2.0 tools in teaching but they had difficulties in integrating Web 2.0 tools properly into their teaching practices. In addition, Kale and Goh (2014) reported that teachers' efforts to utilize Web 2.0 in teaching were hindered because they did not have precise opinions on how to utilize these technologies practically. It can be inferred that in-service EFL teachers are discouraged to use these tools in their classes due to insufficient knowledge and skills needed for implementation of technology into educational settings.

Lack of training was also listed as an obstacle to participants' successful Web 2.0 integration. Kayar (2019) carried out a study with 100 Turkish high school EFL teachers in an attempt to figure out the widely used Web 2.0 tools in English language teaching and to investigate perceived advantages and disadvantages of employing these technologies. The participants of the study listed 'need for training/necessary technological skills' as one of the main pitfalls of Web 2.0. Parvin and Salam (2015) indicated that the need for teacher training was one of the disadvantages reported by the participants of their study. To this end, it can be inferred that it is essential that teachers be regularly assisted and guided in their endeavor to obtain necessary knowledge, skills, and the confidence in order to integrate these technologies into their teaching practices.

Another remarkable barrier listed by the participating teachers was lack of adequate time. The participating teachers stated that they would not have time for designing and conducting technology-based lessons due to their overloaded curriculum. There are a plethora of studies in which time burden was reported as a remarkable impediment to utilizing Web 2.0 tools (An & Williams, 2010; Hennessy et al., 2005). According to Jimoyiannis et al. (2013), although teachers are inclined to incorporate Web 2.0 applications into the classroom setting, they are hampered by the inadequacy of time and their crowded schedule.

Reported by only one of the participating teachers, 'lack of infrastructure' was viewed as a challenge that was encountered during the incorporation of Web 2.0 tools. The participating teachers generally had positive perceptions about the technological facilities at schools. However, one of the participant teachers indicated that filtered or blocked websites discouraged teachers from using these tools. In line with this, Sadaf et al. (2015) carried out a two-phase mixed method study. They found that while the vast majority of the participants were able to use Web 2.0 tools without experiencing any technical problems, limited access to resources owing to slow or no Internet access and blocked websites prevented a few teachers from using these technologies. Similarly, Pan and Franklin (2011) found that websites which were filtered or blocked for students' safety prevented teachers from implementing Web 2.0 tools.

It is safe to infer that despite appreciating the value of Web 2.0 platforms, teachers experience several challenges while exploiting these technologies in their teaching

environments. Teachers' restricted knowledge of Web 2.0, low self-efficacy and inadequate digital skills, insufficient knowledge of TPACK, lack of training, limited time to plan and employ educational technology and limited internet access seemed to negatively influence successful Web 2.0 integration.

6. CONCLUSION

6.1. Introduction

The brief summary of the study based on the findings from the previous chapter and pedagogical implications are presented in this chapter.

6.2. Conclusion

The current mixed method study was an attempt to determine the TPACK levels of the Turkish in-service EFL teachers and perceptions towards Web 2.0 tools. The study also aimed to to shed light on whether a correlation exists between their TPACK self-efficacy levels and demographic variables such as age, gender, professional experience, educational level, school type, perceived digital literacy levels and previous INSET experience on Web 2.0. The study also focused on the correlation between EFL teachers' TPACK self-efficacy levels and their Web 2.0 competence and perceptions. On the grounds of this, the study employed an online survey in the first phase and then deeply investigated reflections of voluntary participants on their competence and experiences of Web 2.0 technologies through semi-structured interviews.

When the first research question was examined, the results indicated that in-service EFL teachers' perceptions are high in CK, PCK and PK while their scores on TPK, TK, TCK and TPACK are just above the medium level. The findings showed that participants possessed high levels of content knowledge, pedagogical content knowledge and pedagogical knowledge, but they reported relatively low level of self-efficacy when knowledge of technology was added which is in conformity with Archambault and Crippen (2009) and Köse (2016). Studies conducted by Öz (2015), Kozikoğlu and Babacan (2019) and Delen (2016), on the contrary, reported that the teachers had highly developed TPACK. It can be concluded that there exists a gap between in-service EFL teachers' pedagogical content knowledge and their technology knowledge. This gap may lie in the difference between how teachers are trained at university and what they are expected to do in a real classroom using technology. Put differently, it can be argued that there is no direct course for integration of instructional technology into teaching and necessary attention is not given to the TPACK in teacher training programs at universities.

Moreover, taking EFL teachers' scores on TPK, TK, TCK and TPACK into consideration, it can be asserted that although EFL teachers are generally aware of cognitive and affective advantages of instructional technology in language teaching and the importance of choosing proper tools that suit their teaching methods, they have difficulty in combining technology with their existing knowledge to create effective technology-integrated lessons and they have to focus more of their attention upon pedagogy and content. Therefore, in order to promote their levels of TPACK for developing professionally, EFL teachers need customized professional development courses for technology integration, which focus on 'how to teach with technology' rather than giving theoretical knowledge about educational technology.

When the second research question was examined, the results revealed that TPACK self-efficacy perceptions of female in-service EFL teachers are higher than male teachers. Previous research also corroborates the results (Prasojo et al., 2020). However, EFL teachers' TPACK self-efficacy levels did not differ according to teachers' age and their years of teaching experience. These results support the previous research conducted by Koh and Sing (2011) who concluded age has no influence in teachers' TPACK levels and Kozikoğlu and Babacan (2019) who found that teaching experience did not play a significant role in TPACK perceptions of the participants. Furthermore, the results indicated a positive relationship at moderate level in favor of EFL teachers with a postgraduate degree regarding the connection between TPACK self-efficacy levels and educational level. The results also revealed that teachers who work at secondary schools had higher TPACK self-efficacy perceptions compared to their colleagues working at primary and high schools. This finding is in conformity with Alharbi (2020) who indicated that there are statistically significant differences among EFL teachers in their TPACK self-efficacy perceptions in favor of the EFL teachers at the secondary stage. Furthermore, there were significant differences in TPACK self-efficacy levels of EFL teachers according to their perceived digital literacy levels. The results indicated a difference at strong level in favor of EFL teachers with 'advanced' levels of perceived digital literacy compared to EFL teachers with 'basic' and 'average' levels of perceived digital literacy. This is consistent with what has been found in a previous study conducted by Cekerol and Ozen (2020). Finally, the results of the study displayed a positive correlation between previous INSET experience on Web 2.0 technologies and teachers' TPACK self-efficacy levels, which is in accord with previous researches carried out by

Cekerol and Ozen (2020) and Najjari et al. (2021). As for the interrelation between EFL teachers' TPACK self-efficacy and their gender, it can be assumed that the recent technological improvements and expanding opportunities to gain access to contemporary devices and internet have diminished the perceived gender differences with respect to the use of technology, which might be interpreted as the gap among male and female teachers regarding the use of technology in education is narrowing. The contradictory results of the current study regarding the interrelation between EFL teachers' TPACK self-efficacy and their age and professional experience might be justified in that experienced teachers' TPACK self-efficacy beliefs have been ameliorated thanks to professional development opportunities provided for them. In other words, EFL teachers' age and professional experience do not correlate with their TPACK self-efficacy, which might disprove the 'digital immigrants' myth portrayed for older teachers. Based on the findings related to the relationship between EFL teachers' TPACK self-efficacy and their school level, it could be argued that EFL teachers working at secondary schools have more focused platforms to embed educational technology into their classroom because they have plenty of online resources in Turkish context compared to their colleagues working at primary and high schools. Moreover, students at primary and high schools might easily get distracted when the technology is utilized in the classroom. Therefore, it could be suggested that in-service teacher training programs that focus on incorporation of technology should be designed in accordance with the levels teachers teach because their use of technology might change based on their audience and the grade they study. Results of the study also suggest that there is a positive relationship between EFL teachers' educational level, perceived digital literacy level and previous INSET experience and their TPACK self-efficacy. These findings could be inferred as the desired results since the more time teachers spend in electronic environments and professional development activities, the more favorable perceptions they are expected to show towards TPACK.

The third research question sought to investigate whether there was a meaningful correlation between in- EFL teachers' TPACK self-efficacy levels and their Web 2.0 perceptions and competence. As indicated by the results, a positive and high level of correlation was reported between TPACK self-efficacy of EFL teachers and their self-perceptions towards Web 2.0 tools. Namely, EFL teachers with higher TPACK self-efficacy have more favorable perceptions towards Web 2.0 technologies and they were highly capable in technology integration. This finding ties well with previous study

conducted by Alazcioglu (2016) who put forth a positive connection between teacher candidates' TPACK proficiency and their Web 2.0 usage. It could be concluded from the findings that EFL teachers who are highly aware of the construct of TPACK are inclined to use Web 2.0 technologies within their specific subject areas. One explanation could be that EFL teachers with well-developed TPACK are more likely to recognize the practicality and effectiveness of Web 2.0 tools in language education because they are quite familiar with instructional technologies and strategies for implementing technology into their professional practice.

During the interviews, the participating teachers listed a variety of benefits that Web 2.0 tools provide both for them and their students. EFL teachers stated that Web 2.0 tools were practical and user friendly. They also maintained that these platforms enhanced learning opportunities, enabled authentic material and language use, increased student motivation/attention, increased interaction and collaboration, provided immediate feedback. However, participating teachers perceived a number of factors as impediments to the implementation of Web 2.0 tools into instruction. 'Lack of knowledge about Web 2.0 technologies', 'Inadequate technological skills and knowledge' and 'Lack of TPACK in integrating Web 2.0 tools' were reported as the major impediments by the majority of the teachers. Insufficient INSET trainings, time constraints and shortage of infrastructure appeared to be the other remarkable barriers listed by the teachers. As a result, it can be implied that in-service English language teachers participating in the current study were eager and ready to try educational technologies for their classes. However, it can be clearly observed that they lack the necessary knowledge to incorporate technology with their knowledge of pedagogy and content. Therefore, these findings could provide valuable insights to administrators, program designers and instructors in the process of designing in-service training programs for EFL teachers.

