

**REPUBLIC OF TURKEY
ISTANBUL MEDENIYET UNIVERSITY
INSTITUTE OF GRADUATE STUDIES
DEPARTMENT OF FOREIGN LANGUAGE EDUCATION
ENGLISH LANGUAGE EDUCATION**

**INSTRUCTORS' PERCEPTIONS OF THE USE OF COMPUTERS
IN ENGLISH LANGUAGE TEACHING AT HIGHER
EDUCATION**

MASTER'S THESIS

AHMET OKKAN

JUNE, 2021

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**Supervisor
PROF. DR. SELAMI AYDIN**

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BİLDİRİM

Hazırladığım tezin tamamen kendi çalışmam olduğunu, akademik ve etik kuralları gözeterek çalıştığımı ve her alıntıya kaynak gösterdiğimi taahhüt ederim.

Ahmet Okkan

Danışmanlığını yaptığım işbu tezin tamamen öğrencinin çalışması olduğunu, akademik ve etik kuralları gözeterek çalıştığımı taahhüt ederim.

Prof. Dr. Selami Aydın

T. C.
İSTANBUL MEDENİYET ÜNİVERSİTESİ
LİSANSÜSTÜ EĞİTİM ENSTİTÜSÜ
YABANCI DİLLER EĞİTİMİ ANABİLİM DALI
TEZ ONAY İMZA SAYFASI

Ahmet Okkan tarafından hazırlanan 'Instructors' Perceptions of the Use of Computers in English Language Teaching at Higher Education' başlıklı bu yüksek lisans tezi Yabancı Diller Anabilim Dalı'nda hazırlanmış ve jürimiz tarafından kabul edilmiştir.

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Tez Savunma Tarihi: 23/06/2021

ACKNOWLEDGEMENTS

Integration of computer technology in ELT, like every other field, has always been an ongoing issue worldwide and has gained momentum in the last two decades in Turkey. In the process, ELT instructors' understanding of computers and their perspectives on them have been crucial as they have possessed the leading role. That is the reason why this research focuses on their perceptions towards computers in English language teaching. The research contributes to the existing literature by examining factors like teachers' computer knowledge, personal computer habits, computer attitudes, perceived self-confidence, and school support and climate on instructors' perceptions of computers in their field.

For his great contributions in every single step with the unique expertise he has in the field, I would like to express my deepest gratitude to my thesis supervisor Prof. Dr. Selami Aydın. With his constructive and practical feedbacks, encouragement and patience, he has proved how a good teacher could make a tough process both manageable and enjoyable.

Besides, I would like to thank my professors, Assoc. Prof. Özge Cengiz, and Asst. Prof. Ferdane Denkçi Akkaş for their contributions and assistance throughout my master's education.

Last but not least, I owe special thanks to my dearest friends Selim Özbay, and Dr. Banu Ergen for their support and assistance and Res. Asst. İnci Demir for her fellowship and collaboration throughout this process.

I also would like to thank for TÜBİTAK 2210-National Scholarship Programme for MSc Students for subsidizing my master's education.

Ahmet OKKAN

June 2021

ÖZET

YÜKSEKÖĞRETİM İNGİLİZ DİLİ ÖĞRETİMİNDE ÖĞRETİM GÖREVLİLERİNİN BİLGİSAYAR KULLANIMINA İLİŞKİN ALGILARI

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Eğitimi Bilim Dalı

Tez Danışmanı: Prof. Dr. Selami Aydın

Haziran, 2021. 89 sayfa

Öğretim görevlilerinin bilgisayar entegrasyonundaki sorumlulukları nispeten fazladır ancak literatürde bulunan kısıtlı çalışmalar daha kapsamlı çalışmaların gerekliliğini göstermektedir. Bu nedenle, bu araştırma, Türkiye'deki yüksek öğretim kurumlarında, İngilizce öğretim ve öğreniminde, öğretim görevlilerinin bilgisayar kullanımına ilişkin bilgisi, tutumu, kendine olan güveni, günlük kullanım alışkanlıkları ve çalıştığı kurumun iklimi ve desteği gibi etkileyen faktörleri de içeren bilgisayar kullanımına ilişkin algılarını incelemektedir. Bu tanımlayıcı çalışmada, nicel veriler, bir arka plan kısmı ve 5 bölüm, 64 maddeden oluşan bir ölçek ile 210 öğretim görevlisinden toplanmıştır. İstatistiksel analiz sonrasında, sonuçlara ulaşılmıştır. Öğretim görevlerinin bilgisi belirli yazılımlarla sınırlıyken, kişisel ilgileri de iletişim ve işle alakalı araçlarla sınırlıdır. Çoğunlukla bilgisayarlara karşı olumlu tutum takınırlar ve öğretim sürecinde bilgisayar entegrasyonu konusunda özgüvene sahiptirler. Son olarak, kurumlarının gerekli eğitici ve teknik desteğe ve teknik altyapıya sahip olduğuna inanırlar. Faktörler arasındaki korelasyonlar, öğretmenlerin bilgisayar bilgisi ile hem bilgisayar alışkanlıklarının hem de özgüvenlerinin pozitif, bilgisayar tutumlarının negatif ilişkili olduğunu göstermektedir. Ayrıca, öğretmenlerin özgüvenleri ile hem kişisel bilgisayar alışkanlıklarının hem de okul çevrelerinin pozitif bağları vardır.

Anahtar kelimeler: Yabancı dil olarak İngilizce; öğretim görevlileri; algı; bilgisayar

ABSTRACT

INSTRUCTORS' PERCEPTIONS OF THE USE OF COMPUTERS IN ENGLISH LANGUAGE TEACHING AT HIGHER EDUCATION

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Master's Thesis, Department of Foreign Language Education, English
Language Education

Supervisor: Prof. Dr. Selami Aydın

June, 2021. 89 pages

It is clear that teachers' responsibility for the integration of computers is relatively high; however, limited research found in the literature proves the need for more comprehensive studies. Therefore, this study investigates the instructors' perceptions of using computers, affecting factors such as teachers' computer knowledge, computer habits, computer attitudes, perceived self-confidence, and school climate, and support in English teaching and learning at higher education institutions in Turkey. In this descriptive research, the quantitative data were collected from 210 instructors with a questionnaire consisting of a background part and a scale which has five sections with 64 items. After the statistical analysis, several results were reached. While instructors had limited knowledge of specific software, their personal interests were also limited to communication and work-related tools. They mostly held positive attitudes towards computers and have self-confidence in integrating computers into the teaching process. Last, they believed their institutions had the necessary instructional and technical support and infrastructure. The correlations among factors presented positive relations between teachers' knowledge and both their computer habits and self-confidence while a negative relationship with their attitudes. Besides, there are also positive links between their self-confidence and both their personal computer habits and their school environment.

Key words: English as a foreign language; instructors; perception; computer

To Halil, Şenel, Fatih and Hatice OKKAN

Whose love, support, encouragement and prays to make all my success in life possible.



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LIST OF ABBREVIATIONS

ELT	: English Language Teaching
ICT	: Information and Communication Technology
AI	: Artificial Intelligence
VR	: Virtual Reality
K-12	: "K" for Kindergarten and "12" for the 12th grade
IT	: Information Technology
CALL	: Computer-Assisted Language Learning
CK	: Content Knowledge
PK	: Pedagogical Knowledge
PCK	: Pedagogical Content Knowledge
TK	: Technological Knowledge
TCK	: Technological Content Knowledge
TPK	: Technological Pedagogical Knowledge
TPACK	: Technology Pedagogy and Content Knowledge
FITness	: Fluency of Information Technology
TRA	: Theory of Reasoned Action
TAM	: Technology Acceptance Model
UTAUT	: Unified Theory of Acceptance and Use of Technology

1. INTRODUCTION

This section comprises the background of the study, statement of the problem, aim and significance of the study, research questions, procedure, terms and abbreviation, and organization of the study. First, the background of the study summarizes the significance of the instructors' perceptions of the use of computers in English Language Teaching (ELT) in higher education. Then, issues regarding instructors' computer software knowledge, their frequency of software personal computer use, their computer attitudes, their perceived self-confidence in integrating Information and Communication Technology (ICT), and school climate and support are introduced. Next, the purpose and significance of the study are presented. Following the presentation of the research questions, the limitations are given.

1.1. Background of the Study

In a time that artificial intelligence (AI) and virtual reality (VR) technologies are getting improved and are drawing attention all around the world, computers have still been keeping their positions as an irreplaceable tool in every field like science, finance, health, and education and everyday life for people. As students, teachers, and researchers use computers as a learning tool, it is also used to study, work, play, or entertain individuals at home (Barani, 2014). Moreover, educational technologies, especially after the entrance of computers to school life in the second part of the 20th century, have improved progressively (Gündüz, 2005). Unlike their past usage, computers have become a tool for information gathering and communication among users, thanks to the advancements in internet access. As access to the Internet spreads worldwide, its integration to the ELT and broadening its possible ranges to a new

level become more appealing (Chinnery, 2014). Thus, the effective use of computers in foreign language teaching and learning has also been showing good progress since the 1960s (Aydin, 2013). That is also why schools are spending much money on networked computers and forcing themselves to reach an updated version of the technology in a hurry (Kim, 2002). There are several reasons for integrating computers in language teaching like multimodal practices in four skills with feedback, individualization in a large class, pair or small group work on projects, the fun factor, variety in the resources available and learning styles used, exploratory learning, and real-life skill building (Barani, 2014).

Adapting to this revolution of computer integration in language teaching requires more qualified teachers in the field. Along with the teachers using state-of-the-art technology, most of them still prefer traditional language teaching methods (Shyamlee & Phil, 2012). Even if there is no harm for students in the traditional method, it constrains them with some teaching or learning styles or resources compared to the profound opportunity pool on the Internet. There are some enforcing factors for teachers in the process. First, both teachers and learners must be digitally literate to benefit from the advantages of the educational technologies in the environment (Son et al., 2017). For a teacher, the use of technology can be limited to word processing or e-mail as the students would have the potential to use that tool as computer programming (Murray, 2008). So the teachers' current capabilities on computer use may affect the integration of computer technology in class. Second, teachers' own beliefs in language teaching are the core knowledge that affects their instructional decisions and pedagogical planning (Clark & Peterson, 1986). If there is an expectation on the technology implementation initiative in a class to be successful, the key element is teachers' beliefs on it which would most probably be transmitted to students (Gilakjani & Leong, 2012). Third, according to Ware (2008), a meaningful amount of personal interest and devotion of teachers for computer use are demanded to embed technology in the classroom successfully. To explore why the traditional way of technology use in class remains still, teachers' habits on this issue should be examined thoroughly (Tour, 2015). Fourth, the concerns caused by the technological problems in class or the lack of ICT's effective operation can lead the teachers to feel incapable of processing it in class (Silviyanti & Yusuf, 2015).

Teachers' incompetence diminishes their self-confidence in integration and drives them not to choose a computer-assisted language learning method as they feel uncomfortable in it. Last, as Albirini (2004) mentioned, governments put an effort to keep pace with the global adoption of the computer introduction to their education systems in most developing countries. In addition, as the main responsibility on the adaptation process is on the teachers - the main contributors and the decision-makers on how the computer will be used in class - a training program on computer education must be provided to the teachers to reach the real purpose of providing computers to the schools (Mukti, 2000). Moreover, optimal integration of technology necessitates some innovations in material development, assessment techniques, and the operation of the education system, and the policy and financial preferences of school management (Mooij & Smeets, 2001).

The rapid and global advancement in computer technology has influenced education just like the others by creating a compulsory alteration in teaching and learning methods for an up-to-date system. By the prominent executives of implementing this alteration in a class environment, teachers as implementers and their perspectives on this issue have to be highlighted more on studies. As teachers' quality in technology integration generally decides how much benefit students would gather, the elements affecting teachers' perspectives like their knowledge, beliefs, personal interests, self-confidence, school climate, and support must be identified clearly and worked. Otherwise, as stated in the studies, generally, teachers see computers as an instructional or supplementary tool rather than a learning tool for students in a more teacher-centered and limited perspective (Kim, 2008; Akcaoglu, 2008). Finally, although some studies focus on teachers' attitudes towards computer use globally, there is quite a limited number in the Turkish context, especially in higher education.

1.2. Statement of the Problem

In the integration of computer technology in education, teachers' perspectives have always been a prominent issue as their role is decisive. The traditional approaches in

foreign language teaching and learning gradually become inadequate for today's digital native students. As to fit them into the current foreign language education system efficiently, teachers have to adapt the current system to a more technology-based one. This change is becoming nearly the only way to make them get the ultimate benefit from education. That is why teachers' thoughts come into prominence. With a positive perspective of teachers and the correct integration of computers, it contributes a lot to students at different levels such as motivation, autonomy, acquiring multi-cultural competence, and self-confidence (Dashtestani, 2012). In other words, it fits a more student-centered teaching style which is considered today's need. On the other hand, there is also a noticeable degree of reluctance and resistance among some teachers. Factors like self-confidence or incompetence, enabling this reluctance and resistance, are worth achieving to fulfill a more successful, more rapid, and easier integration of computer technology in class.

1.2.1 Problems Related to Teachers' Knowledge in Computer Integration

An obvious obstacle to computer integration in class could be rooted in the lack of teachers' knowledge of using a computer (Mooij & Smeets, 2001). In this context, Saricoban (2013) states that, the knowledge of how to use it must be considered as well in addition to the knowledge of computer technology. Not having the necessary knowledge is undoubtedly the most crucial reason for unwillingness or resistance to integrating computer technology in class. For example, Smeets et al. (1999) point out that teachers in secondary schools asserted their uncertainty and unfamiliarity with ICT as the main reason for not using ICT in class. Thus, teachers are expected to establish the connection between technology and learning and need additional training on technology use. To be more precise, Lam (2000) states that technophobia is not why teachers do not prefer to use technology but the lack of understanding on how to utilize technology with the teaching practices. Similarly, Turkish EFL teachers also express the lack of training on this matter, but they find it an easy challenge and still prefer to use it (Merç, 2015).

1.2.2 Problems Related to Teachers' Beliefs in Computer Integration

What makes an integration process more effective and faster is the way its contributors treated it. Even if technology in class makes learning more exciting, the teacher's side needs to be ready for this implementation (Cahyani & Cahyono, 2012). Thus, the educational value of ICT is determined not by itself but by the teachers who embed them into teaching and learning (Hismanoglu, 2012). Teachers may not handle sudden and drastic changes in their teaching styles, and that may cause a negative attitude towards the computer integration process in time. Dexter et al. (1999) noted that teachers' tendency to change in education when the technology is presented is a key factor that decides to accelerate or decelerate the imminent reaction. Another point is that technology integration in class necessitates a shift from traditional methods to a more constructivist way of teaching. That means the safe zone of traditional teacher-centered teaching has to be thrown out. Computers alter the design of teaching, the way of interaction between teachers and students, and create a more independent and student-centered way of teaching (Wang, 2002). That kind of flexibility and uncertainty might also scare the teachers and breed negativity in their beliefs in the integration process. In addition, the review of Basaran (2013) presents that in the Turkish EFL context, some teachers find computers distractive for students and time and energy-consuming.

1.2.3 Problems Related to Teachers' Computer Habits

The kind of technology used in class is affected by the teachers' personal computer use at home (Tour, 2015). The variety and the effectiveness of technology as a learning tool in class are limited to the range of teachers' ICT use in their daily lives. For instance, providing that teachers are not experienced in the virtual worlds in practice, they might not benefit from virtual classes in education. At this point, the age of the teacher might form a noticeable impact. As the younger teachers are the early adopters of the technology in their daily lives, they could be more enthusiastic about using it in class with some new media forms (Robinson & Mackey, 2006). As for the older teachers, on the other hand, the main reason for not engaging in technology easily can be their learning and teaching background which is expected to be mainly traditional and based mostly on printed materials. That is why, not being a

routine computer user and illiterate to the basic computer functions could give rise to teachers not preferring new technologies in their learning and teaching environment (Asan, 2003). In addition, in the Turkish context, Basoz and Cubukcu (2014) argue that pre-service teachers who have daily use of computer habits create more positive attitudes on the benefits of computers in foreign language learning.

1.2.4 Problems Related to Teachers' Perceived Self-confidence

The idea that having some basic knowledge of computer hardware and software and some necessary skills to use them is the foundation for integrating ICT does not change the eminence of one key factor: self-confidence. Ertmer and Ottenbreit-Leftwich (2010) suggest that feeling confident could be even more significant than other factors. All other factors like the desire to learn new technologies, growing a positive attitude towards them, or inspire others to pursue their path, are somehow linked to self-confidence. The stronger the teacher's sense of self-confidence is, the wider the extent of computer use in everyday instructional practice by positively changing teachers' and students' roles (Paraskeva et al., 2008). It affects the teacher's openness and willingness to try new ideas with new approaches by offering students some new and innovative changes (Tschannen-Moran and Hoy, 2001). In addition, other inner and outside factors, the lack of confidence also leads to reluctance. The reluctance to implement ICT makes teachers see the whole effort as a burden and demotivates them (Silviyanti & Yusuf, 2015). For Basaran (2013), the lack of competency and confidence is also a major problem among Turkish ELT teachers.

1.2.5 Problems Related to School Climate and Support

One outside factor that exhibits a crucial role in integrating computers in teaching practices is the school climate and support. All kinds of material availability, skills training, and administrative supports are described as facilitating conditions by Teo (2009) and presented as influential factors in the implementation process by Grooves and Zemel (2000, cited in Teo, 2009). Bingimlas (2009) expresses that the importance of confidence, competence, and accessibility in ICT implementation has been equal to other outside components like technical support, ICT resources,

effective professional development, and sufficient time. None of them is enough without the other. Pelgrum (2001) reveals that material obstacles like the insufficient number of computers, insufficient peripherals, and not enough copies of software are placed in top positions as the critical barriers in the integration process. In his study, Capan (2012) also points out that teachers could promote ICT use in the Turkish ELT context if the necessary infrastructure is provided.

Furthermore, problems sourced by colleagues' attitudes and support also have an impact on the level of ICT use. As the teaching profession encloses the heterogeneous mixture of experienced and inexperienced teachers, school becomes a place to observe, communicate, experience, and develop for a novice teacher. In this sense, Becker (1999) states that engagement in peer leadership activities, such as mentoring a novice teacher or holding workshops, can set the ground for getting better in this profession, and peers leading these activities are better at integrating the Internet into class, too. Even without specific mentoring or supervision, social influence may also stimulate a positive or negative attitude towards ICT use. Kreijns et al. (2013) assert that different people or working settings may determine how and what kind of this effect on attitudes.

1.3. Aims of the Study

Integrating ICT into language teaching classes has significant benefits for both teachers and students and keeps them up with global language teaching and learning standards. During the integration process, teachers' roles and perspectives on this process determine whether the outcome would be positive, negative, or neutral. Teachers' perspectives could be guided by some major material and non-material problems like their knowledge of computers, their attitudes, their computer habits, their perceived self-confidence, and finally, the school climate and support due to several reasons. First, not having the necessary knowledge of computer hardware and software and the lack of training on integrating computers in class form certain problems. Then, the background of the teachers and the level of computer knowledge may ground the emergence of negative attitudes regarding using computers in

classes. Moreover, an inner factor for teachers, their computer habits, is a significant problem in the integration process as the high frequency of computer use may naturally fasten the process. Later, sourcing from the computer knowledge level and the background of the teachers, the lack of self-confidence on the use of computers in class holds an important place among the problems related to the integration of ICT. One final problem is seen at the institutional level as the school support and climate trigger teachers to attempt computer use in class or stop it. Considering the issues with the integration of ICT use above, there are two aims in this study. First, the study aims to examine the Turkish EFL teachers' level of computer knowledge, their beliefs on computer use, their computer habits and frequency, their perceived self-confidence in the use of computers and the school climate, and support for using computers. Second, it aims to see the correlations among the variables related to the teachers' perspectives.

