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A Review Study on the Integration of Technology into Foreign Language Education in Turkey

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ABSTRACT. The main objective of this study was to portray a synthesis of educational research in Turkey in terms of technology integration into foreign language teaching and learning in Turkey. To this end, a comprehensive literature search was done, which was limited to the years between 2005 and 2016 via electronic databases. As a result of this search, forty-seven resources including both articles and thesis dissertations were found. The descriptive and content analysis of the findings in these studies suggested three main themes to represent research on technology integration into foreign language education in Turkey. These are 1. Student Achievement, 2. Student and Teacher Perceptions, 3. Teacher Education. It is considered that the results of this review study will provide insights and directions for researchers and practitioners in the field of technology integration into foreign language education in Turkey.

Keywords: Technology integration, foreign language learning, literature review

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Türkiye'de Yabancı Dil Eğitiminde Teknoloji Entegrasyonu Üzerine Alanyazın İncelemesi

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ÖZ. Bu çalışmada, yabancı dil eğitimi ve öğretiminde teknoloji entegrasyonuna yönelik olarak Türkiye'de yapılmış eğitim araştırmalarının bir sentezinin sunulması amaçlanmıştır. Bu kapsamda elektronik veri kaynakları kullanılarak 2005-2016 yıllarını kapsayan kapsamlı bir alanyazın incelemesi gerçekleştirilmiştir. Tarama sonucunda bu çalışma kapsamında toplam kırk yedi çalışmaya (araştırma makalesi ve tez) ulaşılmıştır. Bu çalışmalarda öne çıkan bulguların betimsel ve içerik analizi, yabancı dil eğitiminde teknoloji entegrasyonu üzerine Türkiye'de yapılmış araştırmaların şu üç ana tema altında toplandığını göstermiştir: 1. Öğrenci başarısı, 2. Öğrenci ve Öğretmen Algıları, 3. Öğretmen Eğitimi. Bu çalışmanın Türkiye'de yabancı dil eğitiminde teknoloji entegrasyonu alanında çalışan uygulayıcılar ve araştırmacılar için önemli sonuçlar sunduğu düşünülmektedir.

Anahtar sözcükler: Teknoloji entegrasyonu, yabancı dil eğitimi, alanyazın incelemesi

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ÖZET

Amaç ve Önem: Bu çalışmanın amacı, Türkiye'deki yabancı dil eğitimi ve öğretimi sürecinde teknoloji entegrasyonu alanında yapılmış çalışmaların bir sentezini sunmaktır. Bu bağlamda, 2005 ve 2016 yıllarını içeren kapsamlı bir alanyazın incelemesi yapılmıştır. Yürütülen tarama sonucunda toplam kırk yedi çalışmaya (araştırma makalesi ve tez) ulaşılmıştır. Tarama sürecinde ULAKBİM Sosyal Bilimler Veri Tabanı, EBSCO, Web of Science, Google Akademik , Yükseköğretim Kurulu Ulusal Tez Merkezi, ODTÜ Çevrimiçi Kütüphanesi ve ODTÜ veri tabanları kullanılmıştır. Bu derlemenin Türkiye'de yabancı dil eğitiminde teknoloji entegrasyonu alanında çalışan uygulayıcılar ve araştırmacılar için önemli sonuçlar sunduğu düşünülmektedir.

Yöntem: Bu çalışmada sistematik alanyazın yöntemi kullanılmıştır. Tarama esnasında elektronik kaynaklar incelenirken ölçüt olarak bulunan makale ya da tezin tam erişiminin olup olmadığına, hangi alanlarda yapıldığına, hangi yılları kapsadığına, araştırma yöntem ve desenine ve Türkçe ya da İngilizce yazıldığına dikkat edilmiştir. Bu ölçütler göz önüne alınarak kırk yedi çalışmaya (araştırma makalesi ve tez) ulaşılmıştır. Bu çalışmalarda öne çıkan bulgular betimsel ve içerik analizi kullanılarak incelenmiştir.

Bulgular: Ulaşılan çalışmalarda öne çıkan bulgular, yabancı dil eğitiminde teknoloji entegrasyonu üzerine Türkiye'de yapılmış araştırmaların şu üç ana tema altında toplandığını göstermiştir: 1. Öğrenci başarısı, 2. Öğrenci ve Öğretmen Algıları, 3. Öğretmen Eğitimi. Bulgular incelendiğinde, 2005-2016 yılları arasındaki yabancı dil eğitiminde teknoloji entegrasyonu çalışmalarının büyük ölçüde öğretmen ya da öğrenci algıları üzerine odaklandığı görülmektedir. Öğrenci başarısına ilişkin çalışmaların da genellikle kelime bilgisi üzerine yapıldığı saptanmıştır. Öğretmen Eğitimi alanındaki çalışmalar da genellikle Eğitim Fakültelerinin İngilizce Öğretmenliği Bölümündeki son sınıf öğrencileriyle yürütülmüştür. Görevde bulunan öğretmenlerle yapılan çalışmalar genellikle lise ya da ortaokul seviyesinde yapılmış olup son yıllarda da TPAB'a yoğunlaştığı saptanmıştır.