6.3. Implications of the Study

The current study investigated in-service EFL teachers' TPACK self-efficacy levels and their Web 2.0 competence and perceptions towards using Web 2.0 and explored the relationship between their TPACK self-efficacy levels and their demographic features such as age, gender, professional experience, educational level, school type, perceived digital literacy levels and previous INSET experience on Web 2.0 Technologies. The

study also sought to examine the correlation between in-service EFL teachers' TPACK self-efficacy levels and their Web 2.0 competence and perceptions towards Web 2.0 technologies. Based on the findings of the research, it is expected that the reported findings of the study will offer some implications for the stakeholders of education.

The first pedagogical implication for the current study could be that teachers are required to integrate appropriate technological knowledge and skills into their pedagogical and content knowledge as a means to meet the instructional requirements of contemporary learning environments. Ineffective technology incorporation to the pedagogy is generally credited with teachers' shortfall of the necessary transformation to accomplish the technology integration (Charp, 2000; Rakes & Casey, 2002). Therefore, it has become indispensable for language teachers to be cognizant of the possible benefits that are offered by the technological innovations and to apply modern technology to their teaching environments.

Taking the relationship between the TPACK self efficacy of in-service EFL teachers and demographic variables, it is evident that teachers' TPACK self-efficacy beliefs are influenced by some demographic factors. Therefore, identification of personal characteristics of the participants is significant for revealing the TPACK self-efficacy of teachers, which may contribute to the decision-making process about revising and designing INSETs for teachers in a way to be more responsive to the needs of teacher participants. To illustrate, EFL teachers working at primary schools and high schools were found to lack the instructional strategies to embed technology into their teaching practice. Hence, EFL teachers working at primary schools and high schools must be offered more opportunities in order to elevate their TPACK self-efficacy beliefs.

Considering the advancement of technology and the current use of modern technologies and Web 2.0 tools in educational settings, it has become a necessity rather than a choice for language pedagogy to adopt various educational technologies. Although in-service EFL teachers, who are the key agents to determine how technology is implemented in language instruction, seemed to have a high level of knowledge of pedagogy and their subject areas, they lacked the knowledge of technology and instructional strategies to incorporate technology with their pedagogical knowledge and content knowledge. Therefore, teachers must be offered technology-related INSETs so that they can develop

their knowledge of technology and equip themselves with the expertise to merge technological tools into their lessons. By arranging ongoing in-service training programs and support, teachers will be given worthful opportunities to acquire the essential computer skills and to expand their TPACK knowledge. What is of vital importance here is that INSETs should adopt a practical approach rather than merely conveying theoretical knowledge. Namely, teachers should be given enough opportunities to reflect on and practice what they have learnt. Additionally, teachers' needs should be defined before the trainings and the training groups are formed in accordance with the technology knowledge level of teachers.

Another pedagogical implication for the current study is that the curriculum in ELT departments may be enriched with compulsory courses about the use of educational technology in language teaching methodology. Additionally, Foreign Language Education Departments at universities should design professional trainings about educational technologies and Web 2.0 tools for their instructors so that they can teach the pre-service teachers how to integrate recent technologies into language education in an effective way and raise technologically equipped teachers.

7. SUGGESTIONS FOR FURTHER STUDIES

The sample of the present study consisted of 227 in-service EFL teachers working in public schools, Isparta province, Turkey. Hence, generalizability is limited to in-service EFL teachers in similar contexts. In addition, in terms of qualitative data collection, the semi-structured interviews were performed with 7 in-service EFL teachers. Similar studies can be carried out with higher number of participants so that the reliability of the research findings would be increased and more accurate results can be obtained.

This study is limited to in-service EFL teachers' perceived self-efficacy beliefs towards TPACK and Web 2.0 technologies instead of objective observations and measurements of their TPACK levels and their actual usage of Web 2.0 technologies. In that sense, a further study may additionally employ more objective methods and different research instruments in order to obtain more measurable and observable data about in-service EFL teachers' TPACK levels and their actual use of Web 2.0 tools.

In addition, in the view of the fact that this study is not longitudinal, it is not likely to determine the influence of EFL teachers' TPACK self-efficacy beliefs and their Web 2.0 perceptions on their students' achievements. In this regard, a further long-term study can focus on how and to what extent students' level of success are influenced by EFL teachers' TPACK and their perceptions towards the integration of Web 2.0.

REFERENCES

Abbitt, J. T. (2011). An investigation of the relationship between self-efficacy beliefs about technology integration and technological pedagogical content knowledge (TPACK) among pre-service teachers. *Journal of Digital Learning in Teacher Education, 27*(4), 134–143.

Achterman, D. (2006). Beyond "Wikipedia". *Teacher Librarian, 34*(2), 19-22.

Ahmadi, S. D., & Marandi, S. S. (2014). Social software in the classroom: The case of wikis for scaffolding. *Procedia-Social and Behavioral Sciences, 98*, 100-108.

Ajjan, H., & Hartshorne, R. (2008). Investigating faculty decisions to adopt Web 2.0 technologies: Theory and empirical tests, *Internet and Higher Education, 11*, 71-80.

Aktaş, İ., Gökoğlu, S., Turgut, Y. E., & Karal, H. (2014). Teachers' opinions about FATIH Project: Awareness, foresight and expectations. *Necati Bey Faculty of Education Electronic Journal of Science and Mathematics Education, 8*(1), 257-286.

Akıncı, A., Kurtoğlu, M., & Seferoğlu, S. S. (2012). Bir teknoloji politikası plarak FATİH Projesi'nin başarılı olması için yapılması gerekenler: Bir durum analizi çalışması. *Akademik Bilişim, 1-3 Şubat 2012 /* Uşak Üniversitesi, Uşak.

Alazcioglu, H. (2016). *Ögretmen adaylarinin TPAB yeterlik duzeyleri ile Web 2.0 araclarini kullanim durumlari arasindaki iliskinin incelenmesi* [Unpublished master's thesis]. Mevlana Universitesi.

Albion, P. (1999). *Self-efficacy beliefs as an indicator of teachers' preparedness for teaching with technology.* Paper presented in Proceedings of the 10th International Conference of the Society for Information Technology & Teacher Education (pp. 1602- 1608), Austin, Texas: Association for the Advancement of Computing in Education.

Albion, P. (2008). Web 2.0 in teacher education: Two imperatives for action. *Computers in the Schools, 25*(3/4), 181–198.

Albion, P. R., Tondeur, J., Forkosh-Baruch, A., & Peeraer, J. (2015). Teachers' professional development for ICT integration: Towards a reciprocal relationship between research and practice. *Education and Information Technologies, 20*(4), 655–673.

Albirini, A. (2006). Teachers' attitudes toward information and communication technologies: The case of Syrian EFL teachers. *Computers & Education, 47*(4), 373-398.

Alharbi, A. A. M. (2020). The degree of teaching knowledge for Saudi EFL teachers: An investigation for Madinah EFL teachers' perceptions regarding TPACK framework. *English Language Teaching, 13*(10), 99-110.

Alimirzaee, H., & Ashraf, H. (2016). On the effect of online peer knowledge sharing on Iranian EFL teachers' professional development. *Theory and Practice in Language Studies, 6*(1), 134-146.

Alkhawaldeh, N., & Menchaca, M. (2014). Barriers to utilizing ICT in education in Jordan. *International Journal on E-Learning, 13*(2), 127-155.

Alm, A. (2013). Extensive listening 2.0 with foreign language podcasts. *Innovation in Language Learning and Teaching, 7*(3), 266-280.

Al-Mekhlafi, A. (2004). The internet and EFL teaching: The reactions of UAE secondary school English language teachers. *Journal of Language and Learning, 2*(2), 88-113.

Almekhlafi, A.G., & Almeqdadi, F.A. (2010). Teachers' perceptions of technology integration in the United Arab Emirates school classrooms. *Educational Technology & Society, 13*(1), 165-175.

Alvarez Valencia, J. A. (2016). Language views on social networking sites for language learning: The case of Busuu. *Computer Assisted Language Learning, 29*(5), 853-867.

An, Y.J., & Williams, K. (2010). Teaching with Web 2.0 technologies: Benefits, barriers and lessons learned. *International Journal of Instructional Technology and Distance Learning, 7*(3), 41-48.

An, Y. J., & Reigeluth, C. (2011). Creating technology-enhanced, learner-centered classrooms: K–12 teachers' beliefs, perceptions, barriers, and support needs. *Journal of Digital Learning in Teacher Education, 28(*2), 54-62.

Anderson, P. (2007). What is Web 2.0? Ideas, technologies and implications for education. *JISC Technology and Standards Watch, 1*(1), 1-64.

Aniq, L. N., & Drajati N. A. (2019). Investigating EFL teachers‟ perceptions on their TPACK development: How EFL teachers view seven domains on TPACK framework. *Leksika: Jurnal Bahasa, Sastra dan Pengajarannya, 13*(2), 95-101.

Aşıksoy, G. (2018). ELT students' attitudes and awareness towards the use of Web 2.0 technologies for language learning. *Journal of Language and Linguistic Studies, 14*(2), 240-251.

Archambault, L., & Crippen, K. (2009). Examining TPACK among K-12 online distance educators in the United States. *Contemporary Issues in Technology and Teacher Education, 9*(1), 71-88.

Arslan, R. S., & Sahin-Kizil, A. (2010). How can the use of blog software facilitate the writing process of English language learners? *Computer Assisted Language Learning, 23*(3), 183–197.

Ateş, M., Çerçi, A., & Derman, S. (2015). Eğitim bilişim ağında yer alan Türkçe dersi videoları üzerine bir inceleme. *Sakarya University Journal of Education, 5*(3), 105-117.

Attwell, G. (2007). *Web 2.0 and the changing ways we are using computers for learning: what are the implications for pedagogy and curriculum*. Retrived November 14, 2021, from http://www.elearningeuropa.info/files/media/media13018.pdf.

August, J. (1995). Internet: the giant killer. *Vermont Business Magazine*, Oct 01, 1995.

