The Effect of Seamless Learning Approach on Learner Achievement and Attitudes in Teaching EFL

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Abstract

Mobile applications have recently been widely used in English language teaching. One of the methods in which mobile devices are actively used in teaching-learning is the Continuous Learning approach. WhatsApp, a basic communication application, and Kahoot!, a game-like student response application, are applications that can be used in the continuous learning approach. The purpose of this study is to empirically investigate the effects of continuous learning activities on students' achievement and attitudes in EFL classes. Using embedded mixed research design, experimental results were explained with the qualitative data obtained from student interviews. The study was conducted with 47 students studying at Inonu University, School of Foreign Languages. Data analyses have shown that compared to the control group, seamless learning activities used in the treatment group in this research did not have a significant impact on students' achievement and attitudes towards English classes. Indications on how to use seamless learning activities more efficiently are made by further examination of qualitative data.

Keywords: *Smartphones, seamless learning, mobile learning, efl, whatsapp, kahoot*

İngilizce Öğretiminde Kesintisiz Öğrenme Yaklaşımının Öğrenci Başarısı ve Tutumları Üzerindeki Etkisi

Öz

Mobil uygulamalar son zamanlarda İngilizce öğretiminde yaygın olarak kullanılmaktadır. Mobil cihazların öğrenme-öğretmede aktif olarak kullanıldığı yöntemlerden biri de Kesintisiz Öğrenme yaklaşımıdır. Temel bir iletişim uygulaması olan WhatsApp ve oyun benzeri bir öğrenci yanıt uygulaması olan Kahoot! kesintisiz öğrenme yaklaşımında kullanılabilecek uygulamalardır. Bu araştırmanın amacı, kesintisiz öğrenme etkinliklerinin EFL sınıflarında öğrencilerin başarıları ve tutumları üzerindeki etkilerini deneysel olarak incelemektir. Gömülü karma araştırma deseni kullanılarak, deneysel sonuçlar öğrenci görüşmelerinden elde edilen nitel verilerle açıklanmıştır. Çalışma, İnönü Üniversitesi Yabancı Diller Yüksekokulu'nda öğrenim gören 47 öğrenci ile yürütülmüştür. Verilerin analizi, kontrol grubuyla

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karşılaştırıldığında, bu araştırmada uygulama grubunda kullanılan kesintisiz öğrenme etkinliklerinin öğrencilerin başarıları ve İngilizce dersine yönelik tutumları üzerinde önemli bir etkisi olmadığını göstermiştir. Kesintisiz öğrenme etkinliklerinin nasıl daha verimli kullanılabileceğine ilişkin göstergeler, nitel verilerin daha fazla incelenmesiyle ortaya konmuştur.

Anahtar Kelimeler: *Akıllı telefonlar, kesintisiz öğrenme, mobil öğrenme, whatsapp, kahoot*

Introduction

We live in an age where technology is used in every aspect of daily life and speed and time have gained great importance. Nowadays, when people have to keep up with constantly developing and changing technologies, new concepts such as digital native (Prensky, 2001) and mobile society (Chung, Chen, & Kuo, 2014) are popular. As most of the daily work is done through the internet and technological tools, educational activities such as reading books, studying, and doing homework have been digitalized as well. One of the main reasons for the emergence of innovative methods in education in the last century is the development and increasing popularity of information technologies (Barry, Murphy, & Drew, 2015; Kajornboon, 2013; Salehi, Shojaee, & Sattar, 2015). Güneş (2016) states that technology, society, and education interact with each other. With the widespread use of mobile devices such as computers, tablets, and smartphones (Franklin, 2011), a mobile society is formed (Chung et al., 2014). The word mobile, which expresses the mobility of portable devices that contain all or some of the computer features, has become widespread with the frequent use of these devices in education, which led to the mobile learning concept (Bozkurt, 2015; Churches, 2010; El-Hussein & Cronje, 2010). Mobile learning is one of the most effective tools of the informatics and communication world, which makes it possible to acquire any knowledge or skill uninterruptedly through portable technologies anytime and anywhere expanding educational activities out of formal education environments (Chen, Chang, & Yen, 2012; Franklin, 2011; El-Hussein & Cronje, 2010; Geddes, 2004; Hashemi, Azizinezhad, Najafi & Nesari, 2011; Hwang & Chang, 2011; Looi, Wang & Milrad, 2015; Öz, 2014). Thanks to its features, mobile devices have become effective tools in education by providing continuous communication and feedback between teacher and student, enabling continuous access to resources and not restricting individuals physically computers do (Chinnery, 2006; Franklin, 2011; Özdamli, 2013; So, Kim and Looi, 2008). Although it stands out with its use outside the classroom, mobile devices can transform a classical classroom into a digital learning environment as well (Chen et al., 2012). As a solution to the difficulties encountered in foreign language teaching, the seamless learning approach is presented as an alternative solution. One of the most important difficulties encountered in foreign language teaching is that students are not sufficiently exposed to the target language. (Almekhlafy & Alzubi, 2016; Campbell, 2004; Larsari, 2011; Taj, Ali, Sipra, & Ahmad, 2017). Almekhlafy and Alzubi (2016) stated in their studies that