Sonuç: Bu çalışmanın ilgili alandaki öğretmenleri, okutmanları, okul müdürlerini ve öğretim programı uzmanlarını etkili teknoloji entegrasyonu konusunda aydınlatacağı düşünülmektedir. Bulgular göz önüne alındığında, öğrenci başarısı üzerine yapılan çalışmaların, dil eğitimindeki konuşma, dinleme ve yazma gibi beceriler üzerine de yapılması gerektiği düşünülmektedir. Öğretmen eğitimi açısından da öğretmenlerin derslerine web ve mobil teknolojileri daha etkili nasıl entegre edebileceklerini gösteren öğretmen eğitimi çalışmalarının yapılması gerekmektedir.

INTRODUCTION

In recent years developments in technology have started to affect almost every part of our daily lives, and in education they have started to profoundly affect teaching and learning. Especially in the last decades, teachers have integrated technology into teaching and learning process through computers and the web programs in order to add variety to teaching and improve student motivation. Nowadays, considering the profile of the students in this century, technology should be utilized by teachers more than ever as the students in this century are somehow technology and internet addicts. Technological devices like computers and especially smart phones are parts of their daily life style. Regarding their habits, learning can be shaped according to students' life styles and thus the quality of learning and teaching can be increased by meeting students' needs. To this end, first Computer-Assisted Language Learning (CALL) has emerged as one of the fastest growing trends in today's education (Weinstein, Palmer, 2002). The integration of technology affected the language learning positively by offering various activities, which can be done inside or outside class in each skill. For example, with the help of using blogs or wikis, students could practice writing through online tools. Moreover, students could receive online tutorials outside class from their teachers using some online tools like Skype. Apart from integration of such online tools, some educational games have been integrated into curriculum to encourage foreign language learning, which has resulted in game-based learning. In addition to such increased uses of technology, the widespread use of mobile technologies such as smart phones, Ipads, Ipods, etc has given a rise to a new approach rather than CALL, which is Mobile-Assisted Language Learning (MALL).

MALL is an approach encouraging the idea that learning is enhanced through mobile devices and it is the integration of mobile learning and CALL. Furthermore, MALL indicates the systematic way of the application of mobile learning. Mobile learning is a mode of learning which takes places using content assisted by mobile devices such as mobile phones, smart phones, Ipads or tables, and other portable devices.

Mobile learning has the potential to increase the opportunities to make teaching and learning available beyond the traditional classroom as Li (2008) states "it focuses on the mobility of the learning practice, and emphasizes the interaction between the learner and the learning content, peers or the instructors which can improve effectiveness, flexiblity and convenience of learning" (p.694).

With regards to the international studies conducted on the technology integration into foreign language education (FLE), it can be seen that there is a wide range of information on how technology is integrated and are various domains identified regarding technology use. However, when the national studies are examined, the context is of vital importance as the results could differ based on the context and the culture. Seeing that there has not any research portraying all the studies conducted on technnology use in EFL (English as a Foreign Language), this review study may assist in identifying the domains better, showing how and to what extent technology is integrated into FLE in Turkey. In this way, it is assumed that this review study may guide researchers more effectively for their future research agenda in Turkey.

REVIEW of LITERATURE

CALL

The recent developments in technology have already started to profoundly affect teaching and learning. Teachers have integrated technology into teaching and learning process through computers and the web programs so as to add variety to teaching and improve student motivation. Therefore, CALL has emerged as one of the fastest growing trends in today's education (Weinstein, Palmer, 2002). Computer Assisted Language Learning (CALL) is a process in which the learners use a computer, in a broader sense. The materials for CALL are prepared on purpose for language learning and are adapted by computer-based materials or videos (Beatty, 2010). The abbreviation CALL stands for Computer Assisted Language Learning. It is a term used by teachers and students to describe the use of computers as part of a language course. (Hardisty, Windeatt, 1989). It is traditionally described as a means of 'presenting, reinforcing and testing' particular language items. The learner is first presented with a rule and some examples, and then answers a series of questions that test her/his knowledge of the rule and the computer gives appropriate feedback and awards a mark, which may be stored for later inspection for the teacher. Jones, Fortescue (1987) indicate that the traditional description of CALL is unfortunate and they present the computer as flexible classroom aid, which can be used by teachers and learners, in and out of class, in a variety of ways and for a variety of purposes. However, work with the computer, as any other teaching aid, needs to be linked with ordinary classroom work and CALL lessons, like the other lessons, need to be planned carefully.

Mobile Devices and Mobile Learning

There are different definitions of "mobile" in literature. According to O' Connell and Smith (2007) a mobile device is an object which is at pocket size with a small screen and without a keyboard. Trifanova, Knapp, Ronchetti and Gamper (2004) defined a mobile device as being small and unobtrusive so that it can be carried with us everywhere. The examples of mobile devices are mobile phones, smart phones, Ipads, tablets, personal digital assistants (PDAs), personal digital media players (iPods, etc).

Mobile devices help us organize our lives better with their functions. For instance, we can easily contact our friends by sending short messages (SMS) or through using some applications that smart phones offer like "whatsapp". Furthermore, we can do our to do lists with the help of our smart phones or tablets, Ipads, etc. As mobile devices offer the features like mobility, localization, they have eased our lives through their convenience and accessibility. Thus, they provide us with the tools and resources that are available anytime, anywhere and which can enhance learning (Diaz, Carrion, 2015).