Ayan, E. (2018). Öğretmenlerin eğitim bilişim ağı içeriğini kullanma ve e-içerik geliştirme durumlarının incelenmesi. [Master's thesis, Hacettepe University]. (Publication No. 531266). Council of Higher Education Thesis Center.

Aydin, S. (2007). Attitudes of EFL learners towards the Internet. *Turkish Online Journal of Educational Technology-TOJET, 6(3),* 18-26.

Aydin, Z., & Yildiz, S. (2014). Using wikis to promote collaborative EFL writing. *Language Learning & Technology 18*(1), 160–180.

Bachfischer, A., Lawrence, E., Litchfield, A., Dyson, L. E., & Raban, R. (2008). Student perspectives about using mobile devices in their studies. *IADIS International Conference on Mobile Learning,* (pp. 43-50.)

Baird, D. E., & Fisher, M. (2005). Neomillenial user experience design strategies: Utilizing social networking media to support "always on" learning styles. *Journal of Educational Technology, 34*(1), 5–32.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

Baser, D., Kopcha, T. J., & Ozden, M. Y. (2015). Developing a technological pedagogical content knowledge (TPACK) assessment for pre-service teachers learning to teach English as a foreign language. *Computer Assisted Language Learning, 29*(4), 749-764.

Baskaran, L., & Shafeeq, C.P. (2015). ESL teachers' perception of CALL integration in ELT. *International Journal on Studies in English Language and Literature, 3*(5), 63-74.

Biancarosa, G., & Griffiths, G. (2012). Technology tools to support reading in the digital age. *The Future of Children, 22*(2), 139-160.

Blattner, G., & Fiori, M. (2009). Facebook in the language classroom: Promises and possibilities. *International Journal of Instructional Technology and Distance Learning, 6*(1), 17–28.

Bloch, J. (2008). From the special issue editor. *Language Learning & Technology, 12*(2), 2–6.

Bower M., Hedberg, J. G., & Kuswara A. (2010). A framework for Web 2.0 learning design. *Educational Media International, 47*(3), 177-198.

Bradley, T., & Lomicka, L. (2000). A case study of learner interaction in technology-enhanced language learning environments. *Journal of Educational Computing Research. 22*(3). 347-368.

Buffington, M. L. (2008). What is Web 2.0 and how can it further art education*?*. *Art Education, 61*(3), 36-41.

Butler, J. (2012). Grappling with change: Web 2.0 and teacher education. In D. Polly, C. Mims, & K. A. Persichitte (Eds.), *Developing technology-rich teacher education programs: Key issues* (pp.135–150). IGI Global.

Büyüköztürk, Y. (2002). Faktör analizi: Temel kavramlar ve ölçek geliştirmede kullanımı, *Kuram ve Uygulamada Eğitim Yönetimi, 32*(32*),* 470-483.

Capo, B. H., & Orellana, A. (2011). Web 2.0 technologies for classroom instruction: High school teachers' perceptions and adoption factors. *Quarterly Review of Distance Education, 12*(4), 235.

Cavas B., Cavas P., Karaoglan B., & Kisla T. A. (2009). Study on science teachers' attitudes toward information and communications technologies in education, Turkey. *Online Submission, 8*(2), 20-32.

Cekerol, K., & Ozen, E. (2020). Evaluatıon of teachers' technologıcal pedagogıcal content knowledge wıthın the framework of educatıonal informatıon network and other varıables. *Turkish Online Journal of Distance Education, IODL,* 61-78.

Cephe, P. T., & Balçıkanlı, C. (2012). Web 2.0 tools in language teaching: What do student teachers think?. *International Journal on New Trends in Education and Their Implications, 3*, 1-12.

Chang, C. W., Pearman, C., & Farha, N. (2012). Second language acquisition: Implications of Web 2.0 and beyond. *Critical Questions in Education*, *3*(2), 52-64.

Chapelle, C. (2010). The spread of computer-assisted language learning. *Language Teaching*, *43*(1).

Charp, S. (2000). The millennium classroom. T.H.E. Journal, 27(10), 10-12.

Chartrand, R. (2012). Social networking for language learners: Creating meaningful output with Web 2.0 tools. *Knowledge Management & E-Learning: An International Journal (KM&EL)*, *4*(1), 97-101.

Chen, Y. C. (2008). *The effect of applying wikis in an English as a foreign language (EFL) class in Taiwan.* [Doctoral dissertation, University of Central Florida]. Retrieved November 2, 2021, from https://stars.library.ucf.edu/cgi/viewcontent.cgi?referer=&httpsredir=1&article=4560&context=etd

Chen, C. M., & Hsu, S.-H. (2008). Personalized intelligent mobile learning system for supporting effective English learning. *Educational Technology & Society, 11* (3), 153–180.

Cheon, J., Song, J., Jones, R. D., & Nam, K. (2010). Influencing pre-service teachers' intention to adopt Web 2.0 services. *Journal of Digital Learning in Teacher Education, 27*(2), 53-64.

Cohen, J. (1988). *Statistical power analysis for the behavioural sciences (2nd Ed.)*. Hillsdale, NJ: Erlbaum

Chun, D., & Plass, J. (1996). Effects of multimedia annotations on vocabulary acquisition. *Modern Language Journal*, *80*(2), 183-198.

Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education (6th ed.)*. Routledge/Taylor & Francis Group.

Conole, G., & Alevizou, P. (2010). *A literature review of the use of Web 2.0 tools in Higher Education.* The Open University. UK. Retrieved October 28, 2021, from http://www.heacademy.ac.uk/assets/EvidenceNet/Conole_Alevizou_2010.pdf.

Cooper, S. (2008). Delivering student feedback in higher education: The role of podcasting. *Journal of Music, Technology & Education. 1*(2/3), 153-162.

Copley, J. (2007). Audio and video podcasts of lectures for campus-based students: production and evaluation of student use. *Innovations in Education and Teaching International*, *44*(4), 387-399.

Copley, J., & Ziviani, J. (2007). Use of a team-based approach to assistive technology assessment and planning for children with multiple disabilities: A pilot study, *Assistive Technology, 19,* 109–125.

Cox, S., & Graham, C. R. (2009). Diagramming TPCK in practice: Using an elaborated model of the TPCK framework to analyze and depict teacher knowledge. *TechTrends, 53*(5), 60-69.

Creswell, J. W., Plano Clark, V. L., Gutmann, M. L., & Hanson, W. E. (2003). Advanced mixed methods research designs. In A. Tashakkori, & C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioral research,* (pp.209-240). Thousand Oaks, CA: Sage.

Creswell, J. W. (2014). *Research design qualitative, quantitative and mixed methods approaches (4th ed.)*. Thousand Oaks, CA Sage.

Cunningham, K. (2000). Integrating CALL into the writing curriculum. *The Internet TESL Journal, 6*(5). Retrieved December 3, 2021, from http://iteslj.org/Articles/Cunningham-CALLWriting/

Çakmak, Z., & Taşkıran, C. (2017). Sosyal bilgiler öğretmenlerinin perspektifinden eğitim bilişim ağı (EBA) platformu. *Uluslararası Türk Eğitim Bilimleri Dergisi*, 2017 (9), 284-295.

Çiftçi, S., Taşkaya, S. M., & Alemdar, M. (2013). The opinions of classroom teachers about FATIH project. *Elementary Education Online, 12*(1), 227-240.

Dare, E., Ellis, J., & Roehrig, J. (2018). Understanding science teachers' implementations of integrated STEM curricular units through A phenomenological multiple case study. *International Journal of STEM Education, 5*(4), 1-19.

Daskın, Z. (2017). *A study of faculty members' and instructors' awareness, routines and use of Web 2.0 tools in foreign language teaching* [Unpublished master's thesis]. Hacettepe University.

Data Reportal. (2019). Digital in 2021: Turkey. Retrieved January 11, 2022, from https://datareportal.com/reports/digital-2021-turkey

Daugherty, M., & Funke, B. (1998). University faculty and student perceptions of eWeb-based instruction. *Journal of Distance Education, 13*, 21-39.

Davies, R.S., & West, R.E. (2014). Technology integration in schools. In *Handbook of research on educational communications and technology* (4th ed., pp. 841–853). New York: Springer.

Dede, C. (2007). Reinventing the role of information and communication technologies in education. In L. Smolin, K. Lawless, & N. C. Burbules (Eds.), *Information and communication technologies: Considerations of current practices for teachers and teacher educators: 106th yearbook of the national society for the study of education part 2* (pp.11–38). Malden, MA: Blackwell.

Dede, C., Dieterle, E., Clarke, J., Ketelhut, D.J., & Nelson, B. (2007). Media-based learning styles. In M.G. Moore (eds.), *Handbook of distance education (2nd ed.),* (pp. 339-352). Mahwah, NJ: Lawrence Erlbaum.

Delen, K. (2016). *The investigation of technological pedagogical and content knowledge level by Turkish teachers of English.* [Unpublished master's thesis]. Çağ University.

Dettori, G., & Lupi, V. (2010). ICT and new methodologies in language teaching. *Procedia Social and Behavioral Sciences, 2,* 2712-2716.

Dillenbourg, P. (2013). Design for classroom orchestration. *Computers & Education, 69,* 485–492.

Dillman, D.A. (2007). *Mail and internet surveys: The tailored design method: 2007 with new Internet, visual and mixed-mode guide. 2nd Edition,* Wiley, Hoboken.

Dolittle, P., Lusk, D., Byrd, C., & G., M. (2009). iPods as mobile multimedia learning environments: Individual differences and instructional design. In Ryu, H. and Parsons, D., (Eds.), *Innovative mobile learning: Technique and technologies* (pp.83–101). Information Science Reference, Hershey, PA.

Donmus, V. (2010). The use of social networks in educational computer-game based foreign language learning. *Procedia-Social and Behavioral Sciences, 9,* 1497-1503

Donnelly, K. M., & Berge, Z. L. (2006). Podcasting: Co-opting MP3 players for education and training purposes. *Online Journal of Distance Learning Administration, 9*(3), 1-7.