1.4. Significance of the Study

This study shows its significance in different dimensions. First, the studies conducted in Turkey mainly take their focus on the prospective teachers rather than the in-service ones (Basoz & Cubukcu, 2013; Baz, 2016; Bozdogan & Ozen, 2014; Deniz, 2007; Hismanoglu, 2012; Özer, 2018; Yuksel & Kavanoz, 2011; Usun, 2004; Saricoban, 2013; Merç, 2015). A comprehensive study with Turkish in-service EFL teachers may contribute to the literature by providing a deeper understanding of the topic and may create a baseline for further research on ICT integration by presenting invaluable data on the issue. Another significant dimension of this study is that the studies on pre- and in-service teachers mostly put their limits on the teachers' attitudes or basic computer knowledge. The studies generally take one or two problematic elements in the ICT integration process among many affecting factors by disregarding others like the school support and climate, teacher computer habits, or perceived self-confidence. Therefore, a small number of comprehensive studies cover different dimensions at once in the Turkish context. By embodying different material and non-material factors and building relationships with different variables,

this study may reveal important findings to shed some light on these matters, as mentioned earlier. Last, unlike the previous studies whose participants were the in-service teachers working at K-12 schools in Turkey (Aydin, 2013; Asan, 2003; Capan, 2012; Sahin-Kizil, 2011; Kozikoğlu & Babacan, 2019; Unal & Ozturk, 2012; Tezci, 2009; Özdemir, 2017; Goktas, Gedik & Baydas, 2013), this study aims to gather data from participants at higher education institutions in Turkey. This is an important point since the K-12 schools, and the universities in Turkey are directed by two different institutions as the former by the Ministry of National Education and the latter by the Council of Higher Education. Universities have more independent policies in curriculum designs, have a bigger chance of a fast ICT integration. As the study takes place in preparatory schools with English as their only subject, unlike the K-12 schools, it might reach contrasting results.

1.5. Research Questions

The necessity of using computers in the English language teaching process has been unrolled to reach higher standards in education. However, in Turkey, the implementation of ICT in education is recent and displays problems sourced by teachers who have a leading role. As the integration process and the related emergent problems are both novel, the relevant literature is limited to few studies in the Turkish context. Like teachers' computer knowledge, attitudes, computer habits, perceived self-confidence, and the school support and climate on the integration process of ICT in teaching and learning, the problems mentioned above require more comprehensive studies in Turkey. To fulfill this aim, the current study leads to the following research questions to answer:

1. How do Turkish EFL teachers who work at higher education institutions perceive their level of computer software knowledge?
2. What are the personal computer use habits of Turkish EFL teachers?
3. What are the attitudes of Turkish EFL teachers towards using computers in the teaching and learning processes?

4. How do Turkish EFL teachers perceive their self-confidence in using computers in the teaching and learning processes?
5. How do Turkish EFL teachers perceive the school climate and support concerning using computers for instruction?
6. Is there a relationship among the variables, teachers' computer knowledge, personal computer habits, computer attitudes, perceived self-confidence, and school climate and support?

1.6. Limitations

Some limitations exist in the current study. First of all, the participants are limited to only 210 ELT teachers working in preparatory departments of private and state universities in Turkey. This number could not be enough to make generalizations. Second, considering the gender distribution in EFL departments, the data are mostly collected from female participants. In this research, more than three-quarters of the participants were comprised of female participants. This could affect the overall results. Third, the research is conducted as a descriptive research design with a demographic background and a scale prepared by Papanastasiou and Angeli (2008). It is a 5 point Likert scale consisting of five sections such as teachers' computer knowledge, personal computer habits, computer attitudes, perceived self-confidence and school climate and support. Fourth, the correlations among independent and dependent variables are not examined. Last, the scope of the research is only limited to EFL teachers in higher education.

2. RELATED LITERATURE

This chapter is divided into two main sections. The first one constitutes a comprehensive theoretical background of the study, including a brief history of CALL, teachers' knowledge of computer, teachers' attitudes towards computers, teachers' perceived self-confidence, teachers' computer habits, and school climate and support. The second covers the related literature on these subjects.

2.1. Theoretical Background

2.1.1. Introduction

This section starts with a general perspective on computers in EFL teaching and gives a summary of CALL. Then, it furthers with the theories on technology and computer knowledge. Later, it precedes with attitude, the development of behavior, and the Technology Acceptance Models. After that, it discloses the concept of perceived self-confidence by defining the Social Cognitive Theory and self-efficacy. Following the explanations on computer habits, digital literacy, and computer literacy, the section finalizes with the school culture, climate, and support.

2.1.2 Computers in EFL Teaching

The interactive nature of language teaching has benefited from the advantages of computers for the last decades. Computers have enhanced the information flow, communication among teachers and students, and unified language teaching and learning environments. Today, having the necessary knowledge of computer use has been identified as a universal requirement (Saricoban, 2013). Regarding the

integration of computers in educational systems, the expression of Computer-Assisted Language Learning (CALL) has come to the forefront in the field.

2.1.2.1. A brief history of CALL

Along with the fact that there was not a certain date for the first appearance of CALL before its first introduction, a couple of other terminologies like CAI, CAL, and CALI had already existed. (Davies et al., 2013). CALL has been revealed by focusing on student-centered teaching rather than instruction-based (Davies et al., 2013). Warschauer and Healey (1998) divided the stages of CALL into three by illustrating the changes in pedagogies.

Behaviorist CALL (the 1960s-1970s): This initial stage of CALL was adopted in the 1960s under the roof of the Behaviorist Approach. The mainframe computers were the technology at that time for CALL. Computers were granted as tutors who were providing instructional materials to the learners in the form of repetitive and extensive drill practices. The rationale behind it was explained by Warschauer (1996) as follows:

- It is beneficial and even necessary to be exposed to the same material repetitively to learn.
- Computers provide repetitive drills without getting bored and with non-judgmental feedback.
- Computers can set the pace for each individual and save class time for other activities.

After the rejection of the Behaviorist Approach and the emergence of new approaches, and the recent advances in computer technology, the next stage of CALL was set.

Communicative CALL (the 1970s-1980s): The emergence of the Communicative Approach impacted the operation of computer integration in educational systems. The type of computer technology also enabled this progress and related to that, the mainframe computers were replaced by the new personal computers. The focus

shifted more to the use of language more than the form of it. That is why, computers functioned as tutors and stimulus by letting students choose, interact, and control their use of language more with the help of a different type of software. (Taylor and Perez, 1989, cited in Warschauer, 1996). Advocates of communicative CALL pointed out the following (Underwood, 1984, cited in Warschauer, 1996).

- Grammar should be taught implicitly.
- Students should be encouraged to utter original sentences.
- Teachers should be more flexible with students' responses.
- Students should not be judged or rewarded for everything.
- The target language should be preferred in the environment.

The popularity of communicative CALL after the Behaviorist CALL was also criticized in time by moving the center of language learning from cognitive bases to more authentic, social ones. Task-based, content-based, and project-based approaches led to more authentic and integrative language learning. This opened a new path for integrating computer technology with a novel perspective (Warschauer & Healey, 1998).

Integrative CALL (the 1980s - 1990s): Multimedia and the Internet were the two prominent technological advancements that base the integrative CALL (Warschauer, 1996). Multimedia includes all sorts of graphics, sounds, videos, texts, and animations that a learner can easily access on a single device. It also encompassed Hypermedia which connects the multimedia sources. That kind of enriched possibilities of communication ways helped students read, write, listen, and interact at any time. This interconnectedness is a part of the modern world and provides students to develop and shape their learning strategies and environments. In this context, teachers' roles have changed from the only body of information or the wisdom of the class to more like a facilitator that serves the information in the best possible way to the students and let them select, interpret and connect that information to their prior knowledge and fulfill their needs (Warschauer & Healey, 1998).

Table 1. Three Phrases of CALL (Based on Kern and Warschauer, 2000; Warschauer, 1996)

<i>Stage</i>	1970s-1980s: Structural CALL	1980s-1990s: Communicative CALL	21st Century: Integrative CALL
<i>Technology</i>	Mainframe	PCs	Multimedia and Internet
<i>English-Teaching Paradigm</i>	Grammar- Translation & Audio- Lingual	Communicate Language Teaching	Content-Based, ESP/EAP
<i>View of Language</i>	Structural (a formal structural system)	Cognitive (a mentally- constructed system)	Socio-cognitive (developed in social interaction)
<i>Principal Use of Computers</i>	Drill and Practice	Communicative Exercises	Authentic Discourse
<i>Principal Objective</i>	Accuracy	Fluency	Agency

These three phrases of Warschauer and Healey show inconsistencies, according to Bax (2003). Warschauer discusses these phrases at different times, and Table 1 shows the updated version of CALL phrases by Warschauer (2004). As seen clearly, there are changes in the names of the phrases and the dates attached to them. Even if Warschauer and Healey (1998) state that the timeline is not neat, Bax finds it ambiguous and suggests a new analysis of CALL history and attempts to bring about a new classification. He offers "approaches" not "phrases" and makes the classification according to the conditions of that time, not with specific periods. The approaches are presented as Restricted CALL, Open CALL, and Integrated CALL. He explains that Restricted CALL covers the time from the 1960s till the 1980s, Open CALL from the 1980s until today, and Integrated CALL, partly and in a few dimensions, exists in some parts of the world, and the aim is to reach the Integrated CALL (Bax, 2003).

The early 2000s brought a higher quality of sounds and videos on the Web and opened an opportunity for online language courses. This e-learning environment increased the popularity of self-study courses, and the term "blended learning" took

its place in the field (Davies et al., 2013). In addition, Web 2.0 tools like blogs, podcasts, wikis, discussion forums, and all other social networking sites and virtual worlds were promoted to share knowledge, collaborate and communicate with each other (Thomas, 2009). Along with the communicative, networking, and interactive availability provided by computers and the Internet, digital media is constantly growing by serving a broad range of diversity and flexibility and enforcing new pedagogical approaches to foreign language teaching. These new principles and paradigms promote more collaborative construction of the knowledge than self-instruction (Davies et al., 2013).

Table 2. Restricted, Open, and Integrated CALL

Restricted, Open and Integrated CALL: an outline

Content	Type of task	Type of student activity	Type of feedback	Teacher roles	Teacher attitudes	Position in curriculum	Position in lesson	Physical position of computer
<i>Restricted CALL</i>								
Language system	Closed drills Quizzes	Text reconstruction Answering closed questions Minimal interaction with other students	Correct/incorrect	Monitor	Exaggerated fear and/or awe	Not integrated into syllabus—optional extra Technology precedes syllabus and learner needs	Whole CALL lesson	Separate computer lab
<i>Open CALL</i>								
System and skills	Simulations Games CMC	Interacting with the computer Occasional interaction with other students	Focus of linguistic skills development Open, flexible	Monitor/facilitator	Exaggerated fear and/or awe	Toy Not integrated into syllabus—optional extra Technology precedes syllabus and learner needs	Whole CALL lesson	Separate lab—perhaps devoted to languages
<i>Integrated CALL</i>								
Integrated language skills work Mixed skills and system	CMC WP e-mail Any, as appropriate to the immediate needs	Frequent interaction with other students Some interaction with computer through the lesson	Interpreting, evaluating, commenting, stimulating thought	Facilitator Manager	Normal part of teaching—normalised	Tool for learning Normalised integrated into syllabus, adapted to learners' needs <i>Analysis of needs and context precedes decisions about technology</i>	Smaller part of every lesson	In every classroom, on every desk, in every bag

2.1.3. Teachers' Knowledge of Computers

One of the key factors defining the success of ICT integration is the level of teachers' knowledge of computer technology and how it is used effectively. The increased developments in the ICT world have flourished a new model of society with changing needs. The citizens of this new society require to own the necessary abilities and competencies on new technologies to benefit from them and be active members of new cultural, economic, and social life (Shopova, 2014). This need is also seen in schools for both teachers and students. However, as the active operator of the ICT technologies in class, teachers must have at least the basic knowledge of computer hardware and software. That is why, teacher training and additional support on the integration process of ICT in classrooms must be provided by management rather than merely filling the schools with computer software and hardware and leave everything to the teachers. One way of the normalization of CALL in education can be achieved by collaborative teacher training and development in addition to the technical and pedagogical supports (Chambers & Bax, 2006). Another point is that knowledge of basic computer operation skills is critical to apply most functions like creating folders or using floppy diskettes are generally found in teachers unsurprisingly (Sa'ari et al., 2005). However, they require more training in technical areas like media communication to enhance their level of technological competence. All these needs on pedagogy and content knowledge for technology lead to the Technology Pedagogy and Content Knowledge (TPACK) model by Koehler & Mishra (2009)

TPACK was designed on the framework of Lee Shulman's Pedagogical Content Knowledge (PCK) in 1986. This new model includes three elements of teachers' knowledge: content, pedagogy, and technology. The relation among these components is shown in Figure 1 (Koehler & Mishra, 2009).

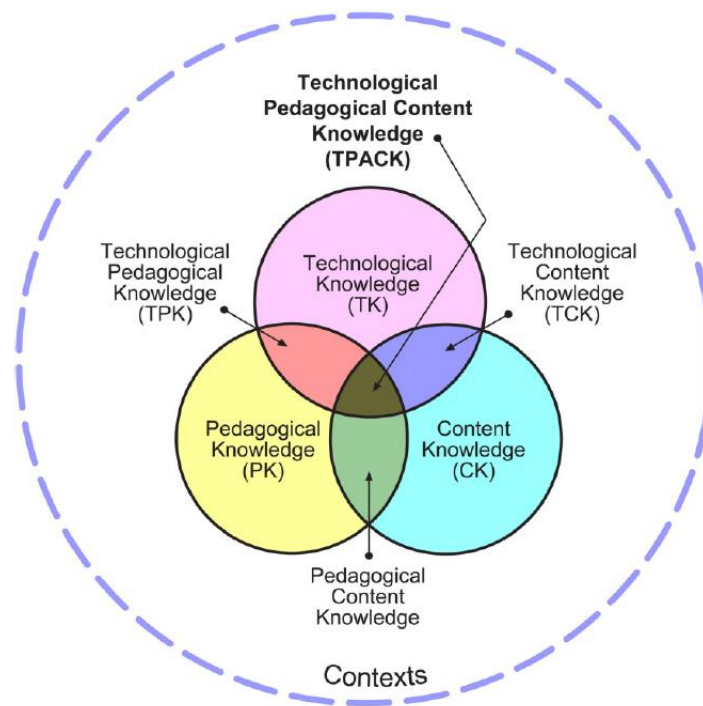


Figure 1. The TPACK Framework and Its Knowledge Components (Koehler & Mishra, 2009)

Content knowledge (CK): It is defined by Shulman (1986) as *"the amount and the organization of knowledge per se in the mind of teacher."* By amplifying the matter, Koehler and Mishra (2009) contribute that it is the teachers' knowledge of the target subject to be covered and comprises all theories, approaches, organizational frameworks, concepts, ideas, and practice to develop that knowledge. Shulman (1986) states that a teacher must explain an accepted truth and go beyond and define why that knowledge is thought justified. The lack of content knowledge must cost much on students with misinformation, misunderstandings, and misconceptions.

Pedagogical knowledge (PK): It includes a deeper understanding of how to teach and learn, all the teaching and learning strategies, and methods for teachers (Koehler & Mishra, 2009). Teachers' pedagogical knowledge can be observed in the strategies they use to understand the nature of the students, their learning habits, their acquisition abilities, or to assess and evaluate them. This is significant for teachers as

this form of knowledge leads to a better understanding of the process of their students' learning and can create the development of positive attitudes towards learning.

Pedagogical Content Knowledge (PCK): It is still a part of content knowledge, but it is specifically about transforming the specific subject area for teaching (Shulman, 1986). There are different ways of representing content, tailoring it as instructional material, and adapting it to the students' prior knowledge (Koehler & Mishra, 2009). The process here builds the link between curriculum, students' prior knowledge, and pedagogy, and that promotes learning.

Technology Knowledge (TK): It is quite similar to the Fluency of Information Technology (FITness). It is defined as having the required knowledge of technology to effectively apply it at work or everyday life and progressively update that knowledge to get used to technology changes (Koehler & Mishra, 2009). That kind of knowledge enables people to be active participants of modern life where technology spreads its roots to all segments. That is why, it is a life-long, never-ending state of bond with technology.

Technological Content Knowledge (TCK): Technological developments have changed the flow of knowledge representations in diverse fields like medicine, physics, chemistry, and archaeology throughout history. Just like all others, it also triggers educational innovations too. There is a strong relationship between technology and content. The teacher who gains both content and technology knowledge can create new ways of interpreting the subject area. Technology and content both constrain and affect each other (Koehler & Mishra, 2009). Some technological tools may work in merely a specific subject area, or some subject areas may be represented in limited numbers of technological tools. However, it creates flexibility and diversity among different contents and technological tools.

Technological Pedagogical Knowledge (TPK): This form of knowledge is about how different usages of technological tools can change the way of teaching and learning. When teachers realize technological affordances and constraints, they can adjust the existing tools for various educational purposes (Koehler & Mishra, 2009).

For instance, all Microsoft Office software is designed for a business environment, or online games are designed for entertainment. However, teachers must know how to integrate them into their teaching to improve their students' learning.

Technology, Pedagogy, and Content Knowledge (TPACK): TPACK is the interaction of all three components of knowledge. That formulates the basis of effective teaching by blending the knowledge of different representations of contents and the knowledge of pedagogical strategies of presenting them with the help of technology and lastly, the knowledge of the technology itself to construct an easy way of learning and sorting out problems related to that (Koehler & Mishra, 2009). A teacher providing this unique combination of knowledge could be aware of different solutions for different problems in various lessons and channels among these three components of knowledge resiliently when required.

In short, the construct of TPACK over time presents how the world is integrating technology in its nature and how new opportunities and necessities have emerged in different fields in time. Thus, all these dimensions of knowledge should be regarded as an essential part of effective and constructive teaching in education. A summary of definitions and examples for all these dimensions are given in Table 3 (Koehler & Mishra, 2009; Rahimi & Pourshahbaz, 2018).

Table 3. Definitions and examples of TPACK dimensions

TPACK Constructs	Definition	Example
TK	Knowledge about how to use ICT hardware and software and associated peripherals	Knowledge about how to use Web 2.0 tools (e.g., Wiki, Blogs, Facebook)
PK	Knowledge about the students' learning, instructional methods, different educational theories, and learning assessment to teach a subject matter without references towards content	Knowledge about how to use problem-based learning (PBL) in teaching
CK	Knowledge of the subject matter without consideration about teaching the subject matter	Knowledge about Science or Mathematics subjects
PCK	Knowledge of representing content knowledge and adopting pedagogical strategies to make the specific content/ topic more understandable for the learners	Knowledge of using analogies to teach electricity (see Shulman, 1986)
TPK	Knowledge of the existence and specifications of various technologies to enable teaching approaches without reference towards subject matter	The notion of Web quest, KBC, using ICT as cognitive tools, computer-supported collaborative learning
TCK	Knowledge about how to use technology to represent/research and create the content in different ways without consideration about teaching	Knowledge about online dictionary, SPSS, subject specific ICT tools e.g. Geometer's Sketchpad, topic specific simulation
TPACK	Knowledge of using various technologies to teach and/represent and / facilitate knowledge creation of specific subject content	Knowledge about how to use Wiki as an communication tool to enhance collaborative learning in social science

2.1.4 Teachers' Attitudes towards Computers

Attitude is defined as "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (Eagly & Chaiken, 1993: 1). Attitudes towards computer use in the classroom have a significant influence on the process of ICT integration. Researchers mainly emphasize the importance of understanding the teachers' positive beliefs and attitudes towards computers. Teachers' attitudes have been seen as the enabling or disabling factor of implementing ICT in classrooms (Albirini, 2006; Alshumaimeri, 2008; Cahyani & Cahyono, 2012; Kim, 2002; Sa'ari et al., 2005). Similarly, in the Turkish EFL

context, researchers also concur that the success of the implementation of ICT mainly depends on addressing teachers' attitudes towards computers as they take on a vital role in the process (Asan, 2003; Aydin, 2013; Capan, 2012; Celik, 2013; Hismanoglu, 2012; İnce, 2017; Önalán & Kurt, 2020; Sahin-Kizil, 2011; Tezci, 2009). It is logical to assume that a favorable attitude to a target leads to a favorable behavior and similarly an unfavorable one to an unfavorable behavior (Ajzen & Fishbein, 1977). This idea is described thoroughly in the Theory of Reasoned Action (TRA) by Ajzen and Fishbein in 1975.