CALL facilitates the idea that learning should take place everywhere whenever a learner needs, as a result of which MALL has emerged. MALL is an approach to language learning that is enhanced through the use of mobile devices like mobile/smart phones, tablets, etc, which facilitates mobile learning. Li (2008) states, "It focuses on the mobility of the learning practice, and emphasizes the interaction between the learner and learning content, peers or the instructors which can improve effectiveness, flexibility and convenience of learning" (p.694).

Mobile learning enables learning to become mobile rather than the technology itself. Mobile learning has many advantages like permanency, accessibility, interactivity and personalization, which offer the learners study outside class. As Koole (2009) put forward wireless mobile devices may help to occur culturally sensitive learning experiences and to deal with increasing information in the world. Mobile learning also helps to facilitate transferring the knowledge and content in a learner-based atmosphere (Nedungadi, 2012).

ICT in Foreign Language Education

The increasing demand on the use of latest technological tools has encouraged the schools to integrate information and communication technologies into their curriculum for the last decades. Considering the needs of the students in 21st century skills, teachers should know how to use

computers, send e-mails, use projectors, smart phones and smart boards and other technological equipment. As regards to the speed to reach information, schools should also change the transfer of information as it is the case like from teacher to student in a fixed period of time (Tinio, 2003). When used appropriately and effectively, various ICT (Information and Communication Technologies) could help access to education, strengthen the relevance of education to the increasingly digital workplace, and raise educational quality through making teaching and learning more engaging, active process connected to real life. Thanks to technology, everybody can access information any time they want, which makes education without any boundaries of time and place.

As ICTs became a part of the daily life, teachers started to make use of it to make the learning environment more attractive and informative. By using related videos, playing CDs or using free software, English teachers are trying to make their teaching more effective. However, the students who have teachers like this are not as many as the traditional teachers who make use of only photocopiable materials. Studies also prove the truth that the use of ICT has a positive effect on the foreign language teaching and learning process. Samuel, Bakar (2006) state that ICT tools have removed the time and space limitation found in traditional teaching. Classroom dialogue can now extend beyond the time and space constraints of class time (Frayer, 1997 as cited in Samuel, Bakar, 2006). Carmen et al. (2003 as cited in Samuel, Bakar, 2006) say that integrating ICT tools in teaching may increase students' competencies and their opportunities for communication. Gimbert, Cristol (2004; Waxman, 2003 as cited in Pass, 2008) state that when compared to traditional instruction, technology instruction resulted in enhanced student learning. Butler-Pascoe and Wiburg (2003) claim that teachers should provide students with language experiences in language acquisition. When multimedia is used as a comprehensible input during reproduction, students use their second language by manipulating technology to solve a problem or complete a task. In this way, students develop their communicative competence by using English both productively and receptively.

Teacher Training Models

According to the report prepared for CILT (Center for Innovative Learning Technologies), Davies et al. (2005) list the general benefits of using ICT in teaching foreign languages as:

- A wider range of learning opportunities: interaction, collaboration and communication.

- Possibilities of differentiation, according to pupils' individual needs and learning styles.
- More opportunities for practicing language skills, especially listening and speaking
- Contact with schools in other countries by e-mail or video conferencing.

Because there are lots of facilities on the Internet and as these Web 2.0 tools may enhance our teaching when necessary, then pre-service teachers should meet these technological facilities as equipment and Web 2.0 tools when they are being trained at their schools. Thus, teacher training institutions offer some courses related to technology generally. However, there should be consistent and developing programs that match the needs of the learners and assist the teaching skills of the teachers.

Gillingham and Topper (n.d) described four different technology integration models:

> 1) Single course approach: Course can be taught by an expert faculty who has both knowledge in technology use in the classroom and the subject matter. The researchers argue that a single course as a separate entity in the teacher education program gives students only a one time exposure to technology, and its course content can be easily forgotten.
>
> 2) Technology infusion approach: Aspects of technology are placed within each course of a teacher preparation program. This lets long-term exposure to technology and technology modeling within subject matter courses.
>
> 3) Individual student performance approach: Several times during their program students choose their technology enhanced projects and performances from a number of categories. This approach involves self- directed learning and is followed by an assessment of technology proficiency.
>
> 4) Case-based approach: This approach is the inclusion of a series of cases in which teachers use technology as part of a broad case-based technology preparation program. Prospective teachers study and reflect on the efforts of teachers who have incorporated technology into their classroom practice.
>
> Kainth and Kaur (2010) emphasize four different approaches for integrating technology in teacher education:

• ICT skills development approach: Here importance is given to providing training in use of ICT in general. Student teachers are expected to be skilled users of ICT in their day-to-day activities. Knowledge about various software, hardware and their use in educational process is provided.

• ICT pedagogy approach: This approach emphasizes on integrating ICT skills in respective subjects. Drawing on the principle of constructivism, pre-service teachers design lessons and activities that center on the use of ICT tools that will foster the attainment of learning outcomes. This approach is useful to the extent that the skills enhance ICT literacy skills and the pedagogy allows student to further develop and maintain these skills in the context of designing classroom-based resources.