Dörnyei, Z. (2007). *Research method in applied linguistics: Quantitative, qualitative, and mixed methodologies.* Oxford University Press.

Drayton, B., Falk, J.K., Stroud, R., Hobbs, K., & Hammerman, J. (2010). After installation: Ubiquitous computing and high school science in three experienced, high schools. *Journal of Technology, Learning, and Assessment, 9*(3).

Dudeney, G. (2000). *The internet and the language classroom.* UK: Cambridge Uni. Press.

Ducate, L. C., & Lomicka, L. L. (2008). Adventures in the blogosphere: From blog readers to blog writers. *Computer Assisted Language Learning, 21*(1), 9-28.

Duffy, P. (2011). Facebook or faceblock: Cautionary tales exploring the rise of social networking within tertiary education. In M. Lee & C. McLoughlin (Eds.), *Web 2.0-based e-learning: Applying social informatics for tertiary teaching* (pp. 284–300). IGI Global.

Duffy, P., & Bruns, A. (2006). The use of blogs, wikis and RSS in education: A conversation of possibilities. *Proceedings of the Online Learning and Teaching Conference 2006*. (pp. 31–38).

Dumpit, D. Z., & Fernandez, C. J. (2017). Analysis of the use of social media in Higher Education Institutions (HEIs) using the Technology Acceptance Model. *International Journal of Educational Technology in Higher Education*, *14*(1), 5.

DuVall, J. B., Powell, M. R., Hodge, E., & Ellis, M. (2007). Text messaging to improve social presence in online learning. *Educause Quarterly, 3*, 24–28.

Edirisingha, P., Salmon, G., & Fothergill, J. (2007). Profcasting – a pilot study and guidelines for integrating podcasts in a blended learning environment. In U. Bernath & A. Sangrà (Eds), *Research on competence development in online distance education and e-learning* (pp.127-137). Oldenberg: BIS-Verlag.

Eksi, G.Y., & Yesilyurt, Y. E. (2018). Stakeholders‟ Views about the FATIH Project: Smart EFL Classrooms. *Journal of Language and Linguistic Studies, 14*(1), 360-376.

Ellis, R., Pardo, A., & Han, F. (2016). Quality in blended learning environments-significant differences in how students approach learning collaborations. *Computers & Education, 102,* 90-102.

Ertmer, P. A. (2005). Teacher pedagogical beliefs: The final frontier in our quest for technology integration? *ETR&D, 53*, 25–39.

Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2010). Teacher technology change: how knowledge, beliefs, and culture intersect. *Journal of Research on Technology in Education, 42*(3), 255–284.

Ertmer, P. A., Ottenbreit-Leftwich, A. T., Sadik, O., Sendurur, E., & Sendurur, P. (2012). Teacher beliefs and technology integration practices: A critical relationship. *Computers & Education, 59*(2), 423-435.

Evers, W. J. G., Brouwers, A., & Tomic, W. (2002). Burnout and selfefficacy: A study on teachers' beliefs when implementing an innovative educational system in the Netherlands. *British Journal of Educational Psychology*, *72*(2), 227-243.

Fan, X. Thompson, B., & Wang, L. (1999). Effects of sample size, estimation methods, and model specification on structural equation modeling fit indexes, *Structural Equation Modeling, 6*(1), 56-83.

Farjon, D., Smits, A., & Voogt, J. (2019). Technology integration of pre-service teachers explained by attitudes and beliefs, competency, access, and experience. *Computers and Education, 130,* 81–93.

Faizi, R. (2018). Teachers' perceptions towards using Web 2.0 in language learning and teaching. *Education and Information Technologies Volume, 23*, 1219–1230.

Faizi, R., El Afia, A., & Chiheb, R. (2013). Exploring the potential benefits of using social media in education. *International Journal of Engineering Pedagogy (iJEP), 3*(4), 50–53.

Ferdig, R. E. (2007). Editorial: Examining social software in teacher education. *Journal of Technology and Teacher Education, 15*(1), 5-10.

Fidelman, C. G. (1997). The third annual Internet use survey of language professionals. *Agora Newsletter, 3*(1), 1-15.

Flake, J. (1996). The world wide web and education. *Computers in the Schools, 12*(1-2), 89-100.

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How to design and evaluate research in education (8th ed.)*. New York: Mc Graw Hill.

Franco, C. D. (2008). Using wiki-based peer-correction to develop writing skills of Brazilian EFL learners. *Novitas-Royal, 2*(1), 49-59.

Gaffar, K., Singh, L., & Thomas, T. (2011). Are we ready for Web 2.0? Evidence from a Caribbean University. *Caribbean Teaching Scholar 1(2)*, 129-146.

Gall, M., Gall, J., & Borg, R. (2007). *Educational research: An introduction (8th ed.)*. New York, NY: Pearson Education.

Godwin-Jones, R. (2003). Emerging technologies, blogs and wikis: Environments for on-line collaboration. *Language Learning and Technology, 7*(2): 12-16.

Goertler, S. (2009). Using computer-mediated communication (CMC) in language teaching. *Die Unterrichtspraxis/Teaching German, 42*(1), 74-84.

Golonka, E. M., Bowles, A. R., Frank, V. M., Richardson, D. L., & Freynik, S. (2014). Technologies for foreign language learning: A review of technology types and their effectiveness. *Computer Assisted Language Learning, 27*(1), 70–105.

Greenhow, C., Robelia, B., & Hughes, J. (2009). Learning, teaching, and scholarship in a digital age. Web 2.0 and classroom research: What path should we take now? *Educational Researcher, 38*, 246–259.

Greenhow, C., Walker, J. D., & Kim, S. (2009). Millennial learners and net-savvy teens: Examining internet use among lowincome students. *Journal of Computing in Teacher Education, 26*(2), 63-69.

Grosseck, G. (2009). The use or not to use Web 2.0 in higher education? *Procedia Social and Behavioral Sciences, 1*(1), 478-482.

Hammersley, B. (2004). *Audible Revolution. The Guardian.* Retrieved October 19, 2021, from www.theguardian.com/media/2004/feb/12/broadcasting.digitalmedia

Heafner, T. L., & Friedman, A. M. (2008). Wikis and constructivism in secondary social studies: fostering a deeper understanding. *Computers in the Schools, 25*, 288-302.

Hennessy, S., Ruthven, K., & Brindley, S. (2005). Teacher perspectives on integrating ICT into subject teaching: Commitment, constraints, caution, and change. *Journal of Curriculum Studies 37*(2), 155- 192.

Hervey, L. G. (2015). Between the notion and the act: Veteran teachers' TPACK and practice in 1:1 settings. In C. Angeli & N. Valanides (Eds.), *Technological pedagogical content knowledge* (pp. 165–189). New York: Springer.

Hew, K. F., & Brush, T. (2007). Integrating technology into K-12 teaching and learning: Current knowledge gaps and recommendations for future research. *Educational technology research and development, 55*(3), 223-252.

Hsu, C. Y., Tsai, M. J., Chang, Y. H., & Liang, J. C. (2017). Surveying in-service teachers' beliefs about gamebased learning and perceptions of technological pedagogical and content knowledge of games. *Journal of Educational Technology & Society, 20*(1), 134–143.

Huang, C., & Sun, P. (2010). *Using mobile technologies to support mobile multimedia English listening exercises in daily life.* Paper presented at the international conference on computer and network technologies in education (CNTE 2010). Retrieved October 29, 2021, from https://www.yumpu.com/en/document/read/37568848/using-mobile-technologies-to-support-mobile-multimedia-english-.

Huffman, K. (2017). Web 2.0: Beyond the concept practical ways to implement RSS, podcasts, and wikis. *Education Libraries, 29*(1), 12-19.

Hur J. W., Shannon D., & Wolf S. (2016). An investigation of relationships between internal and external factors affecting technology integration in classrooms. *Journal of Digital Learning in Teacher Education, 32(3)*, 105-114.

Hwang, W-Y., Shih T. K., Ma, Z-H., Shadiev, R., & Chen, S-Y. (2016). Evaluating listening and speaking skills in a mobile game-based learning environment with situational contexts. *Computer Assisted Language Learning, 29*(4), 639-657.

İşler, C., & Yıldırım, Ö. (2018). Perceptions of Turkish pre-service EFL teachers on their technological pedagogical content knowledge. *Journal of Education and Future, 13,* 145-160.

Jang, S. J., & Tsai, M. F. (2013). Exploring the TPACK of Taiwanese secondary school science teachers using a new contextualized TPACK model. *Australasian Journal of Educational Technology, 29*(4).

Jauregi, K., & Banados, E. (2008). Virtual interaction through video-web communication: A step towards enriching and internationalizing language learning programs. *ReCALL, 20*(2), 183–207.

Jimoyiannis, A., Tsiotakis, P., Roussinos, D., & Siorenta, A. (2013). Preparing teachers to integrate Web 2.0 in school practice: Toward a framework for Pedagogy 2.0. *Australasian Journal of Educational Technology*, *29*(2).

Kale, U., & Goh, D. (2014). Teaching style, ICT experience and teachers' attitudes toward teaching with Web 2.0. *Education and Information Technologies*, *19(1)*, 41-60.

Karasar, N. (2015). *Bilimsel araştırma yöntemi.* Ankara: Nobel Akdemi Yayıncılık.

Karatekin, K., Elvan, Ö., & Öztürk, D. (2015). Social studies and classroom teachers' opinions about FATIH project. *International Journal of Eurasia Social Sciences, 6*(18), 81-114.

Karkoulia, K. C. (2016). Teachers' attitudes towards the integration of Web 2.0 tools in EFL teaching. *Research Papers in Language Teaching and Learning, (7)*1, 46-73.

Karpati, A. (2009). Web 2 technologies for net native language learners: A 'Social CALL'. *ReCALL, 21*(2), 139–156.

Katerini, K. (2013). *Designing an inset program as a proposal for teacher development on Web 2.0 tools in the Greek primary education.* [Unpublished M.Ed. dissertation]. Hellenic Open University.