students are exposed to the target foreign language only in the classroom and they rarely need to use the target language outside of the classroom. Campbell (2004), on the other hand, stated that students start using their mother tongue as soon as they leave the classroom and stated that easy access to the target language cannot be achieved. Seamless learning allows students to practice their language skills outside the classroom, get feedback from their teachers, and practice English by accessing various resources such as movies, books, and dictionaries (Amry, 2014; Andujar-vaca & Martinez, 2017; Wong & Looi, 2011). "WhatsApp", a communication application used on smartphones, is one of the new trends used in seamless learning. WhatsApp is a free mobile application with over 1 billion users from 180 different countries, which started as an internet-based alternative to the Short Message Service (SMS). In addition to voice and video calling, this application supports sending and receiving many different types of media such as text, photos, videos, documents, and locations (WhatsApp Inc., 2018). Due to these features, WhatsApp has attracted the attention of many researchers, especially in the field of foreign language education (Castrillo, Martín-Monje, & Bárcena, 2014). Features such as simultaneous interaction between students and teachers, original content production, and low cost have made WhatsApp an effective tool in learning and teaching environments. An indispensable part of learning and teaching processes is measurement and evaluation. Formative assessment aims to identify and eliminate the learning deficiencies and support the development of the student (Demirel, 1997; Sadler, 1989). In today's world, where learning approaches such as e-learning, mobile learning, flipped learning are rapidly digitized, the digitalization of measurement tools has become inevitable. With this transformation tools such as Socrative, Kahoot! Plickers, Google Forms, Quizizz are becoming more and more popular for assessment purposes. Kahoot!, a free web-based educational game application was used to provide both in-class and out-of-class feedback on student learning in the context of seamless learning.

With the widespread use of mobile devices, mobile learning and seamless learning approaches are frequently preferred in formal and informal learning environments (Boticki and So, 2010; Bozkurt, 2015) (Amry, 2014; Andujar-vaca and Martinez, 2017; Ashiyan and Salehi, 2016; Baleghizadeh et al. Oladrostam, 2010; Barry et al., 2015; Bozkurt, 2015; Cui and Wang, 2008; El-Hussein and Cronje, 2010; Looi et al., 2015). Although mobile devices, especially smartphones, are banned in some colleges and secondary education institutions on the grounds that they will undermine the authority of teachers (Baran, 2014; Gheytasi et al., 2015), they are frequently used as a seamless learning tool by higher education students intentionally or unintentionally (Wei, Wang, & Klausner, 2008). 2012). In addition to many studies in which the seamless learning approach, which is a frequent research topic in the literature, is examined theoretically, it is considered important to design concrete activities to be used in the classroom (Güneş, 2016; So et al., 2008; Şad et al., 2016; Viberg & Grönlund, 2012; Yetik & Keskin, 2016). In this study, the effect of the seamless learning approach on learner achievement and attitudes in teaching English as a Foreign Language (EFL) is examined through WhatsApp and Kahoot platforms.