• Subject- specified approach: In this approach ICT is embedded into one's own subject area.

• Practice-driven approach: The emphasis is on providing exposure to the use of ICT in practical aspects of teacher training. Emphasizing on developing lessons, assignments etc. using ICT and implementing these in their practical work experience at various levels, the students are provided with an opportunity to assess the facilities available at workplace and effectively use their own skills to manipulate these facilities.

International Studies

Student Achievement

In Song's study (2008), the hybrid use of SMS and the web in vocabulary learning were compared. The results of this study indicated that mobile technology can improve the participants' vocabulary learning. Pei-Lin and Chiu-Jung (2015) conducted a study on the impact of taking photos using mobile phones in the English phrase learning. A total of 116 students enrolled in a college in Central Taiwan participated in this study. In this study, the control group was expected to do an online phrase-reading activity for phrase learning and the experimental group was asked to do phrase learning by taking photos on their mobile phones. The results of this study also showed that the participants doing phrase learning by taking photos on their mobile phones performed significantly better in the delayed post-test than the ones doing online phrase reading activity. Attewell (2005) conducted a study on a mobile learning project, which aimed to motivate students learning a foreign language. At the end of this study, it was found

that most of the students developed their reading comprehension and spelling skills with the help of mobile learning, and they claimed that they would like to continue using mobile devices while studying reading.

On the other hand, there are also some studies, the results of which show that mobile learning does not necessarily increase the students' achievement. For instance, Stockwell conducted a study (2007) on the integration of mobile learning into vocabulary learning. The results of this study revealed that vocabulary learning through the use of mobile phones didn't have more advantages than through using desktop computers. There was not a significant difference in students' performance in vocabulary learning.

Many studies on the integration of mobile learning into vocabulary learning have been conducted to examine the effects of mobile learning in English language teaching and learning. The studies in United Kingdom, Sweden and United States indicate mobile technology have positive effects as a result of its portability, low cost and practicality (Houser, Thornton and Kluge, 2002). Levy and Kennedy (2005) conducted a study with Italian learners in Australia, which focused on sending vocabulary words and idioms, definitions, and example sentences via SMS in a scheduled pattern. The aim of this study was to find out the best times and scheduling of message delivery. The participants were also asked to send their feedback in the form of quizzes and follow up questions. The results showed the best times for message delivery are between 9 a.m. and 10 a.m. and two messages a day is the best number to be sent every day.

Song (2008) worked on the hybrid use of SMS and the web in the vocabulary learning. The findings showed this mobile technology enhances participants' vocabulary learning. In another study, McConotha, Praul and Lynch (2008) conducted a research giving the students the opportunity to use an m-learning product for the purpose of assisting them in preparation of two scheduled exams. Practice and review questions were made available on m-learning devices. The results showed that by using mobile devices in the learning process, students made better scores while they were reviewing and practicing for the exams.

Student and Teacher Perceptions

With regards to the studies on student perceptions, the results are mostly positive. Firstly, in Ring's study (2001) in which textual course content, quizzes, reminders were sent to learners' mobile phones as an extra activity to an online business course, all of the participants agreed that

mobile learning enriched the course by adding value. Likewise, in Houser and Thornton's study (2001), most of the learners wished to continue lessons by receiving instructions through SMS rather than with desktop computers and through that mobile learning was an encouraging teaching method for them. In her small scale study, Pinkman (2005) investigated the likely effects of a blog project as an out of class activity on the students' foreign language learning. The study aimed at providing implications for other EFL professionals integrating blogs into their foreign language classrooms. The project included 15 pre-advanced level students who were required to have at least a TOEFL (Test of English as a Foreign Language) score of 475 before being accepted to this class in Kwansei Gakuin University in Japan. In the initial phase of the project the students were presented a sample blog by the instructor, and then they were instructed on how to make their own blogs in a lab environment. The project then continued as an out of class activity. The questionnaires and interviews answered by the students indicated this project was useful for language classes. Moreover, students agreed that feedback from classmates and the teacher increased their motivation and interest towards learning. Finally, it was found that some students were inclined to continue blogging even after the end of the semester.

However, some other studies revealed that learners didn't find the integration of mobile learning useful. To illustrate, Okunbor and Retta (2008) carried out a study on the use of mobile phones to improve student learning. In this study, participants were expected to continue their academic and social lives by using applications made available to students on the national mobile phone network. The results showed that many learners using the mobile-based applications expressed that they were not significant. Considering the common points that students stated, being accessible anytime and anywhere and matching with their daily lives are the main reasons for them to use mobile-based vocabulary notebooks rather than paper-based ones, which was also mentioned by Diaz and Carrion (2015).

Considering teachers' perceptions, in a study carried out with in-service teachers, Stansberry and Kymes (2007) asked teachers to create e-portfolios for four semesters and then checked the teacher willingness in using e-portfolios for their own teaching. They found that contrary to students' uneasiness at the portfolio, several teachers favored the process stating that technology use could turn the classroom into a dynamic place. In a recent study by Asri Siti and Santiana (2017), the student-teachers perceptions toward the use of media technologies were investigated. The findings of this study showed that they were interested in using such tools for teaching.