Kavaliauskienė, G., & Anusienė, L. (2009). Podcasts for listening skills. *Santalka. Filologija Edukologija,17*(2): 28–37.

Kavandı, E (2012). *The effects of using blogs on the development of foreign language writing proficiency* [Unpublished doctoral dissertation]. Gazi University.

Kaya, G., & Usluel, Y. K. (2011). Öğrenme-öğretme süreçlerinde bit entegrasyonunu etkileyen faktörlere yönelik içerik analizi. *Buca Eğitim Fakültesi Dergisi, 31*, 48-67.

Kayar, S. (2019). A study on the most commonly used web 2.0 tools among Turkish high school teachers of English. [Unpublished master's thesis]. Middle East Technical University.

Kazancı, R., & Caner, M. (2020). Weblogs in EFL writing course. *Journal of Narrative and Language Studies, 8*(14), 151–163.

Kern, R. (2006). Perspectives on technology in learning and teaching languages. *Tesol Quarterly, 40*(1), 183-210.

Kern, R. (2014). Technology as *Pharmakon*: The promise and perils of the internet for foreign language education. *The Modern Language Journal, 98,* 340-357.

Kern, R., & Warschauer, M. (2000). Theory and practice of network-based language teaching. In M. Warschauer, R. Kern (Eds.), *Network-based language teaching: Concepts and practice*, 1-19. New York: Cambridge University Press.

Keser, H., Yilmaz, F. G. K., & Yilmaz, R. (2015). Tpack competencies and technology integration self-efficacy perceptions of pre-service teachers. *Elementary Education Online, 14*(4), 1193-1207.

Kessler, G. (2009). Student initiated attention to form in autonomous wiki based collaborative writing. *Language Learning & Technology, 13*(1), 79–95.

Khassawneh, S. F. (2012). EFL teachers' perceptions and perspectives on the use of the internet in the teaching process at Yarmouk University in Jordan. *European Scientific Journal*, *8*(13), 143-160.

Kim, H. (2002). Teachers as a barrier to technology-integrated language teaching. *English Teaching*, *57*(2), 35-64.

Kim, C. M., Kim, M. K., Lee, C. J., Spector, J. M., & DeMeester, K. (2013). Teacher beliefs and technology integration. *Teaching and Teacher Education, 29*(1), 76–85.

Klamma, R., Cao, Y., & Spaniol, M. (2007). *Watching the blogosphere: Knowledge sharing in Web 2.0*. Paper presented at the International Conference on Weblogs and Social Media, Boulder, CO, March 26-28.

Koehler, M. J., & Mishra, P. (2005). What happens when teachers design educational technology?: The development of technological pedagogical content knowledge. *Journal of Educational Computing Research, 32*(2), 131-152.

Koehler, M. J., & Mishra, P. (2008). Introducing technological pedagogical knowledge. In AACTE (Eds.). *The handbook of technological pedagogical content knowledge for educators* (pp. 3-30). New York: Routledge.

Koehler, M. J., & Mishra, P. (2009). What is technological pedagogical content knowledge? *Contemporary Issues in Technology and Teacher Education*, *9*(1), 60-70.

Koh, J. H. L., & Sing, C. C. (2011). Modeling pre-service teachers' technological pedagogical content knowledge (TPACK) perceptions: The influence of demographic factors and TPACK constructs. In G. Williams, N. Brown, M. Pittard, & B. Cleland (Eds.), *Changing demands, changing directions* (pp. 735–746). ASCILITE.

Kontogeorgi, M. (2014). Exploring the use of wikis in developing students' writing skills in the EFL classroom. *Research Papers in Language Teaching and Learning, 5*(1), 123-152.

Kost, C. (2011). Investigating writing strategies and revision behavior in collaborative wiki projects. *CALICO Journal, 28*(3), 606–620.

Kovacic, A., Bubas, G., & Zlatovic, M. (2007). Using a wiki system for learning activities in a specialist English academic course. *Proceedings on the Conference Computers in Education, 30th International Convention MIPRO 2007*, Opatija, Croatia. (pp. 198-203).

Kozikoğlu, İ., & Babacan, N. (2019). The investigation of the relationship between Turkish EFL teachers' technological pedagogical content knowledge skills and attitudes towards technology. *Journal of Language and Linguistic Studies*, *15*(1), 20-33.

Köse, N. K. (2016). Technological pedagogical content knowledge (TPACK) of English language instructors. *Journal of Educational and Instructional Studies in the World, 6*(2), 2146-7463.

Kukulska-Hulme, A., & Shield, L. (2008). An overview of mobile assisted language learning: From content delivery to supported collaboration and interaction. *ReCALL,20*(3), 271–289.

Kukulska-Hulme, A. (2013). *Mobile-assisted language learning. In: C. Chapelle (ed.), The encyclopedia of applied linguistics.* New York: Wiley, 3701–3709.

Kuloğlu, M. E., & Bay, E. (2019). İngilizce öğretmenlerinin Eğitim Bilişim Ağı (EBA) kullanım durumlarının incelenmesi. *Milli Eğitim Dergisi, 48* (224), 327-351.

Kung, S.-C., & Chuo, T.-W. (2002). Students' perceptions of English learning through ESL/EFL Websites. *TESL-EJ, 6*(1), 1-14

Lavidas, K., Katsidima, M. A., Theodoratou, S., Komis, V., & Nikolopoulou, K. (2021). Preschool teachers' perceptions about TPACK in Greek educational context. *Journal of Computers in Education.*

Lawless, K. A., & Pellegrino, J. W. (2007). Professional development in integrating technology into teaching and learning: Knowns, unknowns, and ways to pursue better questions and answers. *Review of Educational Research, 77*(4), 575–614.

Lebron-Lozada, S. (2012). *Learning conversational English with student-generated podcasts.* [Doctoral dissertation, Nova Southeastern University]. Retrieved October 23, 2021, from https://nsuworks.nova.edu/gscis_etd/209.

Lee, L. (2009). Promoting intercultural exchanges with blogs and podcasting: A study of Spanish-American telecollaboration. *Computer Assisted Language Learning, 22*(5), 425-443.

Lee, Y., & Lee, J. (2014). Enhancing pre-service teachers' self-efficacy beliefs for technology integration through lesson planning practice. *Computers and Education, 73*,121-128.

Lee, M. H., & Tsai, C. C. (2010). Exploring teachers' perceived self-efficacy and technological pedagogical content knowledge with respect to educational use of the World Wide Web. *Instructional Science, 38*(1), 1-21.

Lemke, C., Coughlin, E., Garcia, L., Reifsneider, D., & Baas, J. (2009). *Leadership for Web 2.0 in education: Promise and reality.* Culver City, CA: Metiri Group.

Levy, M. (1997). *CALL: Context and conceptualization.* Oxford: Oxford University

Levy, M. (2009). Technologies in use for second language learning. *The Modern Language Journal, 93,* 769–782.

Li, B. (2021). Ready for Online? Exploring EFL Teachers' ICT Acceptance and ICT Literacy During COVID-19 in Mainland China. July. https://doi.org/10.1177/07356331211028934

Lin, W., & Yang, S. C. (2011). Exploring students' perceptions of integrating wiki technology and peer feedback into English writing courses. *English Teaching: Practice and Critique*, *10*(2), 88–103.

Lindberg, O. J., Olofsson, A. D., & Fransson, G. (2017). Same but different? An examination of Swedish upper secondary school teachers' and students' views and use of ICT in education. *The International Journal of Information and Learning Technology*, *34*(2), 122-132.

Liu, M., Evans, M., Horwitz, E., Lee, S. McCrory, M., J. B. Park., & Parrish C. (2013). A study of the use of language learning websites with social network features by university ESL students'. In Lamy, M.-N. and Zourou, K. (eds.), *Social networking for language education* (pp. 137- 157) Basingstoke, UK: Palgrave Macmillan.

Lu, M. (2008). Effectiveness of vocabulary learning via mobile phone. *Journal of Computer Assisted Learning 24*(6), 515–525.

Luik, P., Taimalu, M., & Suviste, R. (2018). Perceptions of technological, pedagogical and content knowledge (TPACK) among pre-service teachers in Estonia. *Education and Information Technologies*, *23*(2), 741-755.

Luo, T. (2013). Web 2.0 for language learning: Benefits and challenges for educators. *International Journal of Computer-Assisted Language Learning and Teaching, 3*(3), 1-17.

Mailizar, M., Hidayat, M., & Al-Manthari, A. (2021). Examining the impact of mathematics teachers' TPACK on their acceptance of online professional development. *Journal of Digital Learning in Teacher Education*, *37*(3), 1–17.

Majid, N. A. A. (2014). Integration of web 2.0 tools in learning a programming course. *TOJET: The Turkish Online Journal of Educational Technology*, *13*(4), 88-94.

Maloney, E. (2007). What Web 2.0 can teach us about learning. *Chronicle of Higher Education 25(18)*, B26.

Markauskaite, L. (2006). Gender issues in preservice teachers' training: ICT literacy and online learning. *Australasian Journal of Educational Technology*, *22*(1).

Marzano, G., & Lizut, J. (2019). *Cyberbullying and the critical importance of educational resources for prevention and intervention,* IGI-Global.

Mazman, S. G., & Usluel, Y. K. (2011). Gender differences in using social networks. *The Turkish Online Journal of Educational Technology*, *10*(2), 133-139.

McLoughlin, C., & Lee, M. J. W. (2007). *Social software and participatory learning: Pedagogical choices with technology affordances in the Web 2.0 era*. 24th Annual

Conference of the Australasian Society for Computers in Learning in Tertiary Education, Singapore.

Mercier, E. M., & Higgins, S. E. (2013). Collaborative learning with multi-touch technology: Developing adaptive expertise. *Learning and Instruction, 25*, 13–23.

Miangah, T. M., & Nezarat, A. (2012). Mobile-assisted language learning. *International Journal of Distributed and Parallel Systems, 3*(1), 309-319.