Seamless Learning

Being able to learn, read, understand and analyze independently is a necessary skill for today's individuals (Geddes, 2004). Individuals with these skills use the seamless learning approach intentionally or unintentionally. With Seamless learning, individuals engage in a continuous learning activity by creating a link between formal and non-formal education environments, in different social or individual learning scenarios, with the help of different tools, regardless of time and place (Baran, 2014; Boticki and So, 2010; Chen. et al., 2010; Fößl et al., 2016; Geddes, 2004; Hwang, Lai, & Wang, 2015; Lan & Lin, 2016; Looi et al., 2010; Looi et al., 2015; Wong & Looi, 2011). Seamless learning provides a student-centered learning experience rather than teacher-centered education (Boticki & So, 2010). In addition to the education that students receive in educational institutions (Cui & Wang, 2008), it is possible to obtain more information, download documents, share these resources with their peers, and make sense of them in their own social environment by using various tools such as smartphones, tablets, and computers. Yetik and Keskin (2016) demonstrate seamless learning experience with examples such as doing research on the mobile device after formal education, listening to course-related content on the car radio, watching content on the smart TV at home, continuing the research that was left unfinished on the mobile device from the computer at home. Sharples (2009) stated that it is not possible to tell when seamless learning begins and ends. It is possible to encounter different definitions in many studies on seamless learning in the literature. Wang and Looi (2010) went beyond a definition and gathered the characteristics of seamless learning under ten titles:

- *Formal and non-formal education;*
- *Individual and social learning;*
- *Learning without time constraints;*
- *Learning without space restrictions;*
- *Seamless access to online resources;*
- *The difference between the physical and digital worlds;*
- *Combined use of multiple devices;*
- *Seamless transition between multiple learning activities;*
- *Information synthesis;*
- *More than one educational approach or learning model*

Researchers have stated that the seamless learning approach can have positive effects on student attitudes (Özdamli, 2013; Liu & Chen, 2015) and students' success (Baran, 2014; Song & Kong, 2014) while integrated into formal education correctly.

WhatsApp

It is known that there are many different applications that can be used in mobile learning and seamless learning approaches. There are many applications that are used to overcome the difficulties experienced in language education thanks to the opportunities provided by mobile devices and especially smartphone applications.

"WhatsApp", a communication application used on smartphones, is one of these applications. WhatsApp is used by over 1 billion users in over 180 different countries to communicate anytime and anywhere. WhatsApp is free and can be used with any smartphone. This internet-based application, which emerged as an alternative to the Short Message Service (SMS), supports sending and receiving many different types of media such as text, photos, videos, documents, and locations, in addition to voice and video calling. (WhatsApp Inc., 2018). The number of active WhatsApp users of the WhatsApp application, which had approximately 200 million users in April 2013, is expressed as 1 billion 500 million as of December 2017 (Statista, 2019). These figures clearly show how widely the application is accepted. Compared to similar applications, Facebook Messenger, the closest competitor of WhatsApp, ranks 2nd with 1 billion 300 million users (Statista, 2019). WeChat (1 billion 58 million users), QQ Mobile (803 million users) and Skype (300 million users) follow this ranking (Statista, 2019). This widely used application is also used by almost every student (Bicen, Kocakoyun 2013; Church & Oliveira, 2013; Han & Keskin, 2016). This makes it attractive to use WhatsApp as an educational tool. Thus, WhatsApp has attracted the attention of many researchers, especially in the field of education (Castrillo et al., 2014). With its features such as simultaneous interaction between students and teachers, original content produced, and low cost, WhatsApp has been an effective tool in learning and teaching environments. It is stated that when used appropriately, WhatsApp can be more beneficial for teachers and students than traditional classrooms (Alsaleem, 2013; Almekhlafy & Alzubi, 2016; Amry, 2014; Han & Keskin, 2016; Kajornboon, 2013). Its acceptance by such a high number of users in the world and its rapid spread in a short time can be explained by the many user-friendly functions provided by WhatsApp (Amry, 2014; Bansal & Joshi, 2014; Barhoumi, 2015; Chen et al., 2012). Bouhnik and Deshen (2014) divided all the advantages of WhatsApp into three as technical, educational, and instructional. The technical benefits of WhatsApp are expressed as being simple, free, accessible, and widespread. The educational benefits are titled as providing closeness with students, creating a positive atmosphere, giving a sense of belonging to a group, diversity of expression, and student solidarity. Instructional benefits are listed as continuous access to teaching materials, constant access to the teacher, learning anytime, anywhere, getting immediate feedback, and a safe learning environment (Bouhnik & Deshen, 2014). Rembe and Bere (2013), on the other hand, state that in addition to the technical benefits provided by WhatsApp, it provides psychological comfort to students cognitively by reducing cognitive load and anxiety (Han and Keskin, 2015).