Moreover, by using those media technologies, they felt confident to teach and those tools helped them to create better learning experience for the students which could increase students‟ motivation. Ouk-Jeong (2017) conducted a study, which tried to investigate the effect on integrating ICT and LMP into a student teacher education program to promote CALL in Korean EFL context. In this study, a course was designed which intended to guide student teachers to understand benefits of adopting CALL for their future English classrooms. By providing prospective teachers with meaningful and informative experience, this course tried to help them get ready for their future digital students.

Teacher Education

In his study, Ping (2005) tried to find out pre-service teachers' technology competency and the change of individual attitudes as a result of taking technology- specific courses. He also tried to investigate their perspectives and experiences throughout their teaching preparation experience. He found out that learning to teach with information technology is an idiosyncratic and developmental process situated in multiple individual and social contexts. The use of information technology helped the pre-service teachers upgrade their content knowledge, and developing the meaning of inclusive education, a sense of identity, collegiality and leadership potential. Technology experiences changed their views of teaching and their own perceptions of themselves as teachers.

In the USA, the Ministry of Education carried out a project called 'Preparing Tomorrow's Teachers to Use Technology', which aimed at improving and enhancing the technology preparation of pre-service teachers. Brush (2003) carried out a study to support this project. For this reason Arizona State University pre-service teachers were provided with opportunities to develop, implement and evaluate their own instructional activities that utilize technology effectively and appropriately in authentic situations. Pre-service teachers were also given the myriad of tools necessary to integrate technology into teaching and learning activities. In another study in the USA, Jayachandran (2009) attempted to suggest a way to appropriately and effectively integrate computer-related technology in the classroom. By using a case study approach, she examined how two foreign language pre-service teachers integrated technology during student teaching, how they used it, the obstacles they had to overcome to succeed in its use, the role of the university supervisor in their attempts to integrate technology, and their general issues and concerns regarding technology integration in the real world context of the field placement sites. She gathered the data from

reflective journals, classroom observations and from the interviews. She found that the technological capability of individual teachers and their field placement mentors (university supervisor and cooperating teacher) interact and jointly affect technology integration. She also came to the conclusion that technology preparation positively affects initiation and adoption of technology in the classroom, but negatively impacts integration as it drives future teachers to chase the latest technologies without learning how to use existing ones effectively. The findings also stimulate attention to what is probably the most determining aspects of technology integration in student teaching-the professional and social partnership involving the university-based teacher education programs and the local schools. In a recent study, Vallance and Martin (2008) designed a 12-week blended undergraduate course 'Computer applications in Language and Literature' in Singapore. The participants' discussions and physical actions were recorded by a small digital camera attached to the top of screen they were using. Their actions on the monitor were also recorded. The participants discussed their activities and learning with the researcher. A summary of the discussion was written and posted online within one week for verification/or clarification by each participant. At the end of the 12 week program it was observed that the pre-service teachers' pedagogical beliefs changed when immersed in unique synchronous networked collaboration. They also gained competencies which helped them to design courses which supported and improved learning in classes.

METHODS

Purpose of the Study

The studies on the integration of technology in foreign language teaching and learning started to appear towards 2000s with the widespread use of computers and the Internet in education. Considering the developments in technology, movement from CALL to MALL, mobile devices rather than only computers have been integrated into foreign language learning. Especially under the influence of mobile devices, FATIH Project has been initiated by the Ministry of Education in Turkey. To this end, many trainings both for students and teachers have been given. As a result of all these attempts and implications, there are many studies conducted on the use of technology integration in foreign language learning.

Thus, this study aims to review the research on technology integration in foreign language teaching and learning in Turkey and help to evaluate the similarities and differences between Turkish and international studies in terms of student achievement, student and teacher perceptions and teacher

education. As this review tries to present some apparent findings in both contexts, it can contribute to the education practice more, which could also shed light on such future studies in the national context.

Literature Research

For this study, research on the integration of technology in foreign language learning and teaching in international and national arena has been reviewed systematically from such sources as ULAKBIM Social Sciences Database, EBSCO, Web of Science, Google Scholar, Higher Education Council's National Thesis Center, METU Library and METU Unique. This search was limited to the accessible full-text empirical articles published in academic journals. It was restricted to the years from 2005 to 2015 to have a recent portrayal of technology integration in foreign language learning and teaching in Turkey.

The use of technology in foreign language has various different terms like "CALL in English Language", "MALL in English Language", "Mobile Learning", "ICT" and EFL (English as a foreign language) and technology integration. Thus, while searching for the resources, different key words like "CALL", "MALL", "Mobile Learning", "ICT", "ELT" and also their Turkish translations were used to access the articles in native language. In addition to all these, the reference lists for the sources found were checked to reach all the other relevant studies conducted in this field.

Inclusion Criteria

Studies to be included in this review were chosen in terms of the following points:

The studies are:

- full text journal articles accessed via internet,
- having clear research design and/or procedures,
- written in English or Turkish language, but conducted in Turkish context
- conducted to investigate how technology is integrated into foreign language education in Turkey

Therefore, there may have been some studies, which were missed because of the criteria mentioned above.