Miceli, T., Murray, S. V., & Kennedy, C. (2010). Using an L2 blog to enhance learners' participation and sense of community. *Computer Assisted Language Learning, 23*(4), 321-341.

Ministry of National Education. (2017). Education vision 2023. Ankara: MoNE Publications.

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A new framework for teacher knowledge. *Teachers College Record, 108*(6), 1017-1054.

Mohammad-Salehi, B., Vaez-Dalili, M., & Tabrizi, H. H. (2021). Investigating factors that influence EFL teachers' adoption of Web 2.0 technologies: Evidence from applying the UTAUT and TPACK. *The Electronic Journal for English as a Second Language, 25*(1), 1–21.

Moore-Hayes, C. (2011). Technology integration preparedness and its influence on teacher-efficacy. *Canadian Journal of Learning and Technology/La revue Canadienne de l'Apprentissage et de la Technologie, 37*(3), 1-15.

Morgan, L. (2012). Generation Y, learner autonomy and the potential of Web 2.0 tools for language learning and teaching. *Campus-wide information systems, 29*(3), 166-176.

Mosquera, F. M. (2001). CALT: Exploiting internet resources and multimedia for TEFL in developing countries. *Computer Assisted Language Learning, 14*(5), 461–468.

Motteram G., & Sharma P. (2009). Blending learning in a web 2.0 world. *International journal of emerging technologies & society. 7*(2), 83-96.

Mouza, C. (2008). Learning with laptops: Implementation and outcomes in an urban, under-privileged school. *Journal of Research on Technology in Education, 40*(4), 447–473.

Muijs, D. (2004). *Doing quantitative research in education with SPSS.* London: Sage.

Najjari, R., Abbasian, Gh., & Yazdanimoghaddam, M. (2021). Assessment and development of Iranian EFL teachers' technological pedagogical content

knowledge (TPACK). *Teaching English as a Second Language Quarterly, 40*(4), 161-193.

Naismith, L., Lonsdale, P., Vavoula, G., & Sharples, M. (2004). *Mobile technologies and learning*. Futurelab Literature Review Series, Report No, 11.

Nazari, N., Nafissi, Z., Estaji, M., & Marandi, S. S. (2019). Evaluating novice and experienced EFL teachers' perceived TPACK for their professional development. *Cogent Education, 6*(1), 1-26.

Neal, L., & Miller, D. (2006). *The use of technology in education. Web-based learning: theory, research, and practice.* Mahwah, NJ: Lawrence Erlbaum Associates.

Nim Park C., & Son J. (2009). Implementing computer-assisted language learning in the EFL classroom: Teachers' perceptions and perspectives, *International Journal of Pedagogies and Learning, 5*(2), 80-101.

Noytim, U. (2010). Weblogs enhancing EFL students' English language learning. *Journal of Procedia: Social and Behavioral Sciences, 2(*2), 1127–1132.

Oblinger, D. G., & Oblinger, J. L. (2005). Is it age or IT: First steps toward understanding the Net Generation. In D. G. Oblinger & J. L. Oblinger (Eds.), *Educating the new generation* (pp. 1-17).

O'Bryan, A., & Hegelheimer, V. (2007). Integrating CALL into the classroom: The role of podcasting in an ESL listening strategies course. *ReCALL 19*(2), 162-180.

Onbasili, U.I. (2020). The effects of science teaching practice supported with Web 2.0 tools on prospective elementary school teachers' self-efficacy beliefs. *International Journal of Progressive Education, 16*(2), 91-110.

Orehovacki, T., Bubas, G., & Konecki, M. (2009). Web 2.0 in education and potential factors of Web 2.0 use by students of information systems. *31st International Conf. on Information Technology Interfaces, 2009. ITI 7809. Proceedings of the ITI 2009.* (pp. 443-448).

O'Reilly, T. (2005). *What is web 2.0 – Design patterns and business models for the next generation of software.* Retrieved October 19, 2021, from http://oreilly.com/web2/archive/what-isweb-20.html.

O'reilly, T. (2007). What is Web 2.0: design patterns and business models for the next generation of software? Communications & Strategies, *First Quarter, 1*, 17-37.

Ota, F. (2011). A study of social networking sites for learners of Japanese. *New Voices, 4*, 144-167.

Ozgur Kufi, E., & Ozgur, B. (2009). Web 2.0 in learning English: The student perspective. *Procedia –Social and Behavioral Sciences, 1*(1), 326-330.

Ozturk, N. (2013). Using CALL in language teaching and learning, in consideration of its strengths and limitations. *Journal Of European Education, 3*(1), 36-41.

Öz, H. (2014). Pre-service English teachers' perceptions of web-based assessment in a pedagogical content knowledge course. *PROC SOC BE, 141*, 45-48.

Öz, H (2015). Assessing pre-service English as a foreign language teachers' technological pedagogical content knowledge. *International Education Studies, 8*(5), 119-130.

Özel, A. (2013). The use of the internet and Web 2.0 tools among EFL instructors. [Master's thesis, Akdeniz University]. (Publication No. 354625). Council of Higher Education Thesis Center.

Özel, A. G., & Arikan, A. (2015). The use of the internet and Web 2.0 tools among EFL instructors. Mediterranean *Journal of Humanities, 5*(1), 313–313.

Öztürk, K. (2012). Students' perceptions of CALL at Dokuz Eylül University School of Foreign Languages. *ELT Research Journal, 1*(4), 216-229.

Palalas, A., & Olenewa, J. (2012). *Mobile-assisted language learning: Enhancing student learning with mobile phones at George Brown College.* Contact North/Contact Nord.

Palenque, S.M. (2016). The power of podcasting: Perspectives on pedagogy. *Journal of Instructional Research, 5*, 4-7.

Pamuk, S. (2012). Understanding preservice teachers' technology use through TPACK framework. *Journal of Computer Assisted Learning, 28*(5), 425- 439.

Pan, S. C., & Franklin, T. (2011). In-service teachers' self-efficacy, professional development, and Web 2.0 tools for integration. *New Horizons in Education, 59*(3), 28–40.

Pardamean, B., & M. Susanto. (2012). Assessing user acceptance toward blog technology using the UTAUT model. *International Journal of Mathematics and Computers in Simulation 6*(1), 203–212.

Park, N. C., & Son, J. B. (2009). Implementing computer-assisted language learning in the EFL classroom: Teachers' perceptions and perspectives. *International Journal of Pedagogies and Learning, 5*(2), 80-101.

Parvin, R. H., & Salam, S. F. (2015). The effectiveness of using technology in English language classrooms in government primary schools in Bangladesh. *FIRE: Forum for International Research in Education, 2*(1), 47-59.

Pence, H. E. (2007). Preparing for the real web generation. *Journal of Educational Technology Systems, 35*(3), 347−356.

Perkmen, S., & Tezci, E. (ed.) (2011). *Eğitimde teknoloji entegrasyonu: Materyal geliştirme ve çoklu ortam tasarımı.* Ankara: Pegem Akademi.

Perikos, I., Grivokostopoulou, F., Kovas, K., & Hatzilygeroudis, I. (2015). Assisting tutors to utilize Web 2.0 tools in education. *IADIS Multi Conference on Computer Science and Information Systems. University of Las Palmas de Gran Canaria* (pp.121-128).

Peterson, M. (2010). Learner participation patterns and strategy use in second life: an exploratory case study. *ReCALL*. *22*, 273-292.

Pinkman, K. (2005). Using blogs in the foreign language classroom: Encouraging learner independence. *The JALT CALL Journal*, *1*(1), 12–24.

Prasojo, L. D., Habibi, A., Mukminin, A., & Yaakob, M. F. M. (2020). Domains of technological pedagogical and content knowledge: Factor analysis of Indonesian in-service EFL teachers. *International Journal of Instruction, 13*(4), 593-608.

Prensky, M. (2001). Digital natives, digital immigrants, *On the Horizon*, *9*(5), 1–6.

Rahimi, M., & Miri, S. S. (2014). The impact of mobile dictionary use on language learning. *International Conference on Current Trends in ELT. Social and Behavioral Sciences*, *98*, 1469–1474.

Rakes, G.C., & Casey, H.B. (2002). An analysis of teacher concerns toward instructional technology. *International Journal of Educational Technology*, *3*(1) Retrieved December 12, 2021, from http://www.ao.uiuc.edu/ijet/v3n1/rakes/index.html.

Reigeluth, C.M., & Joseph, R. (2002). Beyond technology integration: The case for technology transformation. *Educational Technology*, *42*(4), 9–13.

Reynard, R. (2009). *3 Challenges to wiki use in instruction.* Retrieved November 15, 2021, from http://campustechnology.com/articles/2009/02/11/3-challenges-to-wiki-use-in-instruction.aspx.

Richardson, W. (2006). *Blogs, wikis, podcasts, and other powerful tools for classrooms*. Thousand Oaks, CA: Sage.

Rosell-Aguilar, F. (2007). Top of the pods: In search of a podcasting pedagogy for language learning, *Computer Assisted Language Learning*, *20*/5, 471–492.

Rosen D., & Nelson C. (2008). Web 2.0: A new generation of learners and education, *Computers in the Schools*, *25*(3-4), 211-225.

Rouf, M. A., & Mohamed, A. R. (2018). Secondary school English language teachers' technological skills in Bangladesh: A case study. *International Journal of Instruction, 11*(4), 701- 716.

Roussinos, D., & Jimoyiannis, A. (2011). Blended collaborative learning through a wiki-based project: A case study on students' perceptions. *International Journal of Digital Literacy and Digital Competence, 2*(3), 15-30.

Sadaf, A., Newby, T. J., & Ertmer, P. (2012). Exploring factors that predict preservice teachers' intentions to use Web 2.0 technologies using Decomposed Theory of Planned Behavior. *Journal of Research on Technology in Education, 45*(2), 171–195.

Sadaf, A., Newby, T. J., & Ertmer, P. A. (2015). An investigation of the factors that influence preservice teachers' intentions and integration of Web 2.0 tools. *Educational Technology Research and Development, 64*(1), 37–64.