Kahoot!

One of the most effective methods used in education is games (Icard, 2014). Motivating students and being fun can be considered as the main reason why games are effective tools in the classroom. The widespread use of technology as educational tools has revealed digital versions of these games. Games that are widely available in application markets are generally entertainment-oriented applications that are

independent of the educational context (So, Kim, & Looi, 2008). Kahoot!, on the other hand, is a game-like assessment tool designed specifically for use in education, focusing on student behaviors (Kahoot!, 2014). Kahoot is basically a gamified student response system. Kahoot users can take quizzes or answer a survey in an easy and fun way with their smartphones or any device that can connect to the internet (Byrne, 2013; Kahoot!, 2014; Plump & LaRosa, 2017). Teachers, on the other hand, can create the questions or tests using this tool and use them for free on an ongoing basis. While students are not required to create an account to answer, teachers are required to have a Kahoot account to be able to create tests and surveys (Thomas, 2014). While preparing tests on Kahoot, teachers can benefit from basic features such as uploading pictures, videos, setting response times, and giving extra points. In addition, the types of questions vary in the tests prepared on the Kahoot platform (drag and drop, multiple-choice, multiple answers, etc.). In addition to creating their own tests on Kahoot, teachers can edit tests created by other users, add questions or use them as they are (Plump & LaRosa, 2017). After the teachers choose the test they want to use, they share the password created on the platform with the students, and the students can use this password to access the game from any device with an internet connection (Dellos, 2015; Plump & LaRosa, 2017). Researchers state that Kahoot motivates students to learn by creating a fun and competitive classroom environment with color and music (Dellos, 2015; Plump & LaRosa, 2017, Şad & Özer, 2018). During the Kahoot game, students can immediately see their scores after each question. This instant feedback makes students excited and more motivated. Plump and LaRosa (2017) state that even introverted students are motivated and participate in the game in a study they conducted Kahoot activities in the classroom. Users can play the game in the classroom as well as outside the classroom through “Challenge" mode until the deadline determined by the teacher. This feature makes it possible to use the game in the context of seamless learning approach.

Research Questions

In this research, the answer to the question “How does the use of seamless learning approach in English lessons affect the achievement and attitudes of preparatory students while learning English?” has been sought. Within the framework of this basic research question, the following sub-problems were created:

1. Is there a significant difference between the academic achievement scores of experimental and control group students after seamless learning activities?

2. Is there a significant difference between the attitudes of the experimental and control group students towards the English lessons after the seamless learning activities?

3. What are the opinions of the experimental group students about seamless learning activities?

Method

Research Design

A mixed-method research design was used in this study which employs quantitative and qualitative data together and provides a better understanding of the research problem (Creswell & Clark, 2007). The study employed an embedded research design, which is one of the mixed research methods. Embedded designs are one of the mixed method approaches in which qualitative and quantitative data are analysed together within the framework of traditional qualitative and quantitative research designs. In an embedded mixed design, researchers can add a qualitative phase to a quantitative phase, such as an experimental study, or include a quantitative phase within a qualitative phase, such as a case study, to better understand the problem (Creswell & Clark, 2007; Yıldırım & Simsek, 1999). In the quantitative part of this study, a quasi-experimental design with a pretest-posttest control group was used. Experimental studies examine the effects of the differences created by the researcher on the dependent variable (Büyüköztürk, Çakmak, Akgün, Karadeniz, & Demirel, 2008). In quasi-experimental designs, experimental and control groups are selected from ready-made groups by looking at certain variables (Büyüköztürk et al., 2008). The study group included in this study was selected according to the level they were placed in the English Preparatory Program of Inonu University. The pretest-posttest data in this part of the study were obtained through the "English Achievement Test" and the "Attitude Scale on Affective Domain in English Classes". Qualitative data of the study were obtained through focus group interviews after the experiment. In focus group interviews, unlike individual interviews, the interaction of individuals with each other affects the answers given. Yıldırım and Şimşek (2003) state that hearing a response given by an individual in the group by other individuals will enable them to give their own answers in connection with this response and make the interview richer in terms of data. The experimental research design is shown in figure 1.