Data Analysis

In this study, various studies were categorized according to the themes constructed through content analysis and then the design of the studies. Each study is presented in a table showing details like researcher(s), publication year, research topic and design. While analyzing the data, content analysis is adopted to look into the conclusions and suggestions compared with the international literature. Moreover, descriptive analysis was used to interpret the findings as part of content analysis. As this review study does not aim to analyze the studies in terms of the fact whether they have appropriate research design, it has been assumed that the findings in the studies are valid and reliable.

In this qualitative analysis, a thematic framework was generated to organize and interpret the results (Yıldırım, Şimsek, 2008). First, tentative themes were constructed considering the international studies on technology integration into English Language education. Then, the results of studies found in national context were grouped under these predetermined themes.

RESULTS

The results of the studies indicate the integration of technology into foreign language education in Turkey between 2005 and 2015. Considering all the studies in this period, the results could be grouped under three categories which are student achievement, student and teacher perceptions and teacher education.

Given the field of the studies, the review results indicated that the research in Turkey dominantly focused on student and teacher perceptions or teacher education. The number of studies on student perceptions, teacher perceptions and teacher education outweigh the ones on student achievement as can be seen in Table 4.1.

Table 4.1. *Distribution of studies in terms of three themes*

Theme	Studies	f
Student Achievement	Basoglu, E. B., Akdemir, O. (2010), Seferoglu, G. (2005), Kayaoglu, N., Akbag, R., Öztürk, Z. (2011), Turgut, Y. (2011), Kılıckaya, F. (2010), Erice, D., Ertaş, A. (2011), Saran, M., Seferoglu, G., Cagıltay, G. (2008), Aslan, E. (2011), Özgen, M. (2008), Saran, M. (2009), Arslan, R., Kısıl, A. (2006), Sarıcoban, A., Özturan, T. (2013), Özdemir, S., Agca, R. (2013), Zengin Unal, Ö. (2015).	14

Student Perception and Teacher Perception	Ince, A. (2015), Uluuysal, B., Demiral, S., Kurt, A., Şahin, Y. (2015), Celik, A. (2012), Merç, A. (2015), Bozdogan, D. (2012), Topkaya, E. (2010), Erice, D., Ertaş, A. (2011), Saran, M., Seferoglu, G., Cagıltay, G. (2008), Top, E. (2007), Tılfarlıoğlu, F. (2011), Hismanoglu, M. (2012), Küçük, T. (2009), Elaziz, F., Aydinli, J. (2010), Karakaya, K. (2010), Güneş, M. (2015), Saran, M. (2009), Çelik, S., Aytın, K (2014), Sarıcoban, A., Özturan, T. (2013), Özdemir, S., Agca, R. (2013), Bozdogan, D., Ozen, R. (2014), Zengin Ünal, Ö. (2015), Sert, N., Boynueğri, E. (2016)	22
Teacher Education	Akçaoğlu, M. (2008), Gülbahar, Y. (2008), Caner, E. (2009), Yucel, C., Acun, I., Tarman, B., Mete, T. (2010), Özdemir, E. (2013), Hismanoglu, M. (2012), Öz, H. (2015), Ersanli, C. Y. (2016), Baran, E., Uygun, E. (2016), Dönmez, M. (2016).	11

When looked into in details, it can also clearly be seen that the studies on student achievement mostly focus on students' vocabulary achievement in English Language rather than any other skills like reading or listening.

The common data collection tools used for these studies are pre-post tests, questionnaires and interviews. As can be understood from such tools, the studies are generally designed as experimental, quasi-experimental, mixed methods and survey as can be seen in Table 4.2.

Table 4.2. *Distribution of studies in terms of research types*

Research Types	**f**
Experimental	6
Quasi-Experimental	4
Mixed	15
Survey	5
Qualitative	8
Case Study	5
Quantitative	4

Most of the studies were conducted at university preparatory school context but there is also one study conducted at secondary school level. Sample size varies from 30 to 150 participants. To this end, it could be said

that as for participants, purposive sampling was chosen in most studies. However, sampling method is not stated in all studies. Furthermore, even if some studies indicate that they are quasi-experimental, one cannot be sure whether other experimental studies are fully experimental as there may not be any indication for features of an experimental design. The gathered data were analyzed by descriptive and/or inferential statistics in the studies. As for inferential statistics, unfortunately some statistical methods could be said that they weren't chosen appropriately.

When compared to the international studies, many studies on technology integration in foreign language education in Turkey focus on student perceptions or teacher education. Moreover, there are more mixed method studies in Turkish context as opposed to international literature.

Student Achievement

In terms of students' achievement level, most of the studies were conducted on vocabulary rather than any other skills in English. These studies tried to integrate technology into foreign language learning process through the use of some web 2.0 tools or SMS to compare traditional vocabulary learning method with the technology-based one. All these studies reveal that there is a significant difference between the vocabulary achievement level of students in experimental and control groups. To this end, these results indicate that integrating web or mobile tools into vocabulary learning has a positive effect on students' vocabulary learning. For example, in Seferoglu's study (2005), the results showed that the difference between the experimental group's pre and posttest scores was found to be statistically significant. These could be interpreted to mean that the accent reduction software used was helpful in improving students' pronunciation. Moreover, in Turgut's study (2011), the results indicated that there is a significant difference in favor of experimental group. Therefore, implications indicate that SMS can be used to teach vocabulary to digital natives providing motivation and promoting the regular study with push effect.