In TRA, attitudes of an individual generally present an individual's evaluation of the entities in question (Ajzen & Fishbein, 1977). These entities could be a behavior, an object, or a person. The outcome of the specific behavior to the target entity leads the individual to decide whether s/he will perform the act. These behavioral intentions are under the control of the individual's subjective norms or attitudes, as shown in Figure 2 (Madden et al., 1992). They are also stated to influence the individual's attitudes towards their behaviors.

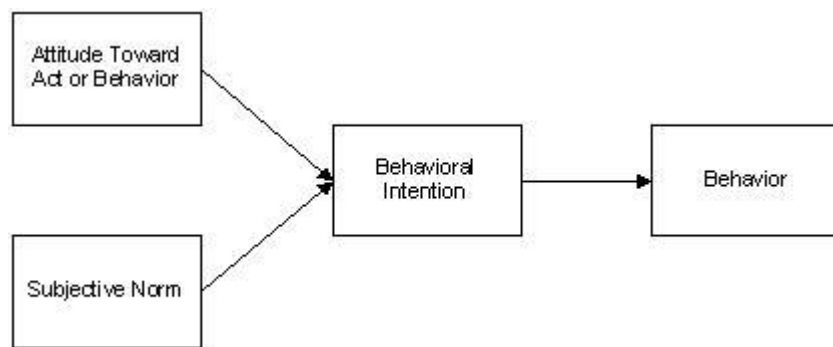


Figure 2. Path Model for The Theory of Reasoned Action. (Madden et al., 1992)

The TRA also grounds for the Technology Acceptance Model (TAM) by Davis (1989). TAM is designed to figure out how the chain is built up between the external variables and users' actual use (Davis & Venkatesh, 1996). External variables such as

training, the nature of the implementation process, and involvement in design impact the behavioral intention to use a program and the actual use with the indirect influence of perceived usefulness and perceived ease of use (Davis & Venkatesh, 1996). Two theoretical constructs are defined here: Perceived usefulness and perceived ease of use. Perceived usefulness is defined as the level of an individual's belief on whether the application of a particular system would increase job performance or not (Davis, 1989). That means, in an institutional context, if an employee owns a high degree of perceived usefulness on a certain program, the employee would tend to use it to improve his performance. On the other hand, perceived ease of use is defined as an individual's belief on how difficult to use a particular program. The amount of effort shown to use a program would be the individual's decision point to use it in practice. The individual could find that program useful, but if s/he believes that it is hard to use it in practice, that individual will tend not to use it (Davis, 1989). If a teacher possesses the belief of perceived usefulness and perceived ease of use on a program, that helps to grow positive attitudes towards the actual use, as shown in Figure 3 (Davis & Venkatesh, 1996).

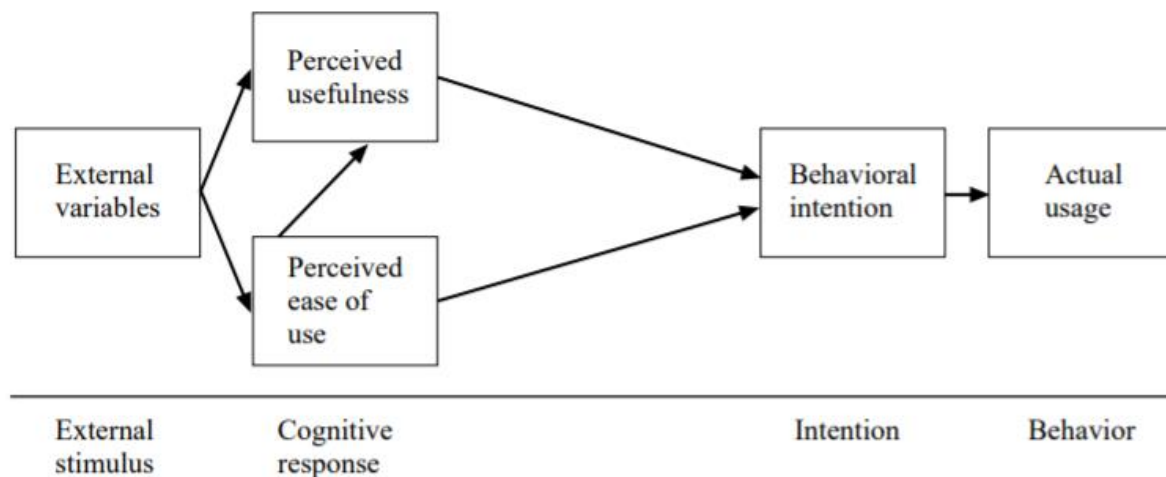


Figure 3. The Technology Acceptance Model (Davis & Venkatesh, 1996)

The first updated model of TAM, TAM2, was proposed by Venkatesh and Davis (2000). This model provides more detailed information for the users' reasons for the usefulness of a particular system. It theorizes that the evaluation of the users on the relation between the goals of the job and the consequences of doing it via a system bases their perception of the usefulness of the system (Venkatesh & Davis, 2000). The model is presented below in Figure 4.

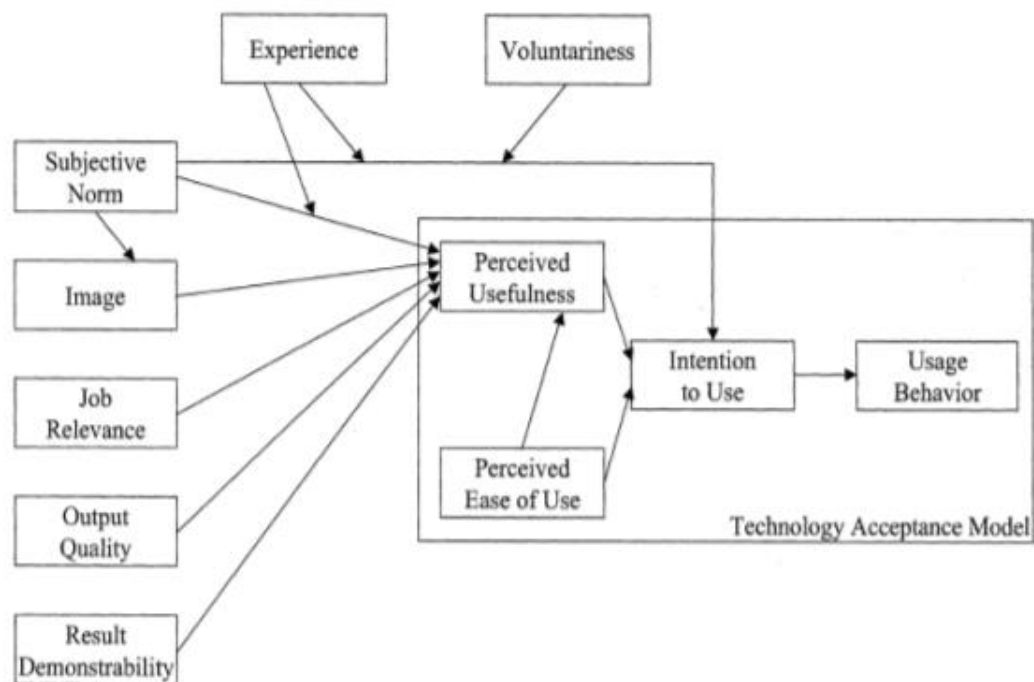


Figure 4. Technology Acceptance Model (TAM2) (Lai, 2017)

The later version of the Technology Acceptance Model, TAM3, was developed by Venkatesh and Bala (2008). It integrates TAM2 and the determinants of perceived ease of use. System characteristics, individual differences, social influences, and facilitating conditions were considered the determinants of perceived usefulness and perceived ease of use and were used to build TAM3, as shown in Figure 5 (Lai, 2017).

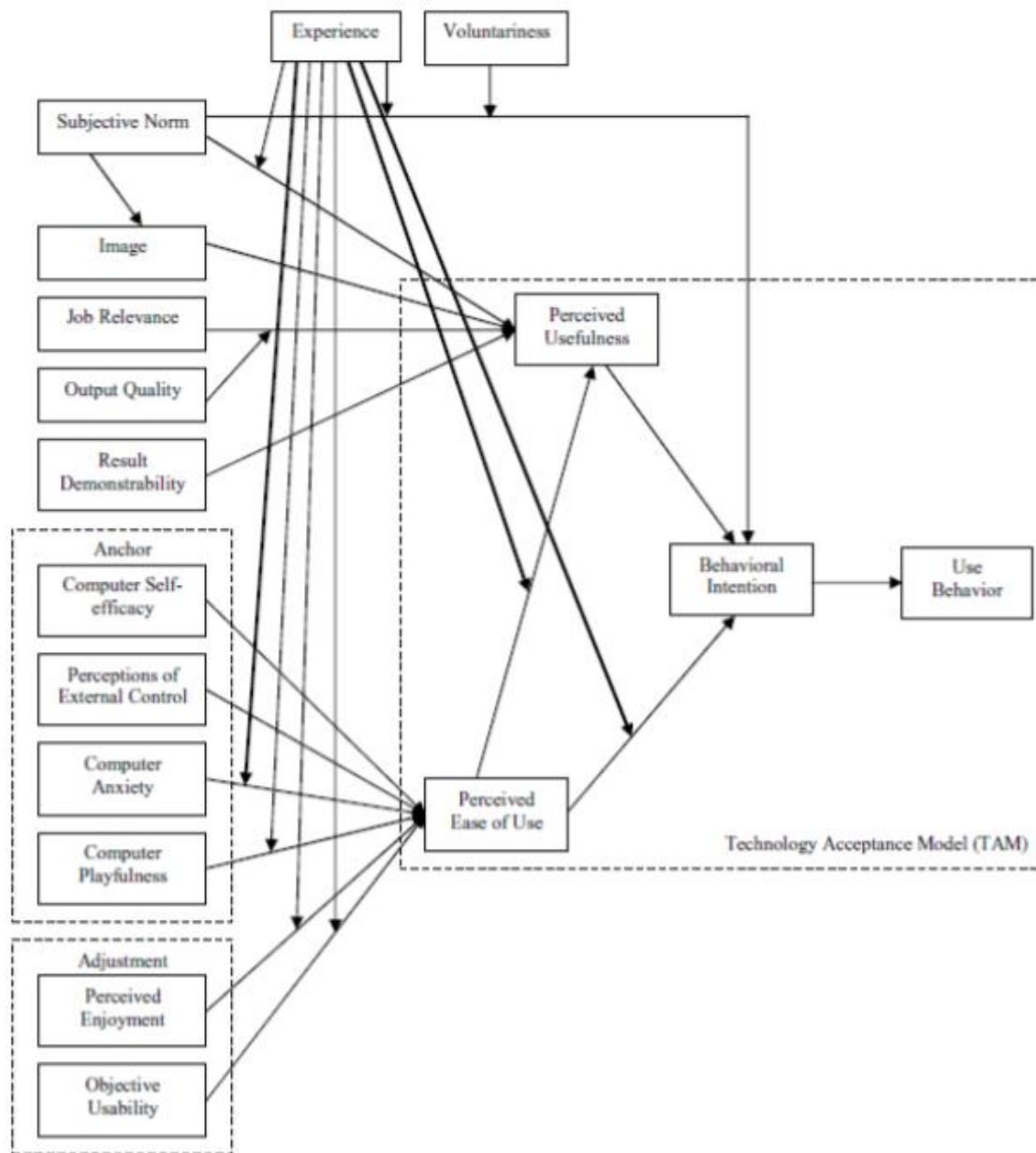


Figure 5. Technology Acceptance Model (TAM3) (Lai, 2017)

A unified version of the Technology Acceptance Model called Unified Theory of Acceptance and Use of Technology (UTAUT) was previously developed by

Venkatesh et al. (2003). In this model, it is suggested that four constructs, performance expectancy, effort expectancy, social influence, and facilitating conditions shown in Figure 6, have a significant role in determining the behavioral intention and usage behavior (Venkatesh et al., 2003). While the perceived usefulness is a part of performance expectancy in the UTAUT model, the effort expectancy captures the perceived ease of use (Lai, 2017).

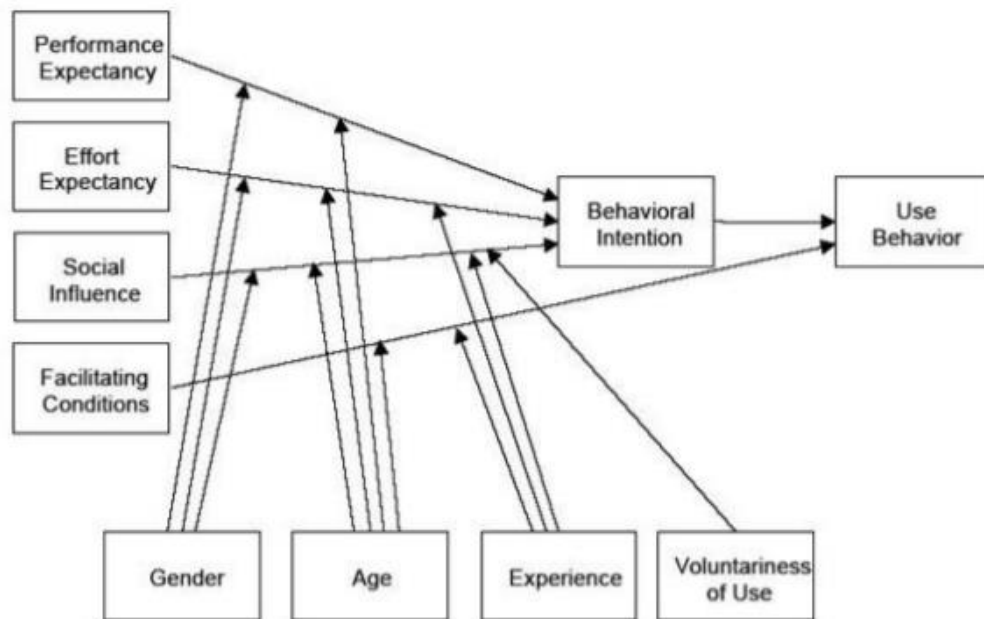


Figure 6. Unified Theory of Acceptance and Use of Technology (UTAUT) (Lai, 2017)

In short, teachers grow attitudes towards technology use based on their perceptions of the system they are going to use. Regarding the acceptance of a technological system, the perception towards the external variables and the users' internal beliefs affect the speed of this acceptance. The models above also describe the importance of a good match of the work goals and the relevance of the systems with external supports to promote positive attitudes towards technology acceptance.

2.1.5 Teachers' Perceived Self-Confidence

The construct of teachers' self-confidence in using computers is a critical point for the process of ICT integration. Self-confidence has been conceptualized in different ways, but the most apparent one is the Self-efficacy Theory developed by Bandura (1977). Self-efficacy is hypothesized as a part of the Social Cognitive Theory of Bandura (1986). The theory presents that human beings' psychosocial functioning occurs with the reciprocal play of person, behavior, and environment (Bandura, 2001; Schunk & Pajares, 2009). In the concept of triadic reciprocity shown in Figure 7, the interaction of determinants exists among personal factors in the form of cognitive, affective, and biological events, behaviors, and environmental factors (Bandura, 2001). The theory approaches people's behaviors not just as a consequence of environmental forces but also as the inner forces sourced by past experiences. That is why people are self-regulating, self-organizing, self-reflecting, and proactive organisms (Bandura, 2001). The triadic determinants of social cognitive theory enable to be addressed the individuals' emotional, cognitive, motivational, and environmental states and to try to correct the faulty parts. In social cognitive theory, self-efficacy is one of the parts affected by the behaviors and environment and affects them (Bandura, 1986).

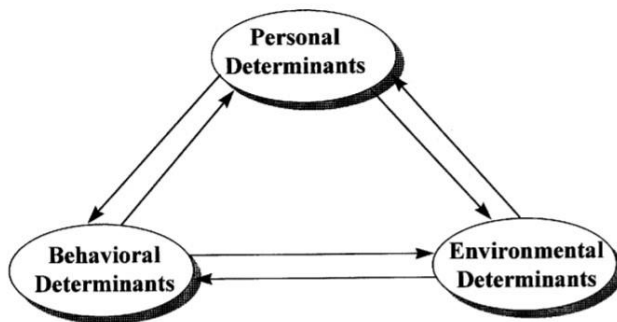


Figure 7. The Schematization of The Triadic Reciprocal Determinants in Social Cognitive Theory (Bandura, 2001)

Perceived self-efficacy is defined as people's judgments of their abilities to execute actions to influence the events affecting their lives (Bandura, 1986; 2010). As the main source of perceived self-efficacy, four elements are put forward as actual performances, vicarious experiences, social persuasion, and physiological indexes (Schunk & Pajares, 2009). Actual performances are past successful experiences that improve the opportunity for individuals to perform a similar task. If the experience was achieved by overcoming some obstacles in the process, that would boost the self-confidence of the individual and make it resilient. Vicarious experiences are the performances shown by a model person who is in a similar situation. The success of that model is a form of motivation and develops the observer's self-confidence. A realistic form of social persuasion is another effective factor in the development of self-efficacy. It leads people to show more effort with greater self-efficacy. One last thing is the physiological and mental well-being of individuals. The jobs requiring more physical health and stamina may negatively influence people's beliefs in their self-efficacy if they are not physiologically ready for the situation. Thus, physical and mental well-being is also a critical aspect of the development of self-efficacy. In addition, individuals' emotional states to perform a designated task impact the type of self-efficacy they will grow. When individuals are in a good mood and mentally relax, they are most likely to show better performance to complete a task. Figure 8 illustrates the sources of self-efficacy.



Figure 8. Sources of Self-Efficacy Information (Bandura, 1977)

Self-efficacy comprises three interrelated dimensions: magnitude, strength, and generality (Bandura, 1977; Cecil & Pinkerton, 2000). *Magnitude* refers to task difficulty. A person with a high magnitude level of self-efficacy can feel sufficient enough to handle more challenging tasks. *Strength* refers to the conviction of a person's own ability to perform a task. A strong sense of self-efficacy makes a person not to be discouraged when encountering a problem. *Generality* refers to the extent to which the efficacy is limited to a particular domain. While some people are limited to execute a performance in particular situations, others have the conviction to do it in any circumstances (Cecil & Pinkerton, 2000).

Concerning computer self-efficacy, Compeau and Higgins (1995) modified the terminology to describe an individual's ability to perform a task on a computer. They also redefined the dimensions of self-efficacy by adapting them to computer use. While the magnitude of computer self-efficacy determines the level of computing tasks people believe they can do, the strength of computer self-efficacy includes the confidence in one's ability to apply harder computing tasks in practice. In addition, generality can be observed in the computing domains where people show their limits in choosing different software and computer systems (Compeau and Higgins, 1995). Researchers emphasize the importance of computer self-efficacy in teaching and learning. Teachers with a background of high-level computer self-efficacy in pre-service education show higher confidence in integrating technology in class (Anderson & Maninger, 2007). Similarly, in the ICT integration process, computer self-efficacy impacts teachers by letting them create new learning environments and find meaningful ways of applying technology (Looney et al., 2004). In addition, researchers with a high level of computer self-efficacy prefer using software and the world wide web in their research, while more traditional ones prefer libraries and traditional lectures (Abbitt, 2011).