Group	Pre-test	X	Post-test	Qualitative Data
Experimental Group (n=22)	Achievement Test & Attitude Scale	Seamless WhatsApp & Kahoot! Activities	Achievement Test & Attitude Scale	Focus Group Interview
Control Group (n=25)	Achievement Test & Attitude Scale	In-class Paper Based Activities	Achievement Test & Attitude Scale	

Fig 1. *Research design*

Study Group

The study group of the research consists of students studying in the English Preparatory Program at the Inonu University, School of Foreign Languages. In the study, the experimental and control groups were selected from the A1 and A2 classes, which are equivalent to each other in terms of number of students and English level. The groups consist of students from the same departments and students placed in the same level classes at the beginning of the academic year. Students are from the Faculty of Medicine, English Language Teaching, English Language and Literature, and Molecular Biology and Genetics departments. In the study, the following criteria were taken into account in determining the groups in question as the study group:

• The same instructors attend the classes of both groups,

• The groups are equal to each other in terms of level according to the placement exam,

• The researcher, who conducted the research and designed the activities, attended the classes of both groups.

In line with the criteria mentioned above, A1 and A2 branches of 22 and 25 students, who had similar language levels and were taught by the researcher, were randomly determined as the experimental and control groups. Information about the study group of the research is shown in Table 1.

Table 1.

Study group

	Gender	**N**	**%**
Experimental Group	Male	9	40,9%
	Female	13	59,09%
	Total	22	
Control Group	Male	11	44%
	Female	14	56%
	Total	25	
Total		47	

Experimental Process

After the study group was determined, the contents of the books used by the students were examined and three units were determined according to the research calendar. Before starting the experimental process, the researcher collected the pre-test data by using the "English Achievement Test" and the "Attitude Scale on Affective Domain in English Classes". Afterward, the learning outcomes of the three related units were

examined and WhatsApp activities and Kahoot! challenge tests were prepared. For each unit included in the study, three WhatsApp activities and one Kahoot! test was designed using certain sources (Hwang, Lai, & Wang, 2015; Haines, 2016). The activities are designed in accordance with unit outcomes and the B1 level of the European Language Portfolio. Sample WhatsApp activity is shown in figure 2.

WhatsApp Activity 2	
Skills	Listening & Speaking
Aim	Talking about emotions and mood
Activity	The instructor sends the following prompts to the WhatsApp group. • before an exam • when someone is rude to you • after you have slept very badly • when you can't remember someone's name • when your boss tells you that your pay will rise by 25% The researcher chooses one of the above situations to start the activity and expresses how he/she feels in this situation. Then he asks another student how he/she feels by choosing one of the above situations: "How do you feel ..." Students take turns expressing what they feel and ask a friend the same question.

Fig 2. *Sample whatsapp activity*

After designing the activities, the five-week implementation process was started. The units in which the activities were implemented are taught in accordance with the common plan applied in other classes. When the subjects related to the activities were discussed, the researcher shared the WhatsApp activity instructions with the students through the WhatsApp group. The students tried to complete the English WhatsApp activities in accordance with the instructions given. Example screenshots of the implementation process of WhatsApp activities are presented in Figure 3.

Fig 3. *WhatsApp activities screenshots*

Another seamless learning tool used in the experimental group is Kahoot. Kahoot challenge tests aims at conducting a formative assessment, by which students are given feedback individually. Therefore, for each unit covered by the researcher during the experimental procedure, a 15 questions Kahoot test is designed. The tests were conducted outside the classroom using the challenge feature of the application, thus providing students with a seamless learning experience as well as eliminating time and space restrictions. The researcher shares the Kahoot test link created through the application in the WhatsApp group. Results of the students who completed the test within the deadline are automatically reported. Then the instructor shares these results with the students via the WhatsApp group as shown in Figure 4.