However, there are also some studies, the results of which show that the technology integration into vocabulary learning does not have any significant effect on student learning. To illustrate, the results of the small-scale experimental study conducted by Kayaoglu, Akbag, Öztürk, (2011) indicated that there is no statistically significant difference in scores of achievement tests between the control group students who worked on vocabulary on paper and the experimental group on animation form.

Student and Teacher Perceptions

In terms of student perceptions, many studies showed that students think the use of technology in their learning process has a positive effect on their learning. For instance, according to the results of the study conducted by Basoglu, Akdemir, (2010), students showed positive attitudes towards the use of mobile phones for English vocabulary learning. Moreover, in Saran, Seferoglu, Cagıltay's study (2009), all participants provided positive feedback about the mobile learning application used in this study. In another study conducted by Sert, Boynuegri (2016), the perceptions of low and high-income students on digital technology were compared. The aim of this study was to examine the difference between the perceptions of students in low- and high-income groups about their use of technology in a general sense in ELT classrooms. The results of this study showed that perceptions of the low- and high-income students did not differ regarding their technology use in learning process.

Regarding teacher perceptions, the results of Ince's study (2015) showed that most of the teachers think blended learning might affect English language teaching in positive way. Moreover, in Güneş's study (2015), similar results were conveyed. The findings of the study indicated teachers have positive attitudes toward using computer technology in their teaching experience. The findings of the interview were consistent with the questionnaire data by indicating that teachers use computers for both their personal and educational purposes. Likewise, in Karakaya (2010) 's study, the findings revealed that a great majority of teachers attribute positive remarks for integrating technology in language teaching. In another study conducted by Bozdogan, Ozen (2014), level and frequency of ICT technology use and factors affecting perceived self-efficacy levels of pre-service English Language Teaching (ELT) teachers' (n = 241) ICT self-efficacy were examined. The data were collected through a survey (Çuhadar, Yücel, 2010) during the 2011-2012 academic year that includes items on the use and frequency of ICT technologies along with three open-ended questions. The results of the study indicated that majority of the pre-service ELT teachers find themselves self-efficacious in the use of ICT. Results further suggest that the perceived use of computers, experience and confidence play significant role while lack of knowledge and skills, technical problems and lack of confidence negatively influence ICT self-efficacy.

Teacher Education

The studies conducted on technology integration into foreign language education dominantly focused on either teacher perceptions or teacher education program in Turkey. The results of such studies generally indicated that teachers have both positive and negative attitudes on the use of technology in teaching. There are other studies on integration of technology into teacher training programs in Turkey. In such studies, including a kind of technology module was used as a treatment, which could have both positive and negative results. For example, Akçaoğlu (2008) tried to explore the technology integration approaches and practices of pre-service and in-service English language teachers in his study. The research focused on three aspects of technology integration in English Language Teaching within the context of private universities in Ankara. Teachers use computers at their schools at limited frequency; they indicated high levels of instructional computer usage outside the school and technology competence. Although these teachers thought that technology would help make their lessons more student centered, they mentioned using technology as teacher tools rather than student tools which help foster higher thinking skills and learner autonomy.

Caner (2009) is another scholar who tried to develop a model based on blended learning for pre-service teaching practice course in ELT program at Anadolu University. 18 fourth year students participated in the study. He surveyed the participants' attitudes towards the web (computer) based instruction and their satisfaction with the blended teaching practice course. Results showed that pre-service teachers had positive attitudes towards the web component of blended teaching practice course and they were satisfied with the lesson. The findings indicated that the pre-service teachers thought that participating in a course level blended teaching practice course increased their teaching skills, primarily on preparing lesson plans and the skills on performing teaching practices.

In Hismanoglu's study (2012), the results indicated that there was a statistically significant difference between prospective EFL teachers' ICT attitudes before and after ICT- interwoven training which sheds light on the importance of including more ICT-related courses in the curriculum. On the other hand, Özdemir's study (2013) revealed that the treatment, the online educational technology course on Moodle, did not have a significant impact on the attitudes and self-efficacy of the pre-service teachers about using computer technologies but it had a significant impact on the computer literacy of pre-service teachers towards computers. Öz (2015) moved a step further in his study by trying to assess pre-service English as a foreign

language teachers' technological pedagogical and content knowledge (TPACK). The findings revealed a highly developed knowledge of TPACK. Moreover, gender differences were found to be significant with respect to Technological Knowledge and Pedagogical Knowledge dimensions with females proportionally having higher TPACK development.

Ersanlı (2016) conducted a study on the effectiveness of a five-week workshop and training sessions on Technological Pedagogical Content Knowledge (TPACK) of pre-service English language teachers. The participants were 59 pre-service English language teachers enrolled in an ELT Methodology Course at a state university. The results of this study indicated a statistically significant improvement in TPACK scores of both male and female pre-service English language teachers. The pre-service English language teachers have also displayed better performance in manufacturing and tailoring language learning/teaching materials with specific goals. Baran, Uygun (2016) conducted a study on developing an approach to foster understanding of TPACK-in-action in teacher education contexts through design-based learning (DBL). Then, a graduate course was designed to determine how course activities facilitated understanding of TPACK-in-action and to what extent students enacted TPACK-DBL principles. The results of this study offer suggestions to teacher educators to develop an understanding of TPACK-in-action through DBL activities.