In short, perceived self-confidence, or perceived self-efficacy above, in computers is a complicated construct built by internal and external factors. No matter how complicated it is, having the correct degree of self-confidence in teaching and learning via computers is essential for teachers in the modern world. As the age of

digital natives exists now, schools need more confident teachers in using technology to keep pace with the new generation.

2.1.6 Teachers' Computer Habits

The basic requirements to be a teacher are considered to possess "teaching ability", "world knowledge", and "subject knowledge" (Konan, 2010). The content of these requirements is changing quickly over time as the digital world provides new educational environments. Reaching the necessary information fully on time, benefiting from it in personal and professional life, and becoming a better teacher are positively connected to computer usage for these aims (Konan, 2010).

To reach the desired level of effective teaching in this age, a certain level of computer literacy is required for teachers. An effort to integrate computer technology with computer illiterate teachers comes with lots of difficulties. Moreover, these digital immigrant teachers inhibit the digital native students of this age from possible benefits of the technology era. In this sense, the term "digital literacy" and specifically in this study "computer literacy" gains greater importance.

Different definitions of "digital literacy" by researchers and practitioners closely have the same meanings. Paul Gilster first defined the term in 1997 as *"the ability to understand and use information in multiple formats from a wide variety of sources when it is presented via computers"* (Gilster, 1997 cited in Knobel and Lankshear, 2006). Gilster emphasizes that digital literacy is not about surfing on the Internet but understand, evaluate, and interpret the information (Shopova, 2014). By extending the concept, Martin (2005, p.135) states that *"digital literacy is the awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyse and synthesize digital resources, construct new knowledge, create media expressions, and communicate with others, in the context of specific life situations, in order to enable constructive social action; and to reflect upon this process."* In defining the term, Ferrari (2012) goes a little bit further and says "digital competence is the set of knowledge, skills, attitudes (thus including abilities, strategies, values and awareness) that are required when using ICT and digital media to perform tasks; solve problems; communicate;

manage information; collaborate; create and share content; and build knowledge effectively, efficiently, appropriately, critically, creatively, autonomously, flexibly, ethically, reflectively, for work, leisure, participation, learning, socialising, consuming, and empowerment." The complexity of Ferrari's definition of digital literacy is broken into the parts shown in Figure 9 (Ferrari, 2012). As the concept is in the continuum, the terms are progressively developing by catching the standards of the 21st century. Computer literacy is considered in the educational context for this study, while digital literacy comprises many forms of literacies like computer literacy, information literacy, visual literacy, media literacy, and e-literacy (Martin, 2005).

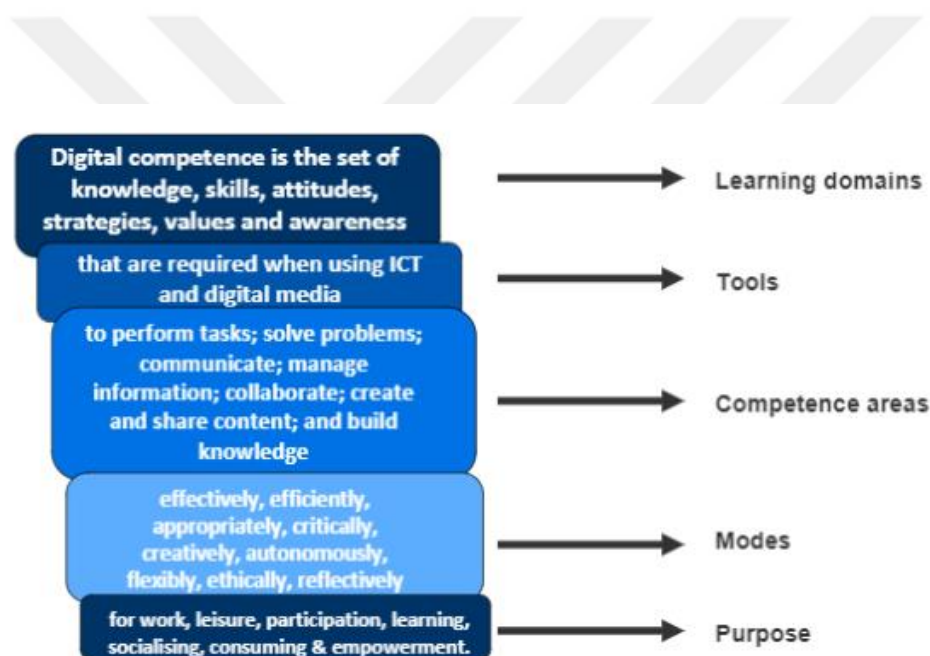


Figure 9. Parts of The Definition of Digital Literacy (Ferrari, 2012)

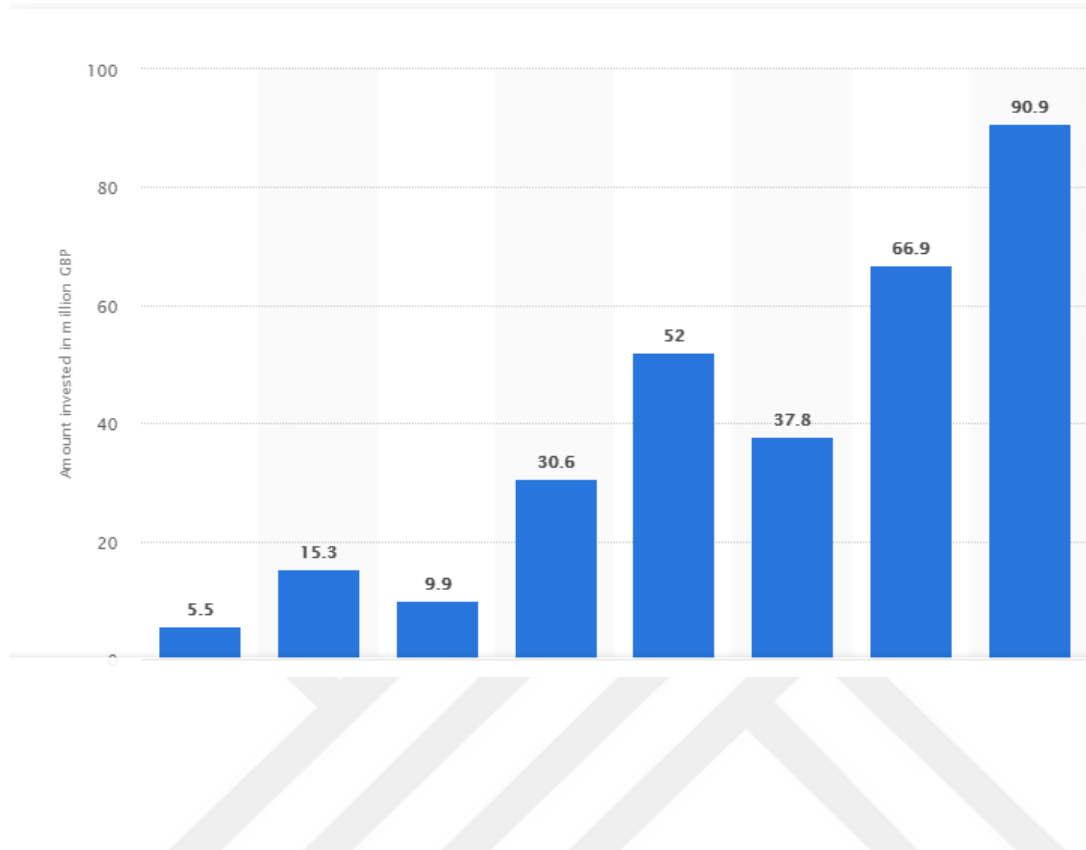
Computer literacy is one of the indicators of digital literacy. It proposes that a computer literate individual is capable of understanding the technical parts of computers and their interaction and their purpose and their use (Anisimova, 2020). In another definition, it is the ability an individual has to use computers at a certain level to create, communicate, and collaborate in a literate environment (Son et al.,

2011). According to Overbaugh (1993), computer literacy includes four domains addressing for all teachers which are (1) general computer operations, (2) software, (3) software issues, and (4) hardware. A teacher must be knowledgeable in all these domains in an educational setting and use computers confidently and skillfully (Son et al., 2011). As the accessibility of computers has become quite easy, and every school or even every home owns one, the next level has the courage to use and understand its features. Since opportunities have increased, teachers must be aware of the potentials of computers in education. If needed, they must be motivated and encouraged by wiser administrative staff knowing the power and the problems of computers. (Bitter & Davies, 1985). Another issue is the time required for becoming computer literate. A substantial amount of time is needed for teachers to improve their abilities in computers (Overbaugh, 1993). That is why, the time spent on in-class computer use is not adequate for teachers to master their computer skills. They must spend their personal time outside class and show frequent use of computers for this purpose. Tour (2015) states that teachers' daily digital literacy practices and the effort they show personally are crucial to see progress in integrating new literacies into teaching and learning.

2.1.7 School Climate and Support

As the integration of ICT into the educational systems has been envisioned as a potential revolution in educational systems thanks to the latest educational tools, leverage for students to reach the information age, and a propellant power for nations that show efforts to develop (Albirini, 2006), in the late 1990s, a lot of governments established new investment plans regarding quick equipment of ICT tools in schools to keep up with this rapid growth of the Internet and Worldwide Web (Pelgrum, 2001). As an example, Table 4 below shows the United Kingdom's investments in educational technologies from 2011 to 2018 (Clark, 2020).

Table 4. Amount of Money Invested in Educational Technology in the UK from 2011-2018 (Clark, 2020)



It clearly shows that in the UK, investments in 2018 reached nearly over 16 times higher than the ones in 2011. Besides the financial investments in the infrastructure, schools are required to provide training and technical support for teachers. The accessibility of technology and the technical support provided by institutions have drawn much attention in several studies as a critical barrier to ICT integration. Toprakci (2006) finds the restricted number of computers in schools and the lack of technical supports to teachers as crucial obstacles. Similarly, in some parts of Europe, inaccessibility and the need for technical support have still been problems (Korte & Hüsing, 2006). Technical, academic, and personal support is thought to be significant in removing barriers in ICT integration (İşman & Canan, 2008; cited in Tezci, 2011).

In terms of teacher training, generally, it is beyond the training courses on basic ICT knowledge. It must include pedagogical training on how to use ICT in-class environment. To support the point, Enochsson and Rizza (2009) mentions that

teachers' understanding of how to use computers and the pedagogical knowledge behind the integration of computers and their influence on learning is equally important. Nowadays, teachers demanding to learn how to apply ICT in their classes could be pleased with well-programmed training courses (Jung, 2005). In a study by Rogers (2000), staff development is cited as one of the major complaints among teachers and funding and technical support. Moreover, technology training for teachers must be a lifelong learning program considering the ongoing feature of technology. As technology evolves constantly, training courses must be offered or redesigned all the time to help teachers' professional development (Sa'ari et al., 2005).

Last, the organizational climate and organizational culture in institutions can be a decision-maker in the ICT integration process. Even though organizational culture and organizational climate are closely interrelated, there is a slight difference in their stability and changeability in the institution. While organizational culture includes the more rooted values and beliefs in an organization, organizational climate possesses some temporal elements that are easier to modify (Dennison, 1996, cited in Jain et al., 2015). An innovative organizational climate offering applicable and practical curricula by avoiding the traditional teaching methods can extend the use of ICT in class (Chou et al., 2019). The atmosphere and ambiance in schools comprising organizational innovative culture and group cohesion motivate teachers to figure out novel and cutting-edge techniques to maintain students' attention (Thurlings et al., 2015). Especially school administrators own a significant role in creating this shared innovative vision. Afshari et al. (2008) state that by being an active participant in every process of ICT integration like managing, supporting, demonstrating, evaluating, and assessing the technology in use, school principles can inspire other participants.

2.2. Literature Review

2.2.1 Teachers' Knowledge of Computers

There are some studies exhibiting the lack of teachers' knowledge of computers, and it is limited to certain programs. In a worldwide study by Pelgrum (2001), the aim was to identify teachers' perceptions of the ICT integration obstacles in their schools. The respondents were at under secondary level schools from 26 countries. The results showed the teachers' lack of computer knowledge as one of the most apparent obstacles. In his study, Albirini (2006) examined the attitudes towards ICT in Syrian education with 887 EFL high school teachers and the relationships between attitudes and five other variables including computer attributes, computer competence, computer access, cultural perceptions, and personal characteristics. The study exhibited the teachers' lack of computer competence in required computer functions. In another study, Singh and Chan (2014) investigated the attitudes and the knowledge levels of in-service secondary level teachers towards ICT use in teaching and learning and the barriers they faced in the process. Fifty teachers from the state of Penang in Malaysia completed the surveys. The results showed that the teachers were good at using certain programs like e-mails, spreadsheets, the Internet, and presentation software, and their attitudes differentiated depending on their years of experience and the level of computer knowledge.

In the Turkish research context, few studies examine the teachers' computer knowledge supporting teachers' limited computer knowledge with commonly-used software or programs. As an example, Asan (2003) researched the teachers' awareness and their perspectives on certain technologies, the role of these technologies in education, and the technical problems encountered during the process of computer integration. Two hundred fifty-two teachers from education schools participated in the study in Trabzon, Turkey. The results exhibited the lack of teachers' computer literacy and a low level of understanding the computer-related items. Another study by Tezci (2009) aimed to examine teachers' impact on ICT use in class. With a thousand five hundred and forty primary school teachers, the study revealed a limited number of commonly known elements in the ICT among teachers

like word processing, the Internet, and e-mails. As Singh and Chan (2014) found, the relationship between attitude and ICT knowledge depended on the years of experience and the computer knowledge level. Later, Aydin (2012) studied the teachers' perceptions of ICT integration in class by investigating certain elements like their computer knowledge, attitudes, reasons for personal computer use, their perceived self-confidence, and the school climate and support. The study included a questionnaire filled by 157 primary and secondary levels of EFL teachers. The findings showed how little knowledge the teachers had of certain software and programs. The same study with the same purpose was later conducted in higher education by Onalan and Kurt (2020). The participants were seventy university-level EFL teachers in Turkey. They concluded that teachers were familiar with specific commonly-used programs and software like the Internet, e-mails, presentation software, and word processing.

2.2.2 Teachers' Attitudes towards Computers

The number of studies covering teachers' attitudes towards computers is relatively higher and mostly illustrates teachers' positive mindset on ICT integration. For instance, in the above-mentioned study, Albirini (2006) found that teachers were positive towards using computers in teaching and learning. Similarly, Alshumaimeri (2008) carried out a study in Riyadh analyzing teachers' perceptions and attitudes regarding CALL application in Saudi EFL classrooms. A hundred and 83 respondents comprised of secondary level teachers provided the data for the study. The results presented the positive remarks of the teachers on technology integration in their classrooms. In another study, Cahyani and Cahyono (2012) studied the teachers' technology choices, their applications, and why they chose them, adding their attitudes towards technology integration and its effects on students' learning. Thirty-seven participants consisted of high school teachers and university lecturers. The study also showed the positive attitudes of teachers towards computer technology. In the study of Kazzemi and Narafshan (2014), with the participation of thirty university teachers in Kerman, Iran, it aimed to figure out teachers' attitudes on using computers and the barriers affecting them to avoid using the technology. The findings displayed the positive perspectives of the teachers for the integration of ICT

in class. In a recent study, Salem and Mohammadzadeh (2018) looked into the aspects of integrating ICT and the ways of adaptations required to make it relevant to the Libyan socio-cultural context for successful integration. Thirty-two teachers participated in the study, and the results showed a positive approach from the participants again.

The studies presented similar results in the Turkish context, highlighting teachers' positive attitudes towards using computers. For instance, Tezci (2009) expressed that the teachers' attitudes towards computers are generally positive in his study given above. In another study, Sahin-Kizil (2011) examined the teachers' ICT usage and attitudes towards it. With the participation of 76 EFL high school teachers, it was found that the teachers viewed the use of ICT in education as positive and advantageous. Furthermore, in his study mentioned above, Aydin (2013) exhibited positive findings on teachers' attitudes towards using computers. In the same way, Ince (2017) investigated EFL teachers' perceptions and attitudes towards CALL with 32 university lecturers in Turkey. The results displayed positive attitudes of the participants despite the concerns related to their competency. A recent study by Demiröz and Türker (2020) also targeted the perceptions and attitudes of EFL teachers towards CALL at universities. Forty nine instructors from state and private universities contributed to the study. The results similarly showed the eagerness of the instructors to use CALL in their classrooms. As the last example, in the above-mentioned study, Onalan and Kurt (2020) ascertained the findings stating the teachers' positive attitudes.

2.2.3 Teachers' Perceived Self-Confidence

The limited literature on perceived self-confidence illustrated the importance of self-confidence in the ICT integration process and the possible reasons and the consequences of its inadequacy. In a study, Paraskeva et al. (2008) researched the link between teachers' characteristics and their self-efficacy and their views on the up-to-date technology in the Greek educational system. Two hundred eighty-six secondary level teachers attended the study. The results presented that teachers possess a good degree of self-confidence with an ambition to improve themselves in

modern technologies. In another study, Mustafina (2015) aimed to identify the teachers' attitudes towards ICT and its relation with students' academic motivation in Kazakhstan. One part of this mixed-method study with 29 teachers and 39 students was to look at the impact of confidence on the teachers' attitudes. The results revealed a great influence of confidence to build a positive attitude towards using ICT. Liu et al. (2017) aimed to design and analyze a multilevel model of ICT integration in K-12 classrooms. The participants consisted of 1235 teachers from 336 schools across Florida. The findings illustrated a small but important connection between teachers' confidence and ICT integration. The findings on teachers' confidence and comfort in using technology positively affect their use of technology in classrooms. A recent study by Nugroho and Mutiaraningrum (2020) investigated teachers' beliefs and routines in online English learning. Fifteen university teachers participated in a semi-structured interview in the study in Indonesia. The findings showed the lack of efficacy was caused by the lack of knowledge and training in pre-service, which positively affected their preferences to use technology in class.

In the Turkish research context, the results of few studies on self-confidence similarly present its importance in the process and what is required to improve it. In the above-mentioned study, Asan (2003) emphasized the importance of effective computer training to make teachers develop self-confidence to deal with the problems they may face during the integration process. Celik (2013) carried out a study on teachers' perspectives and perceptions towards using the Internet for pedagogical objectives. 486 EFL instructors from 11 universities participated in the study. It is concluded that while teachers have more confidence in using technology in the areas of games and literature, they have less in technological tools and resources. In the other study mentioned above, Aydin (2013) revealed the high level of Turkish EFL teachers' self-confidence. Supporting that, the findings of the above-mentioned study by Onalan and Kurt (2020) presented similar results in terms of teachers' self-confidence regarding the use of technology in class.

2.2.4 Teachers' Computer Habits

Few studies on teachers' personal computer use in the literature positively link teachers' personal computer use and the ICT integration. The Scottish Office Education and Industry Department investigated the teachers' ICT knowledge and skill needs, and the authors, Williams et al. (2000), prepared a report on it. The study included both qualitative and quantitative data from primary and secondary level schools. The questionnaires were responded by 352 primary and 329 secondary school teachers, and the teacher interviews were held with 13 primary and 23 secondary level teachers. The results found that the level of computer use at home positively influences classroom use for teachers. Rahimi and Yadollahi (2011) aimed to examine the EFL teachers' level of ICT use in their teaching and the possible relation between their personal/technology-related characteristics and the ICT use in class. The findings of 248 participants in the study pointed that personal computer and internet use at home is positively related to the successful ICT integration in class. A recent study by Ibieta et al. (2017) focused on the teachers' individual factors for their use of ICT in and out of the classroom. This nationwide study in Chile consisted of 6932 participants. The results pointed to the high level of influence of personal computer use at home to its use in in-class activities.