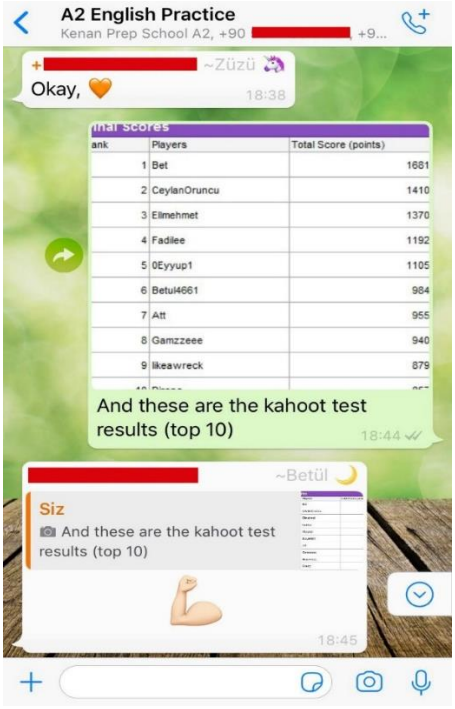

Fig 4. *Kahoot test results announced*

While the activities organized within the framework of the seamless learning approach were carried out in the experimental group, traditional type, paper-based activities and homework related to the same units and the same subjects were carried out in the control group. These assignments given by the researcher are designed to be equivalent to WhatsApp activities. The students in the control group did not share the products or results of these studies on any platform. As the equivalent of Kahoot tests in the experimental group, traditional paper-based tests were conducted in the

control group. The test results were discussed with the students in the classroom. Two months after the completion of the five-week applications, post-test data were collected and necessary analyses were carried out. Focus group interviews were conducted with the students in the experimental group to better understand the findings of the analyses.

Data Collection and Analyses

The "Attitude Scale on Affective Domain in English Classes" was utilized to evaluate how activities on WhatsApp and Kahoot influenced students' attitudes toward English lessons. Developed by Gömleksiz (2003), this scale measures students' views and attitudes toward English lessons. The initial development involved 310 students from Fırat University, starting with their opinions about English lessons, resulting in an item pool of 91 attitude statements. Expert reviews refined these to a prototype scale with items categorized under five headings: teacher, gender, trust, usefulness, and the lesson itself. After a pilot application and analysis, 56 items (38 positive, 18 negative) were finalized, achieving a Cronbach Alpha reliability coefficient of .95, indicating high reliability. The KMO value was .94, and Bartlett's test result was 8084.684, confirming the scale's validity and reliability as a one-dimensional measure of students' affective attitudes towards English lessons (Krashen, 1981; Gömleksiz, 2003).

To assess students' English proficiency before and after the experimental procedure, a 40-item English Achievement Test was employed. The initial test comprised 45 multiple-choice questions, developed after reviewing relevant unit outcomes and refined based on expert feedback. A pilot study with 210 students assessed the test's validity and reliability, focusing on item difficulty and discrimination levels. Items with a difficulty index below .30 or above .80 were removed, resulting in an average difficulty level of 0.534 and a distinctiveness level of 0.596 for the remaining items. The test's internal consistency, measured by the KR-20 coefficient, was .924, indicating high validity and reliability (Coombe, 2018; Buyukozturk et al., 2008; Yıldırım, 1999; Tezci, 2016).

Qualitative data were gathered through focus group interviews conducted post-experiment. This method was chosen for its ability to foster interactive discussions among participants, enriching the data collected. A focus group interview was conducted with 20 students from the experimental group, using a form prepared by the researcher with eight open-ended questions. These questions aimed to elicit students' opinions on WhatsApp and Kahoot activities. The interviews were recorded using a smartphone during a single 45-minute session, allowing for a comprehensive understanding of students' perspectives on the activities used in the study (Yıldırım & Şimşek, 2003). The qualitative data in this study were gathered through a focus group interview and analyzed using the content analysis approach, which involves identifying concepts and relationships that explain the data (Yıldırım & Şimşek, 2003). The researcher recorded the students' responses and then carefully coded the

data into expressions consisting of one or a few words. Similar data were grouped, organized, and interpreted into themes. To improve internal validity, the analysis was reviewed for consistency by the thesis supervisor. Repeated codes were re-coded and ranked by frequency. To enhance credibility, students were provided with feedback on the findings, and their confirmations were obtained.