Saglam, A. L. G., & Sert, S. (2012). Perceptions of in-service teachers regarding technology integrated English language teaching. *Turkish Online Journal of Qualitative Inquiry, 3*(3), 1-14.

Sahin-Kızıl, A. (2011). *EFL teachers attitudes towards information and communication technologies (ICT).* 5th International Computer & Instructional Technologies Symposium, 22-24 September, 2011, Firat University, Elazığ.

Saleh, S., & Pretorius, F. (2006). English as a foreign language: Teachers' professional development via the internet. *Progressio, 28*(1&2) 111-126.

Sarıtepeci, M., Durak, H., & Seferoğlu, S. S. (2016). Examination of teachers' in-service training needs in the field of instructional technology: An evaluation in light of applications implemented at FATIH project. *Turkish Journal of Computer and Mathematics Education, 7*(3), 601-620.

Schmidt, D. A., Baran, E., Thompson A. D., Koehler, M. J., Mishra, P., & Shin, T. (2009). Technological pedagogical content knowledge (TPACK): The development and validation of an assessment instrument for preservice teachers. *Journal of Research on Technology in Education, 42*(2), 123-149.

Schofield, J. W. (1995). *Computers and classroom culture.* New York: Cambridge University Press.

Selevičienė, E., & Burkšaitienė, N. (2015). University students' attitudes towards the usage of Web 2.0 tools for learning ESP: A preliminary investigation. *Socialinių mokslų studijos/Societal Studies, 7*(2), 270–291.

Selwyn, N. (1997). Students' attitudes toward computers: Validation of a computer attitude scale for 16-19 education. *Computer and Education 28*(1), 35-41.

Selwyn, N. (2008). An investigation of differences in undergraduates' academic use of the internet. *Active Learning in Higher Education, 9*, 11-22.

Selwyn, N. (2009). Faceworking: exploring students' education-related use of Facebook. *Learning, Media and Technology, 34*(2), 157-174.

Shin, H. J., & Son, J. B. (2007). EFL teachers' perceptions and perspectives on internet-assisted language teaching. *Computer-Assisted Language Learning Electronic Journal (CALL-EJ), 8*(2).

Shishkovskaya, J. V., & Sokolova, E. Y. (2015). Integration of Web 2.0 technologies into the process of students' self-directed English learning. *Mediterranean Journal of Social Sciences, 6*(2), 541-545.

Shulman, L. S. (1986). Those who understand: knowledge growth in teaching. *Educational Researcher, 15*(2), 4–14.

Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review, 57*(1), 1-21. Retrieved October 16, 2021, from http://people.ucsc.edu/~ktellez/shulman.pdf

Simon, E. (2008). Foreign language faculty in the age of Web 2.0. *EDUCAUSE Quarterly, 31*(3): 6-7.

Singhal, M. (1997). The Internet and foreign language education: Benefits and challenges. *The Internet TESL Journal, 3*(6). Retrieved December 12, 2021, from http://iteslj.org/Articles/Singhal-Internet.html.

Solak, E., & Cakir, R. (2014). Examining pre-service EFL teachers' TPACK competencies in Turkey. *Journal of Educators Online, 11*(2), 1-22.

Solomon, G., & Schrum, L. (2007). *Web 2.0: New tools, new schools.* International Society for Technology in Education.

Spiris, S. (2014). Investigating Normalisation: Do teachers of English in Greece integrate technology in their everyday teaching practice?. *Research Papers in Language Teaching and Learning, 5*/1: 351-373.

Stevenson, M. P., & Liu, M. (2010). Learning a language with Web 2.0: Exploring the use of social networking features of foreign language learning websites. *CALICO Journal, 27*(2), 233-259.

Stockwell, G. (2008). Investigating learner preparedness for and usage patterns of mobile learning. *ReCALL, 20*(3), 253-270.

Sürücü, L., & Maslakçı, A. (2020). Validity and reliability in quantitative research, *BMIJ, 8*(3): 2694-2726.

Şahin Kızıl, A. (2015). Investigating the impact of wikis on writing performance of EFL students. Öz, H. (Ed.). *Language and Communication Research around the Globe: Exploring Untested Ideas* (pp.103-126). New York: Untested Ideas Research Center.

Şahin, Ş., Aktürk, A. O., & Çelik, İ. (2013). A study on teachers', students' and their parents' views on the FATIH project. *International Journal of Social, Management, Economics and Business Engineering, 7*(12), 1889-1895.

Tabachnick, B.G., & Fidell, L.S. (2001). *Using multivariate statistics. 4th Edition,* Allyn and Bacon, Boston.

Taguchi, N. (2006). *Writing project using blogs and constructivism approach*. Unpublished manuscript, University of North Texas.

Tapscott, D. (1998). *Growing up digital: the rise of the Net generation.* New York, McGraw-Hill.

Tapscott, D. (2009). *Grown up digital: How the Net generation is changing your world*. New York, McGraw-Hill.

Teo, T. (2008). Pre-service teachers' attitudes towards computer use: A Singapore survey. Australasian Journal of Educational Technology, *24*(4).

Thompson, J. (2007). Is education 1.0 ready for web 2.0 students. *Innovate, 3*(4). Retrieved January 12, 2022, from https://www.learntechlib.org/p/104227/.

Thornton, P., & Houser, C. (2005). Using mobile phones in English education in Japan. *Journal of Computer Assisted Learning, 21*(3), 217–228.

Troussas, C., Virvou, M., & Alepis, E. (2014). Collaborative learning: group interaction in an intelligent mobile-assisted multiple language learning system. *Informatics in Education, 13*, 279–292.

Tinio, V. (2003). *ICT in education*. Retrieved October 30, 2021, from https://digitallibrary.un.org/record/524544.

Usluel, Y. K., Mumcu, F. K., & Demiraslan Y. (2007). ICT in the learning-teaching process: teachers' views on the integration and obstacles. *Hacettepe University Journal of Education, 32*, 164-179.

Uzunboylu, H., Biçen, H., & Çavuş N. (2011). The efficient virtual learning environment: A case study of web 2.0 tools and Windows live spaces. *Computers & Education. 56* (3), 720-726.

VanZanten, R., Somogyi, S., & Curro, G. (2012). Purpose and preference in educational podcasting. *British Journal of Educational Technology, 43*(1), 130-138.

Verdugo, D. R., & Belmonte, I. A. (2007). Using digital stories to improve listening comprehension with Spanish young learners of English. *Language Learning Technology, 11*, 87-101.

Voogt, J., Fisser, P., Pareja Roblin, N., Tondeur, J., & van Braak, J. (2013). Technological pedagogical content knowledge–a review of the literature. *Journal of Computer Assisted Learning, 29*(2), 109-121.

Wachira, P., & Keengwe, J. (2011). Technology integration barriers: Urban school mathematics teachers' perspectives. *Journal of Science Education and Technology, 20*(1), 17-25.

Wan, G., & Gut, D. M. (Eds.). (2011). *Bringing schools into the 21st century (Vol. 13)*. Springer Science & Business Media.

Wang, S., & Vásquez, C. (2012). Web 2.0 and second language learning: What does the research tell us? *Calico Journal, 29*(3), 412–30.

Wang, J., Zou, B., Wang, D., & Xing, M. (2013). Students' perception of a wikis platform and the impact of wikis engagement on intercultural communication. *System, 41*(2), 245–256.

Ward, J.M. (2004). Blog assisted language learning (BALL): Push button publishing for the pupils. *TEFL Web Journal, 3*(1), 1–15.

Warschauer, M. (1996). Comparing face-to-face and electronic discussion in the second language classroom. *CALICO Journal (2)*3, 13.

Warschauer, M. (1996). Computer assisted language learning: An introduction. In S. Fotos (Ed.), *Multimedia language teaching* (pp. 3-20). Tokyo, Japan: Logos International.

Warschauer, M., & Healey, D. (1998). Computers and language learning: An overview. *Language Teaching, 31*(2), 57-71.

Warschauer, M., & Kern, R. (2000). *Network-Based language teaching: concepts and practice.* Cambridge and New York: Cambridge University Press.

Warschauer, M., & Meskill, C. (2000). Technology and second language teaching and learning. in J. Rosenthal (ed) *Handbook of Undergraduate Second Language Education.* Mahwah, NJ: Lawrence Erlbaum.

Warshauer, M., Shetzer, H., & Meloni, C. (2000). *Internet for English teaching.* Alexandria, Virginia: TESOL Inc.

Warschauer, M. (2002). A developmental perspective on technology in language education. *TESOL Quarterly, 36*(3), 453-475.

Warschauer, M., & Grimes, D. (2007). Audience, authorship, and artifact: The emergent semiotics of Web 2.0. *Annual Review of Applied Linguistics. 27*, 1-23.

Watkins, J., & Wilkins, M. (2011). Using YouTube in the EFL classroom. *Language Education in Asia, 2*(1), 113-119.

Wells, P., de Lange, P. A., & Fieger, P. (2008). Integrating a virtual learning environment into a second-year accounting course: determinants of overall student perception. *Accounting & Finance, 48*(3), 503–518.

West, J. A., & West, M. L. (2009). *Using wikis for online collaboration: The power of the read-write Web*. San Francisco, CA: John Wiley & Sons.

Williams, J. B., & Jacobs, J. (2004). Exploring the use of blogs as learning spaces in the higher education sector. *Australasian Journal of Educational Technology, 20*(2), 232-247.

Wright, B., & Akgunduz, D. (2018). The relationship between technological pedagogical content knowledge (TPACK) self -efficacy belief levels and the usage of Web 2.0 applications of pre-service science teachers. *World Journal on Educational Technology: Current Issues. 10*(1), 70-87.

Yıldırım, B., & Akkuş, A. (2020). Developing a scale to assess teachers' perceptions towards using Web 2.0 tools in lectures (TPUWL Scale). *Participatory Educational Research, 7*(3), 124-138.

Yang, S. C. (2001). Language learning on the world wide web: an investigation of EFL learners' attitudes and perceptions. *Journal of Educational Computing Research, 24*(2), 155–181.