In the Turkish EFL context, the existing studies mainly focused on the personal purposes of using computers outside the class. For example, Tezci (2009), in his above-mentioned study, pointed that the most common use of computers for personal purposes was the Internet, communication, and processing texts. Similarly, Aydin (2013) found the same purposes as the main purposes with the addition of presentation software. Last, Onalan and Kurt (2020) also contributed to these results by presenting teachers' same objectives as their computer habits.

2.2.5 School Climate and Support

The studies on school climate and support mainly result in the necessity of technological infrastructure, training, and support from both school management and peers at school. First, Lam (2000) tried to identify the reasons for using or not using technology in practice and the affecting factors behind this decision. The findings

obtained from 10 interviews presented the requirement for access to technological equipment and professional support. Similarly, in his above-mentioned study, Albirini (2006) stated that the lack of computer access could play a significant role for teachers to integrate computers in their future practices. Later, Li and Walsh (2010) examined the use of computers and its affecting factors for EFL teachers. Questionnaires and focus group interviews were held for the study, and the results showed that the eagerness of teachers got higher with the support from school leaders and their peers in addition to technical support. In another study, Dashtestani (2012) carried out a study on EFL teachers' attitudes towards CALL in class along with their perceptions of the obstacles during the implementation process. The respondents consisted of 212 EFL teachers. The findings exhibited inadequate technological infrastructure, technical and financial support, training programs as important external barriers. Silviyanti and Yusuf (2015) targeted to find out the perceptions of EFL teachers on ICT integration. The results from 42 EFL teachers in Indonesia exhibited the same barriers, lack of training and technical support, for ICT integration.

The studies in Turkey contributed to these findings by displaying the need for technological support and training. In the above-mentioned study, Asan (2003) put the lack of professional training and technological tools in class among the most significant problems in ICT use. In the study, Gulbahar and Guven (2008) investigated the implementation of ICT tools in the social studies area with the factors affecting the process. The data gathered from 326 participants. The results put forward the importance of the accessibility of technology and in-service training. In the same way, Sahin-Kizil (2011), in her above-mentioned study, expressed the demand for in-service training in the ICT implementation process by the teachers. In another above-mentioned study, Aydin (2013) shed light on the support required at the instructional and technological level. Supporting that, Onalan and Kurt (2020) pointed out the problems like insufficient technological infrastructure, technical support, and professional training in their study.

2.2.6 Conclusion

The limited number of related literature on the subject reveals several results. First, teachers are not well educated on computer software and hardware. The majority of the knowledge is limited to common tools used every day, but it is clear that the necessity of further training is obvious to fasten the ICT implementation. Second, research mainly focused on the teachers' attitudes showing that teachers held positive feelings on computer use in teaching and learning. Third, few studies on perceived self-confidence show the significance of confidence in the ICT integration process as the inadequacy of it creates multiple problems. Fourth, the limited literature on personal computer habits introduces the common reasons for computer use at home and its positive influence on the ICT implementation process. Last, several studies on the importance of school environment and support for ICT integration show that teachers require easy computer access at school and related training and support in the integration process as it is not enough to place computers in a school. In addition, the encouragement of peers and school management is also motivating for teachers to integrate computers in class. Overall, it is seen that there is an obvious need to improve the range and the number of the research on this subject, especially in the Turkish context.

3. METHODOLOGY

This section presents the methods and the procedures followed in the study. The first part describes the research design informing about the context of the study. The second part presents the participants of the study. The third section introduces the tools used to collect and analyze the data. The last part gives necessary information about the procedures followed in the study.

3.1 Research Design

The research mainly examines teachers' perceptions of using computers in English teaching and learning. The analytical perspective was followed in the study since the data were probed in small components to connect these parts to present a coherent picture (Seliger & Shohamy, 1989). It targets to bring some new viewpoints to an existing phenomenon of teachers' perceptions of computers in English teaching and learning. It is assumed that computers have some benefits in English education and some internal and external factors hold various impacts on teachers. As the research aims to gather some perceptions of an ongoing phenomenon without outside manipulations, a descriptive research design was preferred. Descriptive research is defined as a systematic and factual description of a participant group, a field of interest, or a situation and draw the portrayal of their characteristic (Dulock, 1993). For this purpose, a questionnaire was administered as it is useful to gather a large number of data directly from the participants (Seliger & Shohamy, 1989).

3.2 Participants

The participants in this study were 210 EFL teachers working in English preparatory schools at higher education in Turkey. Table 5 illustrates the background information about the participants' gender, ages, departments (for BA), academic levels, institutions, and years of experience.

Table 5. Background Information About Participants' Gender, Age, Departments, Academic Level, Institutions, and Year of Experience

Gender	Frequency		%
	Female	163	
	Male	47	
Age	Mean	Minimum	Maximum
	36.26	24.00	62.00
	Frequency		%
Department (BA)	Foreign Language Education	133	
	English Language and Literature	45	
	American Culture and Literature	4	
	Linguistics	6	2.9
	Translation and Interpreting	10	4.8
	Other	12	5.7
Academic Level	Frequency		%
	BA	55	
	MA	120	
	PhD	35	
Institution	Frequency		%
	State	121	
	Private	89	
Year of Experience	Frequency		%
	1-5	27	
	6-10	81	
	11-15	49	
	16+	53	

There were 163 female (77.6%) and 47 male (22.4%) participants in this sample group. The mean age was 36.25 ranging from 24 to 62. Considering their undergraduate backgrounds, the statistics showed that 133 of them (63.3%) were of Foreign Language Education, 45 of them (21.4%) were of English Language and Literature, 4 of them (1.9%) were of American Culture and Literature, 6 of them

(2.9%) were of Linguistics, 10 of them (4.8%) were of Translation, and Interpreting and the rest 12 (5.7%) stated as other. As for their academic level, 55 (26.2%) had a bachelor's degree, 120 (57.1%) had a master's degree, and 35 (16.7%) had a Ph.D. While 121 (57.6%) of the participants worked at state universities, 89 (42.4%) were at private ones. About their working experience, 27 (12.9%) had 1-5 years, 81 (38.6%) had 6-10 years, 49 (23.3%) had 11-15 years, and the rest 53 (25.2%) had more than 16 years in the field.

The values shown in Table 6 below presents the background information about the existence of computers in class, participated courses, personal computers, computer types participants own, their frequency of computer use, their purposes of computer use, and types of mobile devices they possess. Regarding the question on computers in class, 175 of the participants (83.3%) answered as "yes" while 35 (16.7%) replied as "no". Next, 134 of them (63.8%) participated in a course on ICT integration in teaching and learning, while 76 of them (36.2%) did not. Moreover, all the participants (100%) stated that they own at least one computer, and in total, 210 participants own 416 computers. About the types of them, the ones owning a desktop was 34.9% (145), a laptop was 48.8% (203), a Macbook was 12.7% (53), and another type was 3.6% (15). About the frequency of using the personal computer in a day, 25 (11.9%) stated as 0-2 hours, 75 (35.7%) used it for 2-4 hours, and 110 (52.4%) were using it more than 5 hours. Later, the participants were asked about their top three purposes of using their personal computers. The number one was online teaching with 25.6%. Then, checking e-mails takes second place with 21.1%, and the number three was online meetings (18.1%). Other purposes can be listed as entertainment (12.3%), online learning (11.5%), social networking (7.5%), and other (4%). Last, the participants were questioned about the types of mobile devices they use. About 420 responses were gathered from the participants. While Android smartphone users were 25%, iOS smartphone users constituted 26.7% of the participants. About the tablet users, android tablet users were 9.3%, and iPad users were 13.8%. 2.6% of the participants own electronic dictionaries, and 9.5% own smartwatches. The participants having gaming consoles were 3.6%, and e-readers were 8.1%. 1.4% of the participants also expressed that they have a different type of mobile device.

Table 6. Background Information about Computer in Class, Courses Participated, Personal Computers, Computer Types, Frequency of Computer Use, Purposes of Computer Use, and Types of Mobile devices

		Frequency	%			Number	%
Computer in Class	Yes	175	83.3%	Mobile Devices	Smartphone Android	105	25%
	No	35	16.7%		Smartphone iOS	112	26.7%
		Frequency	%		Tablet Android	39	9.3%
Courses Participated	Yes	134	63.8%		Tablet iPad	58	13.8%
	No	76	36.2%		Electronic Dictionary	11	2.6%
		Frequency	%		Smartwatches	40	9.5%
Personal Computer	Yes	210	100%		Gaming Consoles	15	3.6%
	No	0	0%		E-readers	34	8.1%
		Number	%		Other	6	1.4%
Computer Type	ComputerDesktop	145	34.9%	Purpose of Use	Checking e-mails	163	21.1%
	ComputerLaptop	203	48.8%		Online teaching	198	25.6%
	ComputerMacbook	53	12.7%		Online learning	89	11.5%
	ComputerOther	15	3.6%		Entertainment	95	12.3%
		Frequency	%		Online meetings	140	18.1%
Frequency of Use	0-2	25	11.9%		Social networking	58	7.5%
	2-4	75	35.7%		Other	31	4.0%
	5+	110	52.4%				

3.3 Tools

The tool utilized to collect the data was a questionnaire consisted of a demographic information part and a scale developed by Papanastasiou and Angeli (2008). In the original version of the study by Papanastasiou and Angeli (2008), this scale attained a high level of reliability coefficient and also gained construct validity by computing factor analysis with the varimax rotation for each section separately. The scale was later used in two other studies. In the study by Aydin (2013), the following values shown in Table 7 were computed for the reliability coefficients and total variance of the scale. In addition, Onalan and Kurt (2020) computed the reliability coefficients of the scale. The values were given as follows: knowledge of computer software ($\alpha=$

.70), personal computer use habits ($\alpha=.65$), computer attitudes ($\alpha=.84$), self-confidence in integrating computers ($\alpha=.70$), and school climate and support ($\alpha=.86$).

Table 7. Reliability Coefficients and The Total Variance of The Scale (Aydin, 2013)

Scales	Reliability coefficients in Cronbach's Alpha	% of the Variance
Knowledge of computer software	0.87	65.16
Frequency of software use for personal purposes	0.84	66.70
Computer attitudes	0.83	61.43
Perceived self-confidence in integrating computers	0.83	45.92
School climate and support	0.92	65.75

The demographic part yields some information on participants' gender, age, types of departments they graduated for their BA, their academic level, type of institution they have been working at, years of teaching experience, whether they have a computer in their class, whether they have attended to a professional development course related to ICT integration, whether they own a personal computer, types of computers they have used, the frequency of their computer use in a day, their top three purposes for using their PC and types of mobile devices they own.

The scale has five sections including (1) teachers' knowledge of computer software, (2) the frequency of software use for personal purposes, (3) teachers' computer attitudes, (4) teachers' perceived self-confidence in integrating ICT, and (5) school support and climate. To examine teachers' current computer software knowledge, the first section of the scale included 14 items assessed on a Likert scale ranging from one to five ("I cannot use it" = 1, "I can use it to a small extent" = 2, "I can use it satisfactorily" = 3, "I can use it well" = 4, "I can use it very well" = 5). The second section investigates the frequency of their software use for personal purposes, and this section is formed from 15 items. These items were assessed on a scale ranging from one to five ("never" = 1, "once or twice a semester" = 2, "once or twice a month" = 3, "once or twice a week" = 4, "almost every day" = 5). The third section

comprised of 15 items and targets to probe teachers' attitudes towards computers. The fourth one includes eight items focusing on teachers' perceived self-confidence in integrating ICT. The last section is about school support, and climate constituted of 11 items. All these last three sections were assessed on a Likert scale ranging from one to five ("completely disagree" = 1, "disagree" = 2, "neutral" = 3, "agree" = 4, "completely agree" = 5).

3.4. Procedure

As the first step, the ethics committee approval was ensured from the Faculty of Educational Sciences in Istanbul Medeniyet University. Following the necessary permissions, the survey transferred to Google Forms was delivered to the English preparatory schools at higher education all around Turkey with the ethics committee report via e-mail. The participants were informed about the purpose, significance, and procedure of the study. The confidentiality of their personal information and their answers were guaranteed before their participation. Placing an approval section at the beginning of the survey on Google Forms ensured that the participation was voluntary. Following a month after the first e-mail, a second one was sent to all institutions as a reminder to access more participants. A four-month data collection process was finalized in February 2021.

3.5 Data Analysis

The data analysis was computed on IBM SPSS Statistics 21.0 software. First, the demographic information was analyzed. For gender, departments for BA, academic levels, institutions, years of experience, computers in class, participated courses related to ICT integration, personal computers they own, frequency of computer use, frequencies, and percents were computed. As for the age, the mean, minimum and maximum values were calculated. For multiple response questions like types of computers, personal purposes for using computers, and types of mobile devices,

multiple response sets were formed, and multiple response frequencies and percents were computed.

As for the scale, the reliability coefficients and the construct validity of each section were computed. The Cronbach's Alpha was used to compute the reliability coefficients. The values given in Table 8 displays a high level of reliability for four sections despite a satisfactory level for the computer attitudes part. Later, varimax rotation was used to take the factor analysis to attain the total variance of the study. The findings illustrated again in Table 8 proved that the scale had construct validity. Then, for each section, the frequency values were calculated. The percentages, mean scores, and standard deviations of the sections were computed. The illustrations of these values were placed in Table 9, 10, 11, 12, and 13. Last, The mean scores were computed for the answers given in each section of the scale. Using them, the correlation between variable sets was analyzed via Pearson Correlation Analysis.

Table 8. Values for Reliability Coefficients and The % of Variance

	Reliability coefficients in <u>Cronbach's Alpha</u>	% of the Variance
Knowledge of computer software	.88	72.02
Frequency of software use for personal purposes	.77	66.95
Computer attitudes	.55	65.70
Perceived self-confidence in integrating computers	.80	56.53
School climate and support	.90	62.66

4. RESULTS

4.1. Introduction

This section displays the findings of this research gathered from the questionnaires in accordance with the research questions. For this purpose, the results of the five sections of the research were presented in the following order: teachers' computer knowledge, frequency of computer use habits, computer attitudes, perceived self-confidence, and school support and climate.

4.2. Research Question 1: How Do Turkish EFL Teachers Who Work at Higher Education Institutions Perceive Their Level of Computer Software Knowledge?

4.2.1 Teachers' Knowledge of Computer Software

As illustrated in Table 9, the results regarding the teachers' perceptions on their computer knowledge show that teachers can use software like e-mail, the Internet, presentation software, and word processing well or highly well. On the other hand, they stated that they could not or at a small extent use multimedia authoring software, webpage authoring software, programming languages, modeling software, and microworlds/simulations. Furthermore, while they find it challenging to use graphics, databases, publishing software, and concept mapping, they can satisfactorily use spreadsheets. First, the participants indicated that they used the Internet and e-mail well or very well, with a mean score of 4.49 and 4.57 respectively. Similarly, at more than a satisfactory level, they used word processing ($\bar{x}=4.18$) and presentation software ($\bar{x}=4.17$). Spreadsheets were used satisfactorily or more ($\bar{x}=3.21$). Graphics and databases were found challenging for the participants,

but for both, slightly more than half of the respondents, for graphics ($\bar{x}=2.79$) and databases ($\bar{x}=2.65$), used them satisfactorily and more. Publishing software and concept mapping were quite difficult to use for the participants. They could not use or minimally used publishing software ($\bar{x}=2.00$) and concept mapping ($\bar{x}=2.21$). Moreover, more than half of the participants could not use webpage ($\bar{x}=1.82$) or multimedia ($\bar{x}=1.92$) authoring software. More than three-quarters of the participants stated that they did not know how to use microworlds/simulations ($\bar{x}=1.20$), modeling software ($\bar{x}=1.22$) and programming languages ($\bar{x}=1.33$).

Table 9. Teachers' Knowledge of Computer Software (N=210)

Software		Frequencies					Mean	Standard Deviation
		I cannot use it	I can use it to a small extent	I can use it satisfactorily	I can use it well	I can use it very well		
Word processing	N	1	13	31	66	99	4.18	.93
	%	.5	6.2	14.8	31.4	47.1		
Databases	N	54	50	43	40	23	2.65	1.33
	%	25.7	23.8	20.5	19	11		
Spreadsheets	N	8	50	66	60	26	3.21	1.06
	%	3.8	23.8	31.4	28.6	12.		
Graphics	N	23	74	53	43	17	2.79	1.13
	%	11	35.2	25.2	20.5	8.1		
Multimedia authoring software	N	107	47	34	9	13	1.92	1.18
	%	51	22.4	16.2	4.3	6.2		
Presentation software	N	3	13	27	69	98	4.17	.97
	%	1.4	6.2	12.9	32.9	46.7		
Internet	N	2	9	12	47	140	4.49	.85
	%	1	4.3	5.7	22.4	66.7		
Email	N	2	9	12	30	157	4.57	1.24
	%	1	4.3	5.7	14.3	74.8		
Concept mapping	N	80	52	46	16	16	2.21	.85
	%	38.1	24.8	21.9	7.6	7.6		
Publishing software	N	101	51	29	15	14	2.00	1.22
	%	48.1	24.3	13.8	7.1	6.7		
Webpage authoring software	N	118	41	30	12	9	1.82	1.13
	%	56.2	19.5	14.3	5.7	4.3		
Programming languages	N	171	21	9	5	4	1.33	.82
	%	81.4	10	4.3	2.4	1.9		
Modeling software	N	182	16	7	2	3	1.22	.68
	%	86.7	7.6	3.3	1	1.4		
Microworlds/Simulations	N	185	15	5	2	3	1.20	.66
	%	88.1	7.1	2.4	1	1.4		

4.3 Research Question 2: What Are The Personal Computer Use Habits of Turkish EFL Teachers?

4.3.1 Teachers' Personal Computer Habits

The findings displayed in Table 10 concludes that the frequency of using computers is relatively high in three cases; accessing the internet, communication, and processing text. Besides access to the internet every day ($\bar{x}=4.72$), most participants used it for communication purposes almost every day, too ($\bar{x}=4.69$). Nearly all of them also processed texts daily ($\bar{x}=4.47$). The frequency gets lower in making presentations and preparing spreadsheets. While almost three-quarters of the participants were making presentations once or twice a month or more ($\bar{x}=3.38$), more than half of them prepared spreadsheets to the same extent ($\bar{x}=3.00$). On the other hand, the frequency of preferring other purposes such as creating graphics, using educational CD, publishing materials, playing games, developing web pages, mapping concepts, developing multimedia, programming computer, authoring microworlds/simulations, and modeling complex systems is considerably low. While more than half of the participants never created graphics or did it once or twice a semester ($\bar{x}=2.28$). Similarly, more than half of them used educational CDs once or twice a semester or never ($\bar{x}=2.24$). Slightly more than three-quarters of the participants ($\bar{x}=1.93$) never published materials or did it once or twice a semester. Moreover, it is noticeable that most of the teachers had no interest in playing games ($\bar{x}=1.53$), develop web pages ($\bar{x}=1.30$) or multimedia ($\bar{x}=1.19$), mapping concepts ($\bar{x}=1.27$), programming computer ($\bar{x}=1.10$), authoring microworlds/simulations ($\bar{x}=1.10$), and modeling complex systems ($\bar{x}=1.08$).