Findings and Interpretations

The difference between the academic achievement scores of experimental and control group students after seamless learning activities

To test whether the seamless learning approach in English teaching has a statistically significant effect on students' English achievement, a two-way ANOVA test was conducted for repeated measures. Before the analysis, the normality condition of the data was tested with the Shapiro Wilk test and it was observed that the pretest and posttest data regarding the achievement levels of the experimental and control groups were normally distributed (p> .05). According to the results of the Box's M test, the condition of equality of the covariance matrices of the experimental and control groups was met (Box's M= 2.604; F=.826; p> .05). In addition, the precondition of equality of error variances for pre and post-test scores was tested with the Levene test, and it was found that there was no difference between error variances for both pre-test and post-test success scores [F(Pretest_Success) = ,556; p> .05 and F(Posttest_Success) = .408; p> .05]. The results of the two-way ANOVA test for repeated measurements after the assumptions were met are presented in Table 2.

Table 2.

ANOVA test results on the effect of seamless learning approach on students' English achievement levels

Source of variance	Sum of Squares	df	Mean of squares	F	p	Partial Eta Squared
Between groups	33207,958	46				
Group	2229,641	1	2229,641	3,239	,079	067
Error (Group)	30978,317	45	688,407			
Within groups	11894,017	46				
Measurement	7881,911	1	7881,911	90,134	,000*	,667
Measurement-Group	**167,017**	**1**	**167,017**	**1,910**	**,174**	**,041**
Error (Measurement)	3935,089	45	87,446			
Total	45101,975	92				

* p< .05

As a result of the two-way ANOVA test for repeated measures to test whether the seamless learning approach including WhatsApp and Kahoot activities increases students' English achievement levels, it was seen that the Joint Measure-Group effect was not statistically significant [F(1-45)= 1.910; p>.05]. From this point of view, it can be said that the seamless learning approach used in the experimental group did not significantly increase the English achievement scores of the students compared to the students in the control group that received traditional program activities.

The difference between the attitudes of the experimental and control group students towards the English lessons after the seamless learning activities

A two-way ANOVA test for repeated measures was conducted to test whether the seamless learning approach in English teaching has a statistically significant effect on students' attitudes towards English lessons. Before the analysis, the normality condition of the data was tested with the Shapiro Wilk test and it was observed that the pretest and posttest data regarding the achievement levels of the experimental and control groups were normally distributed (p> .05). According to the results of the Box's M test, the condition of equality of the covariance matrices of the experimental and control groups was not met (Box's M= 15,656; F=4.966; p< .05). Since the level of significance was not close to 0.001, this situation was considered within the acceptable limits and the analysis continued (Can, 2014, p.252). In addition, the precondition of equality of error variances for the pre and post-test scores was tested with the Levene test. According to the test results, it was understood that there was a difference between the error variances for the pretest attitude scores and no difference for the posttest attitude scores [F(Pretest Attitude) = 5,181; p< .05 and F(Posttest Attitude) = .399; p> .05]. The results of the two-way ANOVA test for repeated measurements after the assumptions were met are presented in Table 3.

Table 3.

ANOVA test results on the effect of seamless learning approach on students' attitudes towards English lesson

Source of variance	Sum Squares	ofdf	Mean squares	ofF	p	Partial Eta Squared
Between groups	67380,276	46				
Group	1170,160	1	1170,160	,795	0,377	,017
Error (Group)	66210,116	45	1471,336			
Within groups	8027,949	46				
Measurement	1457,971	1	1457,971	10,001	,003*	,182

Measurement-Group	9,971	1	9,971	0,68	,795	,002
Error (Measurement)	6560,007	45	145,778			
Total	75408,225	92				

* p< .05

As a result of the two-way ANOVA test for repeated measures to test whether the seamless learning approach including WhatsApp and Kahoot activities affect the students' attitudes towards the English lesson, it was seen that the Joint Measure-Group effect was not statistically significant [F(1-45)= 0.68; p>.05]. From this point of view, it can be said that when compared to the normal program activities applied in the control group, the seamless learning activities used in the experimental group did not significantly increase the students' attitude scores towards the English lesson.

Opinions of the experimental group students about seamless learning activities

After the data analysis, the opinions of the experimental group students about the English lessons and the seamless learning activities they did were collected through the focus group interview form in order to explain the findings in more detail. The obtained data were carefully analysed and coded. The opinions of the experimental group students about English lessons and seamless learning activities are coded and given in Table 4.