Yang, S.-H. (2009). Using blogs to enhance critical reflection and community of practice. *Educational Technology & Society, 12*(2), 11-21.

Yang, S.C., & Chen, Y.J. (2007). Technology-enhanced language learning: A case study. *Computers in Human Behaviour, 23*, 860–879.

Yaprak, E. (2020). *An investigation into EFL teachers' self-efficacy beliefs, frequency of use and attitudes towards Web 2.0 tools.* [Unpublished master's thesis]. Çukurova University.

Yaratan, H., & Kural, C. (2010). Middle school English language teachers' perceptions of instructional technology implementation in North Cyprus School. *TOJET, 9*(2), 161-174.

Yuen, S. C. Y., Yaoyuneyong, G., & Yuen, P. K. (2011). Perceptions, interest, and use: Teachers and web 2.0 tools in education, *International Journal of Technology in Teaching and Learning, 7*(2), 109-123.

Yunus, M. M., Salehi, H., & Chenzi, C. (2012). Integrating social networking tools into ESL writing classroom: Strengths and weaknesses. *English Language Teaching, 5*(8), 42-49.

Yurdakul, I.K. (2011). Examining technopedagogical knowledge competencies of preservice teachers based on ICT usage. *Hacettepe University J. Educ. 40*, 397-408.

Yüksel I., & Yasin E. (2014). Cross-sectional evaluation of English language teachers' technological pedagogical content knowledge. *Educ. Res. Q. 38*(2):23-42.

Zakaria, N., Haini, H., Hamdan, F., & Norman, H. (2018). Mobile game-based learning for online assessment in collaborative learning. *International Journal of Engineering & Technology, 7*(4.21), 80-85.

Zhang, J. (2009). Toward a creative social web for learners and teachers. *Educational Researcher, 38*(4), 274–279.

Zhao, Y., Hueyshan, T., & Mishra, P. (2001). Technology: Teaching and learning: Whose computer is it? *Journal of Adolescent and Adult Literacy, 44*, 348-355.

Zhao, Y. (2005). The future of research in technology and second language education. In Y. Zhao (Ed.), *Research in technology and second language learning: Developments and directions* (pp. 445-457). Greenwich, CT: Information Age Publishing.

Part 2

TPACK-EFL survey items: Baser et. Al., (2015).

Instructions: The following statements consist of 39 items about EFL teachers' TPACK self-efficacy. Please read these items carefully and indicate your level of agreement with each statement below by crossing **(X)** the appropriate brackets.

ITEMS	Nothing		Very Little		Some		Quite a Bit		A Great Deal
(1) I can use basic technological terms (e.g. operating system, wireless connection, virtual memory, etc.) appropriately.	1	2	3	4	5	6	7	8	9
2) I can adjust computer settings such as installing software and establishing an Internet connection.	1	2	3	4	5	6	7	8	9
(3) I can use computer peripherals such as a printer, a headphone, and a scanner.	1	2	3	4	5	6	7	8	9
(4) I can troubleshoot common computer problems (e.g. printer problems, Internet connection problems, etc.) independently.	1	2	3	4	5	6	7	8	9
5) I can use digital classroom equipment such as projectors and smart boards.	1	2	3	4	5	6	7	8	9
(6) I can use Office programs (Word, Power Point, etc.) with a high level of proficiency.	1	2	3	4	5	6	7	8	9
(7) I can create multimedia (e.g. video, web pages, etc.) using text, pictures, sound, video, and animation.	1	2	3	4	5	6	7	8	9
(8) I can use collaboration tools (wiki, edmodo, 3D virtual environments, etc.) in accordance with my objectives.	1	2	3	4	5	6	7	8	9
(9) I can learn software that helps me complete a variety of tasks more efficiently.	1	2	3	4	5	6	7	8	9
(10) I can express my ideas and feelings by speaking in English.	1	2	3	4	5	6	7	8	9
(11) I can express my ideas and feelings by writing in English.	1	2	3	4	5	6	7	8	9
(12) I can read texts written in English with the correct pronunciation.	1	2	3	4	5	6	7	8	9
(13) I can understand texts written in English.	1	2	3	4	5	6	7	8	9
(14) I can understand the speech of a native English speaker easily.	1	2	3	4	5	6	7	8	9
(15) I can use teaching methods and techniques that are appropriate for a learning environment.	1	2	3	4	5	6	7	8	9
(16) I can design a learning experience that is appropriate for the level of students.	1	2	3	4	5	6	7	8	9

TPACK-EFL survey items (continued)

(17) I can support students' learning in accordance with their physical, mental, emotional, social, and cultural differences.	1	2	3	4	5	6	7	8	9
(18) I can collaborate with school stakeholders (students, parents, teachers, etc.) to support students' learning.	1	2	3	4	5	6	7	8	9
(19) I can reflect the experiences that I gain from professional development programs to my teaching process.	1	2	3	4	5	6	7	8	9
(20) I can support students' out-of-class work to facilitate their self-regulated learning.	1	2	3	4	5	6	7	8	9
(21) I can manage a classroom learning environment.	1	2	3	4	5	6	7	8	9
(22) I can evaluate students' learning processes.	1	2	3	4	5	6	7	8	9
(23) I can use appropriate teaching methods and techniques to support students in developing their language skills.	1	2	3	4	5	6	7	8	9
(24) I can prepare curricular activities that develop students' language skills.	1	2	3	4	5	6	7	8	9
(25) I can adapt a lesson plan in accordance with students' language skill levels.	1	2	3	4	5	6	7	8	9
(26) I can take advantage of multimedia (e.g. video, slideshow, etc.) to express my ideas about various topics in English.	1	2	3	4	5	6	7	8	9
(27) I can benefit from using technology (e.g. web conferencing and discussion forums) to contribute at a distance to multilingual communities.	1	2	3	4	5	6	7	8	9
(28) I can use collaboration tools to work collaboratively with foreign persons (e.g. Second Life, wiki, etc.).	1	2	3	4	5	6	7	8	9
(29) I can meet students' individualized needs by using information technologies.	1	2	3	4	5	6	7	8	9
(30) I can lead students to use information technologies legally, ethically, safely, and with respect to copyrights.	1	2	3	4	5	6	7	8	9
(31) I can support students as they use technology such as virtual discussion platforms to develop their higher order thinking abilities	1	2	3	4	5	6	7	8	9
(32) I can manage the classroom learning environment while using technology in the class.	1	2	3	4	5	6	7	8	9
(33) I can decide when technology would benefit my teaching of specific English curricular standards.	1	2	3	4	5	6	7	8	9

TPACK-EFL survey items (continued)

(34) I can design learning materials by using technology that supports students' language learning.	1	2	3	4	5	6	7	8	9
(35) I can use multimedia such as videos and websites to support students' language learning.	1	2	3	4	5	6	7	8	9
(36) I can use collaboration tools (e.g. wiki, 3D virtual environments, etc.) to support students' language learning.	1	2	3	4	5	6	7	8	9
(37) I can support students as they use technology to support their development of language skills in an independent manner.	1	2	3	4	5	6	7	8	9
(38) I can use Web 2.0 tools (animation tools, digital story tools, etc.) to develop students' language skills.	1	2	3	4	5	6	7	8	9
(39) I can support my professional development by using technological tools and resources to continuously improve the language teaching process.	1	2	3	4	5	6	7	8	9

Appendix B. Teachers' Perceptions towards Using Web 2.0 Tools in Lectures (TPUWL) Scale: Yıldırım and Akkuş (2020)

Instructions: The following statements consist of 22 items about EFL teachers' perceptions towards the Web 2.0 usage. Please read these items carefully and indicate your level of agreement with each statement below by crossing **(X)** the appropriate brackets.

ITEMS	**strongly disagree**	**disagree**	**neutral**	**agree**	**strongly agree**
(1) Web 2.0 tools increase technology literacy	□	□	□	□	□
(2) Web 2.0 tools help courses to be fun	□	□	□	□	□
(3) Usage of Web 2.0 tools in an education environment is important	□	□	□	□	□
(4) Web 2.0 tools offer an interactive learning environment	□	□	□	□	□
(5) Web 2.0 tools appeal more than one sense	□	□	□	□	□
(6) Web 2.0 tools provide permanent learning	□	□	□	□	□
(7) Web 2.0 tools provide rich learning environments for the students	□	□	□	□	□
(8) Web 2.0 tools allow the teachers and students to share music, pictures and videos.	□	□	□	□	□
(9) Web 2.0 tools increase creativity of students	□	□	□	□	□
(10) Web 2.0 tools provide concrete learning	□	□	□	□	□
(11) Web 2.0 tools increase attention of students towards courses	□	□	□	□	□
(12) Web 2.0 tools are effective on gaining skills required for professional life	□	□	□	□	□
(13) I can prepare educational materials related to Web 2.0 tools	□	□	□	□	□
(14) I can use Web 2.0 tools effectively	□	□	□	□	□
(15) I have enough information on Web 2.0 tools	□	□	□	□	□
(16) I can integrate Web 2.0 tools into my lesson plans	□	□	□	□	□
(17) I know how to use Web 2.0 tools at lectures	□	□	□	□	□
(18) I can assess and evaluate student learning via Web 2.0 tools	□	□	□	□	□
(19) I can guess which one of the Web 2.0 tools is appropriate to students' level	□	□	□	□	□
(20) I can answer students' questions related to Web 2.0 tools	□	□	□	□	□
(21) I can integrate Web 2.0 tools into learning and instruction process.	□	□	□	□	□
(22) I follow the developments on Web 2.0 tools	□	□	□	□	□

Appendix C. Semi-Structured Interview Questions

Interview Questions

1. How often do you use Web 2.0 tools during the regular workday for instructional purposes?

2. How often do you take the time to learn new Web 2.0 tools? In what ways?

3. How successful do you feel about using Web 2.0 tools in your classroom?

4. What do you think are the advantages of integrating Web 2.0 tools into your teaching practice?

5. What are the challenges you encounter while integrating Web 2.0 tools into your teaching practice?