Table 10. Frequency of Software Use for Personal Purposes (N=210)

Software		Frequencies					Mean	Standard Deviation
		Never	Once or twice a semester	Once or twice a month	Once or twice a week	Almost every day		
Play games	N	146	32	21	6	5	1.53	.95
	%	69.5	15.2	10	2.9	2.4		
Make presentations	N	3	51	60	55	41	3.38	1.09
	%	1.4	24.3	28.6	26.2	19.5		
Process text	N	2	8	19	40	141	4.47	.88
	%	1	3.8	9	19	67.1		
Publish materials	N	106	54	24	10	16	1.93	1.22
	%	50.5	25.7	11.4	4.8	7.6		
Prepare spreadsheets	N	27	49	59	47	28	3.00	1.22
	%	12.9	23.3	28.1	22.4	13.3		
Create graphics	N	72	57	46	20	15	2.28	1.23
	%	34.3	27.1	21.9	9.5	7.1		
Communication	N	2	9	6	17	176	4.69	.80
	%	1	4.3	2.9	8.1	83.8		
Access the Internet	N	2	9	6	10	183	4.72	.79
	%	1	4.3	2.9	4.8	87.1		
Develop web pages	N	171	24	7	5	3	1.30	.77
	%	81.4	11.4	3.3	2.4	1.4		
Develop multimedia	N	183	17	6	4	0	1.19	.57
	%	87.1	8.1	2.9	1.9	0		
Author microworlds/simulations	N	192	15	2	1	0	1.10	.37
	%	91.4	7.1	1	.5	0		
Map concepts	N	169	28	10	3	0	1.27	.61
	%	80.5	13.3	4.8	1.4	0		
Model complex systems	N	195	12	3	0	0	1.08	.32
	%	92.9	5.7	1.4	0	0		
Program the computer	N	194	10	6	0	0	1.10	.38
	%	92.4	4.8	2.9	0	0		
Use educational CD	N	92	41	28	31	18	2.24	1.37
	%	43.8	19.5	13.3	14.8	8.6		

4.4 Research Question 3: What Are The Attitudes of Turkish EFL Teachers towards Using Computers in The Teaching and Learning Processes?

4.4.1 Teachers' Computer Attitudes

In light of the percentages and the mean scores given in Table 11, it is seen that teachers hold a positive feeling about the existence of computers in the educational setting. First, almost all the teachers ($\bar{x}=4.75$) found computers valuable in teaching and learning and felt comfortable using them for this purpose ($\bar{x}=4.48$). In addition, while most of them thought that computers would change the way they teach ($\bar{x}=4.27$), they stated that it would also change the way students learn ($\bar{x}=4.24$). Then, for nearly three-quarters of the teacher, computers created more effective ways of teaching for teachers ($\bar{x}=3.99$). Besides, more than half of them felt excited to use computers in teaching ($\bar{x}=3.89$). Regarding students' understanding and learning the concepts, while more than half of the participants thought that computers helped students to understand concepts in more effective ways ($\bar{x}=3.74$), slightly less than that agreed computers created an environment where it helped students learn by expressing their ideas better and in different ways ($\bar{x}=3.61$). Another point is that teachers disagreed that they could not do what computers do equally well with a mean score of 2.73. Moreover, half of them disagreed that they could not fix the problems they faced ($\bar{x}=2.47$). Supporting this, the idea that computers were not helpful to good teaching because of the technical problems they created were rejected by more than half of the teachers ($\bar{x}=2.40$). Later, regarding the idea that the computer did not provide assistance to students' learning and was hard to use, it was not accepted by the majority of the teachers ($\bar{x}=2.01$). Last, the items about the negative feeling computers might create were mostly disagreed by the teachers. Most of them did not feel skeptical about using computers in teaching and learning ($\bar{x}=2.06$). While nearly three-quarters of the teachers did not feel stressed about using computers ($\bar{x}=1.98$), the majority did not scare of it ($\bar{x}=1.77$).

Table 11. Teachers' Computer Attitudes (N=210)

Items		Frequencies					Mean	Standard Deviation
		Completely disagree	Disagree	Neutral	Agree	Completely Agree		
I feel comfortable with the idea of the computer as a tool in teaching and learning.	N	1	2	17	64	126	4.48	.72
	%	.5	1	8.1	30.5	60		
The use of computers in teaching and learning stresses me out.	N	90	62	36	16	6	1.98	1.08
	%	42.9	29.5	17.1	7.6	2.9		
If something goes wrong, I will not know how to fix it.	N	46	63	71	16	14	2.47	1.11
	%	21.9	30	33.8	7.6	6.7		
The idea of using a computer in teaching and learning makes me skeptical.	N	80	69	37	16	8	2.06	1.09
	%	38.1	32.9	17.6	7.6	3.8		
The use of the computer as a learning tool excites me.	N	4	15	52	68	71	3.89	1.01
	%	1.9	7.1	24.8	32.4	33.8		
The use of computers in teaching and learning scares me.	N	112	60	17	15	6	1.77	1.05
	%	53.3	28.6	8.1	7.1	2.9		
The computer is a valuable tool for teachers.	N	0	1	5	38	166	4.75	.51
	%	0	.5	2.4	18.1	79		
The computer will change the way I teach.	N	2	10	18	78	102	4.27	.88
	%	1	4.8	8.6	37.1	48.6		
The computer will change the way students learn in my classes.	N	1	7	25	83	94	4.24	.82
	%	.5	3.3	11.9	39.5	44.8		
I can do what the computer can do equally as well.	N	21	55	78	30	16	2.73	1.11
	%	14.8	26.2	37.1	14.3	7.6		
The computer is not conducive to student learning because it is not easy to use.	N	71	85	38	11	5	2.01	.97
	%	33.8	40.5	18.1	5.2	2.4		
The computer helps students understand concepts in more effective ways.	N	5	16	60	76	53	3.74	.99
	%	2.4	7.6	28.6	36.2	25.2		
The computer helps students learn because it allows them to express their thinking in better and different ways.	N	5	21	67	74	43	3.61	.99
	%	2.4	10	31.9	35.2	20.5		
The computer helps teachers to teach in more effective ways.	N	3	15	40	75	77	3.99	.98
	%	1.4	7.1	19	35.7	36.7		
The computer is not conducive to good teaching because it creates technical problems.	N	34	94	54	19	9	2.40	1.00
	%	16.2	44.8	25.7	9	4.3		

4.5 Research Question 4: How Do Turkish EFL Teachers Perceive Their Self-Confidence in Using Computers in The Teaching and Learning Processes?

4.5.1 Teachers' Perceived Self-confidence

The values demonstrated in Table 12 show that teachers felt confident about using computers in teaching and learning in different ways except teaching students how to create a webpage. First, nearly all of the participants ($\bar{x}=4.78$) could get in touch with students via email as well as they could use PowerPoint presentations in their classes ($\bar{x}=4.63$). While the majority could use the Internet to reach certain objectives of their lesson ($\bar{x}=4.46$), most of them could design technology-enhanced activities for the class ($\bar{x}=4.08$). Most of the teachers believed that computers assist students to understand concepts in an easy way ($\bar{x}=4.05$). Regarding selecting software in teaching and learning, while most of the teachers could select the appropriate software for teaching ($\bar{x}=3.99$), some can help students select the appropriate one to use in their projects ($\bar{x}=3.67$). Last, most participants stated that they could not help students create their own webpage ($\bar{x}=1.86$).

Table 12. Teachers' Perceived Self-Confidence (N=210)

Items		Frequencies					Mean	Standard Deviation
		Completely disagree	Disagree	Neutral	Agree	Completely Agree		
I can select appropriate software to use in my teaching.	N	4	9	42	85	70	3.99	.93
	%	1.9	4.3	20	40.5	33.3		
I can use PowerPoint in my class.	N	3	3	10	35	159	4.63	.76
	%	1.4	1.4	4.8	16.7	75.7		
I can design technology-enhanced learning activities for my students.	N	3	11	33	82	81	4.08	.93
	%	1.4	5.2	15.7	39	38.6		
I can use email to communicate with my students.	N	0	1	6	31	172	4.78	.50
	%	0	.5	2.9	14.8	81.9		
I can teach my students to select appropriate software to use in their projects.	N	7	20	58	75	50	3.67	1.04
	%	3.3	9.5	27.6	35.7	23.8		
I can teach my students how to make their own web pages.	N	110	47	32	14	7	1.86	1.10
	%	52.4	22.4	15.2	6.7	3.3		
I can use the Internet in my lessons to meet certain learning goals.	N	0	4	16	69	121	4.46	.71
	%	0	1.9	7.6	32.9	57.6		
The computer can help students understand concepts more easily.	N	4	11	41	67	87	4.05	.99
	%	1.9	5.2	19.5	31.9	41.4		

4.6 Research Question 5: How Do Turkish EFL Teachers Perceive The School Climate and Support Concerning Using Computers for Instruction?

4.6.1 School Climate and Support

The final section illustrated in Table 13 was about school support and climate on integrating computers in teaching and learning. The general opinion on the issue is positive among teachers. An item-by-item look at the table indicates that almost all teachers agreed to have other teachers in the institution using computers in their teaching ($\bar{x}=4.59$). Moreover, most of them shared ideas with other teachers on technology integration in their classes ($\bar{x}=3.96$), whereas nearly half of them frequently discussed the integration of computers in the curriculum ($\bar{x}=3.36$). Interestingly, only half of the teachers ($\bar{x}=3.63$) stated that their colleagues understood the value of computers in education, and more than a quarter were neutral about it. About the encouragement from others in the institution, while slightly more than half of the participants stated that the principals encouraged them to integrate computers in class ($\bar{x}=3.67$), to the same extent, they were encouraged by other teachers ($\bar{x}=3.65$). However, nearly half of them agreed to be encouraged by the ICT coordinator ($\bar{x}=3.25$). Regarding the technical issues on the subject, more than half of the participants pointed out that their institutions owned various computer software ($\bar{x}=3.60$). To the same extent, they stated that they had adequate instructional support ($\bar{x}=3.59$), technical support ($\bar{x}=3.47$), and technical infrastructure ($\bar{x}=3.39$).

Table 13. School Climate and Support

Items		Frequencies					Mean	Standard Deviation
		Completely disagree	Disagree	Neutral	Agree	Completely Agree		
Other teachers encourage me to integrate computers in teaching and learning.	N	10	20	62	58	60	3.65	1.13
	%	4.8	9.5	29.5	27.6	28.6		
The ICT coordinator encourages me to integrate computers in teaching and learning.	N	27	26	66	48	43	3.25	1.27
	%	12.9	12.4	31.4	22.9	20.5		
The principal encourages me to integrate computers in teaching and learning.	N	11	18	61	58	62	3.67	1.14
	%	5.2	8.6	29	27.6	29.5		
I often exchange ideas about technology integration with other teachers.	N	3	16	42	73	76	3.96	.99
	%	1.4	7.6	20	34.8	36.2		
There are other teachers in my institution who use computers in teaching and learning.	N	2	3	11	47	147	4.59	.74
	%	1	1.4	5.2	22.4	70		
In faculty meetings, we frequently discuss the subject of integrating computers in the curriculum.	N	10	35	70	59	36	3.36	1.09
	%	4.8	16.7	33.3	28.1	17.1		
Teachers in my institution are well informed about the value of computers in teaching and learning.	N	11	19	69	48	63	3.63	1.15
	%	5.2	9	32.9	22.9	30		
A variety of computer software is available for use in my institution.	N	19	24	39	66	62	3.60	1.26
	%	9	11.4	18.6	31.4	29.5		
The technical support in my institution is adequate.	N	26	31	28	67	58	3.47	1.35
	%	12.4	14.8	13.3	31.9	27.6		
The instructional support in my institution is adequate.	N	17	22	50	61	60	3.59	1.23
	%	8.1	10.5	23.8	29	28.6		
The technical infrastructure in my institution is adequate.	N	27	27	37	74	45	3.39	1.30
	%	12.9	12.9	17.6	35.2	21.4		

4.7 Research Question 6: Is there a relationship among the variables, teachers' computer knowledge, personal computer habits, computer attitudes, perceived self-confidence, and school climate and support?

4.7.1 The correlations among variables

This section illustrates the correlations of variables with each other. As seen in Table 14, it can be concluded that there is a strong positive relationship between teachers' computer knowledge and their personal use of computers ($p=.000$). Teachers tend to use the software they use at home in their classes too. Second, there is a negative correlation between teachers' computer knowledge and their computer attitudes ($p=.007$). As their knowledge of computers gets higher, their attitudes towards computers are negatively affected by it. Third, the relationship between teachers'

computer knowledge and their perceived self-confidence is positively correlated ($p=.000$). The development of knowledge on computers makes them more self-confident in using them. Last, there is no significant correlation between teachers' knowledge and school climate and support ($p=.383$). Regarding teachers' computer habits, the only correlation is their perceived self-confidence, which is positive ($p=.000$). The relation is statistically insignificant with computer attitudes ($p=.108$) and school climate and support ($p=.190$). Another point is that teachers' computer attitudes are not significantly correlated with teachers' perceived self-confidence ($p=.548$) and school support and climate ($p=.174$). Last, teachers' perceived self-confidence is positively correlated with school support and climate ($p=.000$).

Table 14. The Correlations of Variables

		Correlations				
		Computer Knowledge	Personal Computer Habits	Computer Attitudes	Perceived Self-Confidence	School Climate and Support
Teachers' Knowledge	Pearson Correlation	1	.716**	-.184**	.451**	.061
	Sig. (2-tailed)		.000	.007	.000	.383
	N	210	210	210	210	210
Personal Computer Habits	Pearson Correlation	.716**	1	-.111	.437**	.091
	Sig. (2-tailed)	.000		.108	.000	.190
	N	210	210	210	210	210
Computer Attitudes	Pearson Correlation	-.184**	-.111	1	.042	.094
	Sig. (2-tailed)	.007	.108		.548	.174
	N	210	210	210	210	210
Perceived Self-Confidence	Pearson Correlation	.451**	.437**	.042	1	.352**
	Sig. (2-tailed)	.000	.000	.548		.000
	N	210	210	210	210	210
School Climate and Support	Pearson Correlation	.061	.091	.094	.352**	1
	Sig. (2-tailed)	.383	.190	.174	.000	
	N	210	210	210	210	210

This part of the study mainly presented the descriptives of the five subsections of the scale which are teachers' computer knowledge, teachers' personal computer habits, teachers' computer attitudes, teachers' perceived self-confidence and school climate and support. In addition, the findings related to the correlations of these subsections were given as well. The summary and further explanations on these findings were provided in the conclusion and discussion part in detail.



5. CONCLUSIONS AND DISCUSSION

This section comprises four subsections presenting the conclusions of the study and the discussions regarding the teachers' perceptions of computers in ELT. First, the conclusions of the study were clarified. Second, the existing literature on this issue was compared to the findings of the present study. Third, some practical recommendations were provided for teachers, school administrations, professional development units, material and curriculum units and learners. Last, recommendations for further research were given.

5.1 Conclusions

This research aiming to analyze teachers' perspectives on computers in English language and teaching came up to five conclusions regarding teachers' perception of the five variables. First of all, teachers can use frequently encounter technological software in their personal and work lives. The Internet, e-mail, word processing, and presentation software are highly preferred and successfully handled software for them. Then, spreadsheets take second place at a satisfactory level. Other software presented in the study makes teachers feel less comfortable and challenged. Second, in their personal lives, teachers mainly use their computers for communicative and work-based objectives. As the Internet, communication and processing texts form the leading reasons, making presentations or preparing spreadsheets are also preferred on a frequent basis. Other functions of computers draw the attention of the teachers maybe once or twice a semester or never. Third, the attitudes of the teachers for the integration of computers in education are highly positive. They know the worth of it and have good feelings while benefiting from it. They believe that computers create different, innovative, and effective teaching and learning environments for them and

their students. They are passionate and motivated to adopt computers in their teaching and do not feel stressed about technical problems they might face. They mostly trust their abilities to handle these problems. Fourth, the self-confidence level of the teachers is mainly high in using computers for their educational purposes. They can communicate with students via e-mail, use PowerPoint presentations in class or prepare goal-oriented materials on the Internet. Not only for themselves but also students can choose appropriate software for students' education. The only problem is about guiding students on developing web pages. Most of them are not able to manage this. Fifth, teachers state that computers are used in other classes too, and they share ideas on the effective integration of them in class. However, these discussions are not held in curriculum meetings that often, and only half of them mention that their colleagues know the value of computers. About the integration of computers, mostly, they are encouraged by their principals and colleagues. As the last point, they think that their institutions own necessary technical and instructional support and infrastructure.

Based on the results of the Pearson Correlation Analysis, there were more conclusions drawn. While teachers' knowledge of computers is positively related to their daily use of computers and their self-confidence level, surprisingly, it negatively affects their computer attitudes. Their daily use of it mainly nourishes teachers' computer knowledge. Similar software is preferred in both environments. In addition, the expertise on specific software empowers their self-confidence in practicing them. However, as their knowledge of computers gets more, interestingly, they feel less enthusiastic or motivated towards using computers. Then, teachers' daily use of computers influences their self-confidence positively. Last, as institutions support teachers technically and provide infrastructure, instructional help, and a positive atmosphere, teachers feel more confident in the integration process.

5.2 Implications

Some pedagogical implications on teachers' perception of computers in ELT can be reached in light of the findings of the study. First of all, the current study supports the existing literature regarding the limited knowledge teachers hold on computer software (Albirini, 2006; Asan, 2003; Aydin, 2012; Pelgrum, 2001). When compared to the previous studies, it is also proved again in this study that teachers tend to use software they commonly come across in their personal life and at work such as the Internet, e-mails, presentations software, word processing, and spreadsheets (Aydin, 2012; Onalan and Kurt, 2020; Singh and Chan, 2014; Tezci, 2009). It is concluded that, as mentioned in Albirini's study (2006), teachers prefer the programs they require most in their profession. The other programs are either more complex or less required for them, resulting from the lack of knowledge on several computer software. The TPACK framework shows the requirement for a certain level of all types of knowledge. Teachers' content knowledge is not questioned in the study, but for their technological and pedagogical knowledge, the requirement is provided at the basic level with limited software for their profession. However, some extra effort is needed to introduce more complex software.

Second, the results in this current study illustrate the personal purposes of personal computer use, encompassing accessing the Internet, communication, processing texts, preparing presentations and spreadsheets. Similar results were reached in the previous studies conducted by Aydin (2013), Onalan and Kurt (2020), and Tezci (2009). They mainly pointed out this limited range of software knowledge frequently used on a daily basis. These daily basis activities on computers show that teachers' computer literacy level is at the basic level which is adequate to maintain their daily needs both at home and at work. To improve their computer literacy, more effort on a wider range of software is required.

Third, the findings of the current study conclude that teachers possess positive attitudes towards the use of computers in English teaching and learning. This result also supports the previous literature reaching the similar results (Albirini, 2006; Alshumaimeri, 2008; Aydin, 2013; Cahyani & Cahyono, 2012; Demiröz and Türker,

2020; Ince, 2017; Kazzemi & Narafshan, 2014; Onalan and Kurt, 2020; Sahin-Kizil, 2011; Salem & Mohammadzadeh, 2018; Tezci, 2009). Moreover, in the study by Ince (2017), it is also added that teachers concern about their abilities while having positive attitudes. It is seen in this current study that their competency is limited. Thus, it can be inferred that these positive attitudes are generated based on the limited software they use in their professions such as the internet, e-mails, word processing, and spreadsheets. It can be predicted that if the range of the required software in the profession gets wider, there could be some problems related to the attitudes towards computers. This situation can be explained with the "perceived ease of use" factor of the Technology Acceptance Model. The teachers may find some software useful for their profession but the complexity of the software may lead them not to choose that software in practice. In addition, if they are in a position to use that software compulsorily in their profession, this may make them grow negative attitudes towards computers too.