DISCUSSION

This study tried to give an overview of the research on the integration of technology into foreign language education between 2005 and 2016. Obtained from the 47 studies in the last eleven years, the present study suggests three different themes which are student achievement, students and teachers' perceptions and teacher education. Considering the international studies in the same field, it can be said that there is a more variety in terms of the sub themes in the integration of technology into foreign language education. To this end, the studies on technology use and foreign language education are restricted to vocabulary achievement, student perceptions, teacher perceptions and teacher education.

With regards to student achievement, except from one study, all the studies about student achievement in Turkey focused on the use of either web 2.0 tools or SMS while studying vocabulary. The first study on the use of SMS while vocabulary learning was conducted during 2008. After this period, there have been many studies as a kind of replication of the first one. Namely, the researchers only changed the institutional context and the participants, still focusing on exploring the effects of the use of SMS in

vocabulary learning process. However, when the international studies are checked closely, it can be seen that studies also focus on improving writing skill as in Pinkman (2005)'s small scale study, which investigated the likely effects of a blog project as an out of class activity on the students' foreign language learning. Still, compared with the international studies, there are also some similarities like focusing on vocabulary learning. Although international studies attempted to add variety to the research area, many studies were also conducted on technology use and vocabulary.

In terms of student and teacher perceptions or attitudes, there have been many studies conducted in Turkey. Actually, most of the studies *(N=20)* tried to investigate either students' or teachers' attitudes on technology use in foreign language education. Although the international studies attempted to investigate student or teacher perceptions or attitudes in an addition to quantitative analysis, there are some studies in Turkey which only attempted to explore the role of technology in foreign language education at only perception level rather than going beyond like looking for achievement level as in the studies by Bozdogan (2012) and Küçük (2009). One assumption that could be made about this issue is the teachers might not feel comfortable enough in terms of technology use to conduct studies at achievement level in Turkey.

There are nine studies trying to integrate technology use as a model into teacher training as in Özdemir (2013)'s study, which shows the similarity of national and international studies within the same field. However, such studies focusing on teacher training in Turkish context are more small scale compared to international studies like Ping (2005)'s study. However, as for initiating a project on technology integration, there is a similarity between Turkey and the USA. For example, In the USA, the Ministry of Education carried out a project called 'Preparing Tomorrow's Teachers to Use Technology', which aimed at improving and enhancing the technology preparation of pre-service teachers, which resembles what we have as FATIH PROJECT. Considering the timeline of the studies conducted in Turkey on technology integration in EFL, it could also be inferred that there is more tendency to carry out studies on teacher education in terms of technology integration into EFL like Sert, Boynueğri (2016) and Ersanlı (2016)'s studies, which is similar to the research practices in international context considering Asri Siti, Santiana (2017) and Ouk Jeong (2017)'s studies.

Regarding the results of the studies in all themes, there is no contradiction in terms of the results in both national and international studies. The use of technology in foreign language education has a positive

effect on students' vocabulary achievement level in both contexts. Moreover, both students and teachers have positive attitudes towards technology use. However, although all the accessible studies in international context claim that the integration of technology into teacher training has a significant effect, one study in Turkey conducted by Özdemir (2012) suggested that use of Moodle in teacher training program did not have any significant effect. In this respect, some variables like to what extent the teachers received necessary training on the use of this platform, what kind of support or guidance the teachers received should be considered.

CONCLUSION and IMPLICATIONS

Learning through the web and mobile applications is an alternative, even very useful way of English learning. In recent years, students have the chance to learn English on their own by using the web 2.0 tools or mobile applications. This opportunity should be taken into account by teachers because new technologies and changing learning styles are forcing teachers to change their teaching styles, as well.

This study is significant as it attempts to give an overview of the technology integration in foreign language education in Turkey, which may guide the curriculum specialists, language teachers and administrators on how to continue integrating technology into language education. When checked closely, it can be seen that there are some problems in terms of technology use in foreign language education in Turkey as most of the researchers conduct studies on limited themes. To this end, the teachers, instructors and educators in Turkey should be encouraged to conduct studies in any other skills in foreign language education rather than vocabulary. Furthermore, although there have been some attempts on developing teacher training model for technology use, this focus should be prioritized and a comprehensive model should be developed as some teachers think they need to feel more competent while using technological tools as in Hismanoglu's study (2012). As there are only eleven studies focusing on technology integration in teacher education, there should be more studies conducted in this field. Regarding the timeline of the studies conducted in Turkey on technology integration in EFL, it could also be inferred that there is more tendency to carry out studies on teacher education in terms of technology integration into EFL like Sert, Boynueğri (2016) and Ersanlı (2016)'s studies, which is similar to the research practices in international context considering Asri Siti, Santiana (2017) and Ouk Joung (2017)'s studies.

Finally, most of the studies in technology and foreign language education have been done in higher education level. Thus, more studies could be conducted at K-12 level in Turkey.

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