Fourth, in light of the findings of the current study, it can be concluded that teachers are mainly confident in using computers in English teaching and learning. The previous literature on this issue is limited, but similar results were reached in the studies of Aydin (2013), Onalan and Kurt (2020), and Paraskeva et al. (2008). In the study of Celik (2013), it is pointed out that teachers show a lack of self-confidence regarding the technological tools and resources. However, on the contrary, in this study, teachers hold their confidence in using necessary software for their profession or fixing the problems they might have, or integrating technology-enhanced activities in their classes. They only display the lack of confidence for more complex software like developing web pages. The three dimensions of the computer self-efficacy theory explain this lack of self-confidence. Since the task difficulty is high in introducing how to develop web pages, teachers may have low level of strength on that issue. This shows that the generality of their self-efficacy is limited to specific software only. Thus, they may lack confidence in complex software items.

Fifth, most of the previous studies on school climate and support for ICT integration concluded that teachers experienced problems like the lack of accessibility of computers, lack of technical and instructional support, and inadequate infrastructure

(Albirini, 2006; Aydin, 2013; Dashtestani, 2012; Lam, 2000; Onalan & Kurt, 2020; Sahin-Kizil, 2011; Silviyanti & Yusuf, 2015). The necessity of technical and instructional needs was clear. However, in the current study, teachers express that these needs are provided for them sufficiently. This could be the result of distant education necessity in the pandemic period. Because of the compulsory distant education, the government wanted the institutions to build up or develop their technical infrastructure and support in Turkey. That is why, extra precautions were taken at the beginning of the pandemic period. Moreover, consistent with the result of Li and Walsh's study (2010), explaining the increasing level of willingness to use computers with the support of school leaders and peers, teachers ascertain that they get support from their principals and colleagues.

The correlations between different variables draw different implications. To begin with, the relation between teachers' computer knowledge and their personal computer habits is concrete. The existing literature provides evidence of the positive impact of personal computer habits on the in-class use of computers. These personal purposes of using computers match the basic required computer knowledge they must have in their profession. Therefore, the current study also contributes to the too limited literature by showing that the daily purposes of computer use decide the range of teachers' computer knowledge at school. (Ibieta et al., 2017; Rahimi & Yadollahi, 2017; Williams et al., 2020). Thus, to improve the variety of computer software use at school, teachers must change their daily habits of using computers first. Later, about the relation between teacher computer knowledge and their computer attitudes, this study brought out a negative correlation between them. Even if the overall computer attitude was highly positive, the findings showed that their attitudes became negative as their knowledge increased on computers. The previous literature on this issue was generally positive. It suggested that the increasing level of computer literacy improves the level of already existing positive attitudes towards computers (Albirini, 2006; Alshumaimeri, 2008). Another study emphasized that the low level of competency does not limit the positive attitudes towards computers (Son et al., 2011). On the other hand, a close result was found by Burger and Blignaut (2004) in their study with students. They aimed to find the influence of computer experience on computer attitude, computer confidence and liking for students' first

computer course students. The result showed a negative correlation between computer attitude and experience. Similarly, as students had more experience, which means more knowledge, they grow negative feelings about computers. Another relation is between teachers' computer knowledge and their self-confidence. The current study provided a positive relationship between them. Similar results were seen in a study conducted by Abbitt (2011). In the study aiming to measure the correlation between pre-service teachers' TPACK and their self-efficacy beliefs, it was found that teachers' knowledge can predict their self-efficacy beliefs in the ICT integration process. Regarding the relation between teachers knowledge and school support and climate, while there was not a meaningful correlation in this study, in the literature, the study by Tambunan (2014) concluded that communication among colleagues or between teachers and students on technology information was required to enhance the competence on it.

As found in the current study, personal computer habits hold a positive effect on teachers' self-confidence. Similar findings were found in Tour (2015) and Rahimi and Yadollahi (2011). They also added the effect of age to this correlation as the younger ages generally use computers more in daily life, which affects their confidence in using them at school. There was no meaningful correlation between personal computer habits and computer attitudes or personal computer habits and school climate and support. As the literature is too limited on this subject, no studies examining these correlations were encountered.

No correlation was reached between teachers' computer attitudes and perceived self-confidence or between teachers' computer attitudes and school climate and support in the current study. On the one hand, Albirini's (2006) study overlapped the current findings by showing that there is no relation between the conditions of school and the attitudes of teachers towards computers. On the other hand, unlike the results of this study, the study analyzing pre-service teachers' computer attitudes presented a positive relationship between the level of confidence and computer attitudes (Teo, 2008).

Last, the current findings illustrate that school support has a positive impact on teachers' self-confidence. The existing literature also provides similar results in this

issue. The study examining the relationship between school climate and self-efficacy for novice teachers found a positive correlation between them (Meristo & Eisenschmidt, 2014). Another study by Joo et al. (2016) on teachers' technostress on their intention to computer use also displayed the importance of school support to develop their confidence.

In conclusion, teachers are aware of the significance of the integration of computers in English teaching and learning. They own a certain extent of knowledge, but it is too limited to four or five commonly used software. This limit is mainly rooted in the needs of their profession and their lives. It can be inferred that when they do not encounter the necessity of using more complex software like developing microworld/simulations or concept mapping or web pages, they do not show any effort to learn them. This can be seen from the correlation results of the sections for teachers' computer knowledge and their personal computer habits. Another point is that teachers are very motivated to integrate computers as they hold highly positive feelings. However, the negative correlation between teachers' knowledge and their computer attitudes shows that they hold this positivity in their safe zones with the limited knowledge they own. Moreover, teachers feel self-confident to use computers and face problems related to them. Their computer knowledge and the support provided by the institutions increase the level of it. Last, unlike the existing literature, teachers in this study mostly agree that they have adequate infrastructure and technology support.

5.3 Practical Recommendations

Considering the findings of the study, some practical recommendations can be brought forward. As for the teachers, first of all, they should be aware of the fact that their knowledge is limited to some specific software which is also connected to their daily use of computers. That is why they should be encouraged to step forward to improve their knowledge of different software, too. As they are more into technology with different and more complex software in their personal lives, they could become more knowledgeable, resulting in the integration of this new knowledge to their

classes with the positive attitude they already hold. For instance, the online education period caused by the pandemic has forced teachers to use some new platforms like Zoom, a video-conference program, or Turnitin, a plagiarism detection service. This could be challenging for many teachers at first, but now it is a part of their daily routine. Just like this example, they can get familiar with the virtual classes and benefit from them in their teaching too. This familiarity could be provided by introducing new software like programming, web pages, multimedia, microworlds/simulations, and their pedagogical uses in pre-service and in-service teacher education training programs.

Another recommendation could be for material and curriculum developers. As they discuss the importance of computers in their meetings and try to integrate technology-enhanced activities into the curriculum, teachers will feel obliged to use technology at first. Every challenge will be left behind, and this technology integration will contribute to both teachers' teaching abilities and students' learning. However, without the initiatives and the support of these developers, the ICT integration process will not go further, waiting for the teachers' preferences. In addition, at this point, professional development units should work in collaboration with material and curriculum development units. They should arrange necessary training to provide instructional support for their teachers.

The role of school administration is also crucial in this process. The whole process requires not only open-minded and innovative leaders but also enough funding. Thus, the administrators must give priority to supply necessary improvements for the technological infrastructure of their institutions. They should provide ICT units for technological support and also spare some budget for teacher training programs. A supportive atmosphere from the school administration will enhance the collaboration among teachers and motivate them to develop themselves and help others.

A final recommendation could be given for the awareness of learners. Today, most of the learners are digital natives and seem to adapt to all technological innovations. However, maybe because of the environment they grow in, they could be old-fashioned and not willing to use technology in terms of education. Some of them might not have the necessary technological tools or infrastructures. All these could

also affect the motivation of teachers to integrate technology in class. That is why, it is also essential to provide guidelines and support for learners to increase awareness. The school administration may also build a technology laboratory for the learners who cannot have the necessary devices and tools.

5.4 Recommendation for Further Research

The current results of the study lead to several recommendations for further research. First of all, for a deeper understanding, qualitative research could be held on the subject. In that way, teachers could express the backward of the answers providing more data and a comprehensive understanding of their perceptions towards computers. Later, further research could focus on the in-class use of computers more to see different factors affecting teachers' perceptions. For instance, these could be rooted in learners' perceptions and responses towards teachers' practices or the quality and the variety of tools they have to use. Another point is about the selected gender distribution. As the EFL departments are mostly preferred by females, the participants are mainly formed by females. However, in a topic like technology, which is generally attributed to males as an interest, the gender distribution could be balanced to get proper results. One last point could be the impacts of individual factors like technological backgrounds, cultural backgrounds or environmental backgrounds. The subject of further research could be in this line to enhance the scope of the research.

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. DOI: <https://doi.org/10.1080/21532974.2011.10784670>
- Ajzen, I., & Fishbein, M. (1977). Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin*, 84(5), 888. DOI: <https://doi.org/10.1037/0033-2909.84.5.888>
- Akcaoglu, M. (2008). Exploring technology integration approaches and practices of pre-service and in-service English language teachers. *Unpublished Master Thesis. Middle East Technical University, Ankara.*
- Albirini, A. (2006). Teachers' attitudes toward information and communication technologies: The case of Syrian EFL teachers. *Computers & Education*, 47(4), 373-398. DOI: <https://doi.org/10.1016/j.compedu.2004.10.013>
- Alshumaimeri, Y. A. (2008). Perceptions and attitudes toward using CALL in English classrooms among Saudi secondary EFL teachers. *The JALT Call Journal*, 4(2), 29-46. DOI: <https://doi.org/10.29140/jaltcall.v4n2.61>
- Anderson, S. E., & Maninger, R. M. (2007). Pre-service teachers' abilities, beliefs, and intentions regarding technology integration. *Journal of Educational Computing Research*, 37(2), 151-172. DOI: <https://doi.org/10.2190/EC.45.3.d>
- Anisimova, E. (2020). Digital literacy of future preschool teachers. *Journal of Social Studies Education Research*, 11(1), 230-253.

- Asan, A. (2003). Computer technology awareness by elementary school teachers: A case study from Turkey. *Journal of Information Technology Education: Research*, 2(1), 153-164. DOI: <https://doi.org/10.28945/319>
- Aydin, S (2013) Teachers' perceptions about the use of computers in EFL teaching and learning: the case of Turkey, *Computer Assisted Language Learning*, 26(3), 214-233. DOI: <http://dx.doi.org/10.1080/09588221.2012.654495>
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191–215. DOI: <https://doi.org/10.1037/0033-295X.84.2.191>
- Bandura, A. (1986). Social foundations of thought and action. *Englewood Cliffs, NJ*, 1986, 23-28.
- Bandura, A. (2001). Social cognitive theory of mass communication. *Media Psychology*, 3(3), 265-299. DOI: https://doi.org/10.1207/S1532785XMEP0303_03
- Barani, G. (2014). Computer assisted language learning in ELT contexts. *Modern Journal of Language Teaching Methods*, 4(1), 57.
- Başaran, B. Ç. (2013). Attitudes of EFL teachers and learners towards CALL in Turkey. In *Conference Proceedings. ICT for Language Learning*, 143-149. Libreriauniversitaria. it Edizioni.
- Başöz, T., & Çubukçu, F. (2014). Pre-service EFL teacher's attitudes towards computer assisted language learning (CALL). *Procedia-Social and Behavioral Sciences*, 116, 531-535. DOI: <https://doi.org/10.1016/j.sbspro.2014.01.253>
- Bax, S. (2003). CALL—past, present and future. *System*, 31(1), 13-28. DOI: [https://doi.org/10.1016/S0346-251X\(02\)00071-4](https://doi.org/10.1016/S0346-251X(02)00071-4)
- Baz, E. H. (2016). Attitudes of Turkish EFL student teachers towards technology use. *Turkish Online Journal of Educational Technology-TOJET*, 15(2), 1-10.

- Becker, H. J. (1999). *Internet use by teachers: Conditions of professional use and teacher-directed student use* (Vol. 1). Center for Research on Information Technology and Organizations, the University of California, Irvine and the University of Minnesota.
- Bingimlas, K. A. (2009). Barriers to the successful integration of ICT in teaching and learning environments: A review of the literature. *Eurasia Journal of Mathematics, science and technology education*, 5(3), 235-245. DOI: <https://doi.org/10.12973/ejmste/75275>
- Bitter, G. G., & Davis, S. J. (1985). Measuring the development of computer literacy among teachers. *AEDS Journal*, 18(4), 243-253. DOI: <https://doi.org/10.1080/00011037.1985.11008404>
- Bozdogan, D., & Özen, R. (2014). Use of ICT technologies and factors affecting pre-service ELT teachers' perceived ICT self-efficacy. *Turkish Online Journal of Educational Technology-TOJET*, 13(2), 186-196.
- Burger, A., & Blignaut, P. (2004). A computer literacy course may initially be detrimental to students' attitudes towards computers. In *Proceedings of the 2004 Annual Research Conference of the South African Institute of Computer Scientists and Information Technologists on IT Research in Developing Countries* (pp. 10-14).
- Cahyani, H., & Cahyono, B. Y. (2012). Teachers' attitudes and technology use in Indonesian EFL classrooms. *Teflin Journal*, 23(2), 130-148. DOI: <http://dx.doi.org/10.15639/teflinjournal.v23i2/130-148>
- Capan, S. A. (2012). Teacher attitudes towards computer use in EFL classrooms. *Frontiers of Language and Teaching*, 3(2), 248-254.
- Cecil, H., & Pinkerton, S. D. (2000). Magnitude: An Important Dimension of Self-Efficacy 1. *Journal of Applied Social Psychology*, 30(6), 1243-1267. DOI: <https://doi.org/10.1111/j.1559-1816.2000.tb02519.x>

- Celik, S. (2013). Internet-assisted technologies for English language teaching in Turkish universities. *Computer Assisted Language Learning*, 26(5), 468-483. DOI: <https://doi.org/10.1080/09588221.2012.692385>
- Chambers, A., & Bax, S. (2006). Making CALL work: Towards normalisation. *System*, 34(4), 465-479. DOI: <https://doi.org/10.1016/j.system.2006.08.001>
- Chinnery, G. M. (2014). Call me... Maybe: A Framework for integrating the Internet into ELT. *English Teaching Forum*, 52(1), 2-13.
- Chou, C. M., Shen, C. H., Hsiao, H. C., & Shen, T. C. (2019). Factors influencing teachers' innovative teaching behaviour with information and communication technology (ICT): the mediator role of organisational innovation climate. *Educational Psychology*, 39(1), 65-85. DOI: <https://doi.org/10.1080/01443410.2018.1520201>
- Clark, C. M., & Peterson, P. L. (1986). Teachers' thought processes. In M. C. Wittrock (Ed.), *Handbook of Research on Teaching* (3rd ed.). New York: Macmillan.
- Clark, D. (2020). Amount of money invested in EdTech in the United Kingdom from 2011 to 2018. Accessed September 25, 2020, Retrieved from <https://www.statista.com/statistics/1086196/edtech-investment-in-the-uk/>
- Dashtestani, R. (2012). Barriers to the implementation of CALL in EFL courses: Iranian EFL teachers' attitudes and perspectives. *The JALT Call Journal*, 8(2), 55-70. DOI: <https://doi.org/10.29140/jaltcall.v8n2.134>
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 319-340. DOI: <https://doi.org/10.2307/249008>
- Davis, F. D., & Venkatesh, V. (1996). A critical assessment of potential measurement biases in the technology acceptance model: three

- experiments. *International Journal of Human-Computer Studies*, 45(1), 19-45. DOI: <https://doi.org/10.1006/ijhc.1996.0040>
- Davies, G., Otto, S. E., & Rüschoff, B. (2013). Historical perspectives on CALL. *Contemporary Computer-Assisted Language Learning*, 19-38.
- Demiröz, H., & Türker, F. (2020). EFL instructors' perceptions and attitudes towards using CALL in language classrooms. *Cumhuriyet International Journal of Education*, 9(1), 291-307. DOI: <http://dx.doi.org/10.30703/cije.648438>
- Deniz, L. (2007). Prospective class teachers' computer experiences and computer attitudes. *International Journal of Social Sciences*, 2(2), 116-122. DOI: <https://doi.org/10.5281/zenodo.1070371>
- Dexter, S. L., Anderson, R. E., & Becker, H. J. (1999). Teachers' views of computers as catalysts for changes in their teaching practice. *Journal of Research on Computing in Education*, 31(3), 221-239. DOI: <https://doi.org/10.1080/08886504.1999.10782252>
- Dulock, H. L. (1993). Research design: Descriptive research. *Journal of Pediatric Oncology Nursing*, 10(4), 154-157. DOI: <https://doi.org/10.1177/104345429301000406>
- Eagly, A. H., & Chaiken, S. (1993). The psychology of attitudes. Harcourt Brace Jovanovich College Publishers.
- Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2010). Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. *Journal of research on Technology in Education*, 42(3), 255-284. <https://doi.org/10.1080/15391523.2010.10782551>
- Ferrari, A. (2012). Digital competence in practice: An analysis of frameworks. European Commission-JRC-IPTS, Luxembourg Publications Office of the European Union.

- Gilakjani, A. P. & Leong, L.-M. (2012). EFL teachers' attitudes toward using computer technology in English language teaching. *Theory and Practice in Language Studies*, 2(3), 630-636.
- Goktas, Y., Gedik, N., & Baydas, O. (2013). Enablers and barriers to the use of ICT in primary schools in Turkey: A comparative study of 2005–2011. *Computers & Education*, 68, 211-222. DOI: <https://doi.org/10.1016/j.compedu.2013.05.002>
- Gulbahar, Y., & Guven, I. (2008). A survey on ICT usage and the perceptions of social studies teachers in Turkey. *Journal of Educational Technology & Society*, 11(3), 37-51.
- Gündüz, N. (2005). Computer assisted language learning. *Journal of Language and Linguistic Studies*, 1(2), 193-214.
- Hismanoglu, M. (2012). Prospective EFL teachers' perceptions of ICT integration: A study of distance higher education in Turkey. *Journal of Educational Technology & Society*, 15(1), 185-196.
- Ibieta, A., Hinostroza, J. E., Labbé, C., & Claro, M. (2017). The role of the Internet in teachers' professional practice: activities and factors associated with teacher use of ICT inside and outside the classroom. *Technology, Pedagogy and Education*, 26(4), 425-438. DOI: <https://doi.org/10.1080/1475939X.2017.1296489>
- İnce, M. (2017). The analysis of EFL teachers' perceptions of CALL and variables influential on teachers' attitudes. *Journal of Narrative and Language Studies*, 5(8), 59-72.
- Kazzemi, A., & Narafshan, M. H. (2014). Technology and English Language Teaching (ELT). *Advances in Language and Literary Studies*, 5(6), 60-67. DOI: <http://dx.doi.org/10.7575/aiac.all.v.5n.6p.60>
- 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 (pp. 1-19). New York: Cambridge University Press. DOI: https://doi.org/10.1007/978-0-387-30424-3_105
- Kim, H. (2002). Teachers as a barrier to technology-integrated language teaching. *English Teaching*, 57(2), 35-64.
- Kim, H. K. (2008). Beyond motivation: ESL/EFL teachers' perceptions of the role of computers. *Calico Journal*, 25(2), 241-259. DOI: <https://doi.org/10.1558/cj.v25i2.241-259>
- Knobel, M., & Lankshear, C. (2006). Digital literacy and digital literacies: Policy, pedagogy and research considerations for education. *Nordic Journal of digital literacy*, 1(01), 12-24.
- Konan, N. (2010). Computer literacy levels of teachers. *Procedia-Social and Behavioral Sciences*, 2(2), 2567-2571. DOI: <https://doi.org/10.1016/j.sbspro.2010.03.374>
- Korte, W. B., & Hüsing, T. (2006). Benchmarking access and use of ICT in European schools 2006: Results from head teacher and a classroom teacher surveys in 27 European countries. *Empirica*, 1(0).
- 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. DOI: <https://doi.org/10.17263/jlls.547594>
- Kreijns, K., Van Acker, F., Vermeulen, M., & Van Buuren, H. (2013). What stimulates teachers to integrate ICT in their pedagogical practices? The use of digital learning materials in education. *Computers in Human Behavior*, 29(1), 217-225. DOI: <https://doi.org/10.1016/j.chb.2012.08.008>
- Lai, P. C. (2017). The literature review of technology adoption models and theories for the novelty technology. *JISTEM-Journal of Information Systems and Technology Management*, 14(1), 21-38. DOI: <https://doi.org/10.4301/s1807-17752017000100002>

- Lam, Y. (2000). Technophilia vs. technophobia: A preliminary look at why second-language teachers do or do not use technology in their classrooms. *Canadian Modern Language Review*, 56(3), 389-420. DOI: <https://doi.org/10.3138/cmlr.56.3.389>
- Li, L., & Walsh, S. (2011). Technology uptake in Chinese EFL classes. *Language Teaching Research*, 15(1), 99-125. DOI: <https://doi.org/10.1177/1362168810383347>
- Liu, F., Ritzhaupt, A. D., Dawson, K., & Barron, A. E. (2017). Explaining technology integration in K-12 classrooms: A multilevel path analysis model. *Educational Technology Research and Development*, 65(4), 795-813. DOI: <https://doi.org/10.1007/s11423-016-9487-9>
- Looney, C. A., Valacich, J. S., & Akbulut, A. Y. (2004). Online investment self-efficacy: Development and initial test of an instrument to assess perceived online investing abilities. In *Proceedings of 37th Hawaii International Conference on System Sciences*, 2004. DOI: <https://doi.org/10.1109/HICSS.2004.1265441>
- Madden, T. J., Ellen, P. S., & Ajzen, I. (1992). A comparison of the theory of planned behavior and the theory of reasoned action. *Personality and Social Psychology Bulletin*, 18(1), 3-9. DOI: <https://doi.org/10.1177/0146167292181001>
- Martin, A. (2005). DigEuLit—a European framework for digital literacy: a progress report. *Journal of eLiteracy*, 2(2), 130-136.
- Merç, A. (2015). Using technology in the classroom: A study with Turkish pre-service EFL teachers. *Turkish Online Journal of Educational Technology-TOJET*, 14(2), 229-240.
- Meristo, M., & Eisenschmidt, E. (2014). Novice teachers' perceptions of school climate and self-efficacy. *International Journal of Educational Research*, 67, 1-10. DOI: <https://doi.org/10.1016/j.ijer.2014.04.003>

- Mooij, T., & Smeets, E. (2001). Modelling and supporting ICT implementation in secondary schools. *Computers & Education*, 36(3), 265-281. DOI: [https://doi.org/10.1016/S0360-1315\(00\)00068-3](https://doi.org/10.1016/S0360-1315(00)00068-3)
- Mukti, N. A. (2000). Computer technology in Malaysia: Teachers' background characteristics, attitudes and concerns. *The Electronic Journal of Information Systems in Developing Countries*, 3(1), 1-13. DOI: <https://doi.org/10.1002/j.1681-4835.2000.tb00022.x>
- Murray, D. (2008). From marginalisation to transformation: How ICT is being used in ESL learning today. *International Journal of Pedagogies and Learning*, 4(5), 20–35. DOI: <https://doi.org/10.5172/ijpl.4.5.20>
- Mustafina, A. (2015). The role of teachers' attitudes toward technology integration in school. *The Eurasia Proceedings of Educational and Social Sciences*, 3, 129-138.
- Nugroho, A., & Mutiaraningrum, I. (2020). EFL teachers' beliefs and practices about digital learning of English. *EduLite: Journal of English Education, Literature, and Culture*, 5(2), 304-321. DOI: <http://dx.doi.org/10.30659/e.5.2.304-321>
- Overbaugh, R. C. (1993). Critical Elements of Computer Literacy for Teachers.
- Onalan, O., & Kurt, G. (2020). Exploring Turkish EFL teachers' perceptions of the factors affecting technology integration: A case study. *Journal of Language and Linguistic Studies*, 16(2), 626-646. DOI: <https://doi.org/10.17263/jlls.759264>
- Özdemir, S. (2017). Teacher views on barriers to the integration of information and communication technologies (ICT) in Turkish teaching. *International Journal of Environmental & Science Education*, 12(3), 505-521. DOI: <https://doi.org/10.12973/ijese.2017.1244p>

- Özer, Z. (2018). An investigation of prospective ELT teachers' attitudes towards using computer technologies in foreign language teaching. *Journal of Language and Linguistics Studies*, 14(1), 328-341.
- Papanastasiou, E. C., & Angeli, C. (2008). Evaluating the use of ICT in education: Psychometric properties of the survey of factors affecting teachers teaching with technology (SFA-T3). *Journal of educational technology & society*, 11(1), 69-86.
- Paraskeva, F., Bouta, H., & Papagianni, A. (2008). Individual characteristics and computer self-efficacy in secondary education teachers to integrate technology in educational practice. *Computers & Education*, 50(3), 1084-1091. DOI: <https://doi.org/10.1016/j.compedu.2006.10.006>
- Pelgrum, W. J. (2001). Obstacles to the integration of ICT in education: results from a worldwide educational assessment. *Computers & Education*, 37(2), 163-178. DOI: [https://doi.org/10.1016/S0360-1315\(01\)00045-8](https://doi.org/10.1016/S0360-1315(01)00045-8)
- Rahimi, M., & Pourshahbaz, S. (Eds.). (2018). *English as a Foreign Language Teachers' TPACK: Emerging Research and Opportunities: Emerging Research and Opportunities*, 88. IGI Global.
- Rahimi, M., & Yadollahi, S. (2011). ICT use in EFL classes: A focus on EFL teachers' characteristics. *World Journal of English Language*, 1(2), 17. DOI: <https://doi.org/10.5430/wjel.v1n2p17>
- Robinson, M., & Mackey, M. (2006). Assets in the classroom: Comfort and competence with media among teachers present and future. In J. Marsh & E. Millard (Eds.), *Popular literacies, childhood and schooling*, 200–220. London, UK: Routledge.
- Rogers, P. L. (2000). Barriers to adopting emerging technologies in education. *Journal of Educational Computing Research*, 22(4), 455-472. DOI: <https://doi.org/10.2190/4UJE-B6VW-A30N-MCE5>

- Sa'ari, J. R., Luan, W. S., & Roslan, S. (2005). Attitudes and perceived information technology competency among teachers. *Malaysian Online Journal of Instructional Technology*, 2(3), 70-77.
- Sahin-Kizil, A. (2011). EFL teachers attitudes towards information and communication technologies (ICT). In *Proceedings of the 5th International Computer & Instructional Technologies Symposium*.
- Salem, N., & Mohammadzadeh, B. (2018). A Study on the Integration of ICT by EFL Teachers in Libya. *EURASIA Journal of Mathematics, Science and Technology Education*, 14(7), 2787-2801. DOI: <https://doi.org/10.29333/ejmste/90594>
- Saricoban, A. (2013). Pre-service ELT teachers' attitudes towards computer use: A Turkish survey. *Eurasian Journal of Educational Research*, 53, 59-78.
- Schunk, D. H., & Pajares, F. (2009). Self-efficacy theory. *Handbook of motivation at school*, 35-53.
- Shopova, T. (2014). Digital literacy of students and its improvement at the university. *Journal on Efficiency and Responsibility in Education and Science*, 7(2), 26-32. DOI: <https://doi.org/10.7160/eriesj.2014.070201>
- Shulman, L. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher*, 15(2), 4-14. DOI: <https://doi.org/10.2307/1175860>
- Shyamlee, S. D., & Phil, M. (2012). Use of technology in English language teaching and learning: An analysis. In *International Conference on Language, Medias and Culture*, 33 (1), 150-156.
- Seliger, H. W. & Shohamy, E. G. (1989). *Second language research methods*. Oxford University Press.
- Silviyanti, T. M., & Yusuf, Y. Q. (2015). EFL teachers' perceptions on using ICT in their teaching: To use or to reject?. *Teaching English with Technology*, 15(4), 29-43.

- Singh, T. K. R., & Chan, S. (2014). Teacher readiness on ICT integration in teaching-learning: A Malaysian case study. *International Journal of Asian Social Science*, 4(7), 874-885.
- Smeets, E., & Mooij, T. (1999). Time on task, interaction, and information handling in multimedia learning environments. *Journal of Educational Computing Research*, 21(4), 487-502. DOI: <http://doi.org/10.2190/3KE4-P9E7-L9X8-EMC1>
- Son, J. B., Park, S. S., & Park, M. (2017). Digital literacy of language learners in two different contexts. *JALT CALL Journal*, 13(2), 77-96. DOI: <https://doi.org/10.29140/jaltcall.v13n2.213>
- Son, J. B., Robb, T., & Charismiadi, I. (2011). Computer literacy and competency: A survey of Indonesian teachers of English as a foreign language. *Computer-Assisted Language Learning Electronic Journal (CALL-EJ)*, 12(1), 26-42.
- Tambunan, H. (2014). Factors Affecting Teachers' Competence in the Field of Information Technology. *International Education Studies*, 7(12), 70-75. DOI: <http://dx.doi.org/10.5539/ies.v7n12p70>
- Teo, T. (2008). Pre-service teachers' attitudes towards computer use: A Singapore survey. *Australasian Journal of Educational Technology*, 24(4). DOI: <https://doi.org/10.14742/ajet.1201>
- Teo, T. (2009). Modelling technology acceptance in education: A study of pre-service teachers. *Computers & Education*, 52(2), 302-312. DOI: <https://doi.org/10.1016/j.compedu.2008.08.006>
- Tezci, E. (2009). Teachers' effect on ICT use in education: The Turkey sample. *Procedia-Social and Behavioral Sciences*, 1(1), 1285-1294. DOI: <https://doi.org/10.1016/j.sbspro.2009.01.228>
- Tezci, E. (2011). Factors that influence pre-service teachers' ICT usage in education. *European Journal of Teacher Education*, 34(4), 483-499. DOI: <https://doi.org/10.1080/02619768.2011.587116>

- Thomas, M. (Ed.). (2009). *Handbook of research on Web 2.0 and second language learning*. IGI Global.
- Thurlings, M., Evers, A. T., & Vermeulen, M. (2015). Toward a model of explaining teachers' innovative behavior: A literature review. *Review of Educational Research*, 85(3), 430-471. DOI: <https://doi.org/10.3102/0034654314557949>
- Toprakci, E. (2006). Obstacles at integration of schools into information and communication technologies by taking into consideration the opinions of the teachers and principals of primary and secondary schools in Turkey. *Journal of Instructional Science and Technology (e-JIST)*, 9(1), 1-16.
- Tour, E. (2015). Digital mindsets: Teachers' technology use in personal life and teaching. *Language Learning & Technology*, 19(3), 124-139.
- Tschannen-Moran, M., & Hoy, A. W. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education*, 17(7), 783-805. DOI: [https://doi.org/10.1016/S0742-051X\(01\)00036-1](https://doi.org/10.1016/S0742-051X(01)00036-1)
- Unal, S., & Ozturk, I. H. (2012). Barriers to ITC integration into teachers' classroom practices: Lessons from a case study on social studies teachers in Turkey. *World Applied Sciences Journal*, 18(7), 939-944. DOI: <https://doi.org/10.5829/idosi.wasj.2012.18.07.1243>
- Usun, S. (2004). Undergraduate students attitudes on the use of computers in education. *Turkish Online Journal of Educational Technology-TOJET*, 3(2), 62-70.
- Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision Sciences*, 39(2), 273-315. DOI: <https://doi.org/10.1111/j.1540-5915.2008.00192.x>
- Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management science*, 46(2), 186-204. DOI: <https://doi.org/10.1287/mnsc.46.2.186.11926>

- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly*, 425-478. DOI: <https://doi.org/10.2307/30036540>
- Wang, Y. M. (2002). When technology meets beliefs: Preservice teachers' perception of the teacher's role in the classroom with computers. *Journal of Research on Technology in Education*, 35(1), 150-161. DOI: <https://doi.org/10.1080/15391523.2002.10782376>
- Ware, P. (2008). Language learners and multimedia literacy in and after school. *Pedagogies: An International Journal*, 3(1), 37-51. DOI: <https://doi.org/10.1080/15544800701771598>
- Warschauer, M. (1996). Computer-assisted language learning: An introduction. In S. Fotos (Ed.), *Multimedia Language Teaching*. Tokyo and San Francisco: Logos International
- Warschauer, M., & Healey, D. (1998). Computers and language learning: An overview. *Language teaching*, 31(2), 57-71.
- Warschauer, M. (2004). Technological change and the future of CALL. In S. Fotos & C. Brown (Eds.), *New Perspectives on CALL for Second and Foreign Language Classrooms*, 15-25. Mahwah, NJ: Lawrence Erlbaum Associates
- Williams, D., Coles, L., Wilson, K., Richardson, A., & Tuson, J. (2000). Teachers and ICT: Current use and future needs. *British Journal of Educational technology*, 31(4), 307-320. DOI: <https://doi.org/10.1111/1467-8535.00164>
- Yüksel, G., & Kavanoz, S. (2011). In search of pre-service EFL certificate teachers' attitudes towards technology. *Procedia Computer Science*, 3, 666-671. DOI: <https://doi.org/10.1016/j.procs.2010.12.111>

APPENDICES

Appendix 1. Background and Teachers' Perception on Computers Scale

FACTORS AFFECTING TEACHERS TEACHING WITH TECHNOLOGY (SFA-T3)

Dear Colleague,

This questionnaire is conducted to examine instructors' perceptions of the use of computers in English Language Teaching at higher education. Your responses will be used only for our study and kept confidential. The questionnaire is composed of six sections and takes nearly 10 minutes. I would like to thank you for your contribution.

Ahmet Okkan

MA Student

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PART ONE: DEMOGRAPHIC INFORMATION

Please circle or write your answer in the space provided.

Gender	Female		Male	
Age				
Types of department you graduated (for BA)	1. Foreign Language Education	2. English Language and Literature	3. American Culture and Literature	
	4. Linguistics	5. Translation and Interpreting	6. Other	
Current academic level	BA	MA	PhD	
Types of institution you have been working	State		Private	
Years of teaching experience	1-5	6-10	11-15	16+
Is there a computer in your classroom?	Yes		No	

Word processing (e.g., Word)	1	2	3	4	5
Databases (e.g., Access)	1	2	3	4	5
Spreadsheets (e.g., Excel)	1	2	3	4	5
Graphics (e.g., Paint, Photoshop)	1	2	3	4	5
Multimedia authoring software (e.g., HyperStudio)	1	2	3	4	5
Presentation software (e.g., PowerPoint)	1	2	3	4	5
Internet	1	2	3	4	5
Email	1	2	3	4	5
Concept mapping (e.g., Kidspiration, Inspiration)	1	2	3	4	5
Publishing software (e.g., Publisher)	1	2	3	4	5
Webpage authoring software (e.g., FrontPage)	1	2	3	4	5
Programming languages (e.g., Logo, C)	1	2	3	4	5
Modeling software (e.g., Model-It, Stella)	1	2	3	4	5
Microworlds/Simulations (e.g., Stagecast Creator, Interactive Physics)	1	2	3	4	5



PART THREE: FREQUENCY OF SOFTWARE USE FOR PERSONAL PURPOSES

Please circle your answer:

I use the computer to	Never	Once or twice a semester	Once or twice a month	Once or twice a week	Almost every day
Play games (e.g., FIFA, Solitaire)	1	2	3	4	5
Make presentations (e.g., PowerPoint)	1	2	3	4	5
Process text (e.g., Word)	1	2	3	4	5
Publish materials (e.g., Publisher)	1	2	3	4	5
Prepare spreadsheets (e.g., Excel)	1	2	3	4	5
Create graphics (e.g., Paint)	1	2	3	4	5
Communicate (e.g., email)	1	2	3	4	5
Access the Internet	1	2	3	4	5

Develop web pages (e.g., FrontPage)	1	2	3	4	5
Develop multimedia (e.g., HyperStudio)	1	2	3	4	5
Author microworlds/simulations (e.g., Stagecast Creator)	1	2	3	4	5
Map concepts (e.g., Kidspiration, Inspiration)	1	2	3	4	5
Model complex systems (e.g., Model-It, Stella)	1	2	3	4	5
Program the computer (e.g., Logo, C)	1	2	3	4	5
Use educational CD	1	2	3	4	5

PART FOUR: COMPUTER ATTITUDES

Please circle your answer

	Completely disagree	Disagree	Neutral	Agree	Completely agree
I feel comfortable with the idea of the computer as a tool in teaching and learning	1	2	3	4	5
The use of computers in teaching and learning stresses me out	1	2	3	4	5
If something goes wrong, I will not know how to fix it	1	2	3	4	5
The idea of using a computer in teaching and learning makes me skeptical	1	2	3	4	5
The use of the computer as a learning tool excites me	1	2	3	4	5
The use of computers in teaching and learning scares me	1	2	3	4	5
The computer is a valuable tool for teachers	1	2	3	4	5
The computer will change the way I teach	1	2	3	4	5
The computer will change the way students learn in my classes	1	2	3	4	5
I can do what the computer can do equally as well	1	2	3	4	5
The computer is not conducive to student learning because it is not easy to use	1	2	3	4	5
The computer helps students understand concepts in more effective ways	1	2	3	4	5

The computer helps students learn because it allows them to express their thinking in better and different ways	1	2	3	4	5
The computer helps teachers to teach in more effective ways	1	2	3	4	5
The computer is not conducive to good teaching because it creates technical problems	1	2	3	4	5

PART FIVE: PERCEIVED SELF-CONFIDENCE IN INTEGRATING ICT

In some of the following sentences the term “integration” is used. This term is used to indicate that learners use computers as learning tools in classroom activities.

Please circle your answer

I feel confident that	Completely disagree	Disagree	Neutral	Agree	Completely agree
I can select appropriate software to use in my teaching	1	2	3	4	5
I can use PowerPoint in my class	1	2	3	4	5
I can design technology-enhanced learning activities for my students	1	2	3	4	5
I can use email to communicate with my students	1	2	3	4	5
I can teach my students to select appropriate software to use in their projects	1	2	3	4	5
I can teach my students how to make their own web pages	1	2	3	4	5
I can use the Internet in my lessons to meet certain learning goals	1	2	3	4	5
The computer can help students understand concepts more easily	1	2	3	4	5

PART SIX: SCHOOL CLIMATE AND SUPPORT

Please circle your answer

	Completely disagree	Disagree	Neutral	Agree	Completely agree
Other teachers encourage me to integrate computers in teaching and learning	1	2	3	4	5
The ICT coordinator encourages me to integrate computers in teaching and learning	1	2	3	4	5
The principal encourages me to integrate computers in teaching and learning	1	2	3	4	5
I often exchange ideas about technology integration with other teachers	1	2	3	4	5
There are other teachers in my institution who use computers in teaching and learning	1	2	3	4	5
In faculty meetings, we frequently discuss the subject of integrating computers in the curriculum	1	2	3	4	5
Teachers in my institution are well informed about the value of computers in teaching and learning	1	2	3	4	5
A variety of computer software is available for use in my institution	1	2	3	4	5
The technical support in my institution is adequate	1	2	3	4	5
The instructional support in my institution is adequate	1	2	3	4	5
The technical infrastructure in my institution is adequate	1	2	3	4	5

ÖZGEÇMİŞ

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İleri düzeyde İngilizce

Başlangıç düzeyinde Almanca

YAYINLAR

OKKAN, A., & AYDIN, S. (2020). The Effects of the Use of Quizlet on Vocabulary Learning Motivation. *Language and Technology*, 2(1), 16-25.