Table 4.
Experimental group students' views on English lessons and seamless learning activities

Negative Attitude	**f**
The routine of preparatory training	32
Preparatory education is getting harder and harder	11
Academic failure	10
Anxiety	6
Activities	
Positive Views	
Useful	6
Fun	6
Negative Views	
Technical Problems	2
Suggestions	
It should be done more often, at regular intervals and continuously.	26
It should have been more challenging and academic.	16

Analysis has shown that the students generally had negative attitudes towards the English lesson, especially as of the 2nd academic semester. As seen in Table 4, the majority of the students (f=23) point out the routine of the preparatory education as the reason for this negative attitude. When the coding density is examined, it was observed that it included expressions such as "*too long class hours*" (f=9), *"I am bored of seeing the same things*" (f=6), "*book routine is boring*" (f=9) and "*no extracurricular fun activities*" (f=8). Another reason why students raised negative views is that "preparatory education is getting harder and harder" (f=11). It is seen that the students have more difficulties as they move to the upper levels of the European Language Portfolio language levels. It is seen that the low scores of some students (f=10) from the tests and exams held at regular intervals cause negative attitudes. During the interview, the students used expressions such as "*I work hard, but my grades are low, I'm bored now (Aykut)*" and "*I always get low grades, it's very frustrating (Seda)".* According to the findings, another condition that causes negative attitude is the "anxiety" factor (f=6). The students stated that they were not sure whether they could pass the preparation or not and that they constantly felt fear and anxiety. Another question was "*How do you think WhatsApp and Kahoot events could be better*?" The majority of the students (f=26) stated that these activities should be done more frequently and at regular intervals. During the interview, the students used expressions such as "*it contributed instantaneously*", "*I wish we could do it all the time", "it was like tasting, it was a little bit*" and "*we did a little*". Finally, students stated that WhatsApp and Kahoot activities should have been "*more challenging and academic*" (f=16). 'The students stated that they did not have any difficulties while doing the activities, and although they spoke a little, they wanted to engage in more conversation during these activities.

Discussion, Conclusion and Recommendations

When the research data were examined, a significant increase was found between the pretest and posttest achievement scores of the students in both the experimental group and the control group. However, it was observed that the amount of increase in the experimental group was not significantly higher than that of the control group. This finding shows that the seamless learning activities applied in the experimental group and the traditional paper-and-pencil activities applied in the control group have the same effect on the students' English success. One interpretation of this finding could be that the traditional paper-and-pencil activities used in the control group may have been equally effective in supporting student achievement as the seamless learning activities in the experimental group. In addition, both groups may have developed similar learning habits and study strategies over time, resulting in comparable levels of improvement despite the different instructional approaches. In the focus group interview, the students stated that seamless learning activities are beneficial, but doing them in limited numbers and only in certain courses does not contribute in general. Some students also stated that the activities were short and that longer, more

challenging and academic activities should be done. Intensive exposure to English education in other English courses they attend, apart from the Main Course conducted by the researcher in the English preparatory program, may be the other main factor in the absence of a significant difference between the experimental and control groups. Another factor that could explain the insignificancy level could be that the experimental and control groups might have received equivalent amounts of academic support from their teachers, reducing any potential disparity in outcomes. It can be thought that performing traditional type activities, which were developed as equivalent to the continuous learning activities applied in the experimental group, contributed to the achievement of the students measured in the achievement test, and therefore, there were no significant differences between the two groups. Although the seamless learning activities applied in the experimental group did not reveal a significant difference in the English achievement of the students compared to the control group, it was seen that they were at least as effective as the traditional type of homework and tests.

When the findings of the second research question are examined, it is seen that there is a decrease in the attitude scores of the students in both the experimental and control groups towards the English lesson. However, while the decrease in the attitude scores of the experimental group was not at a significant level, a significant decrease was found in the attitude scores of the control group. According to the results of the analysis, although the difference between the two groups is not significant, the seamless learning activities applied can be seen as one of the reasons why the attitude scores of the experimental group did not decrease significantly. This situation aligns with studies suggesting that seamless learning and WhatsApp activities positively affect student attitudes (Almekhlafy & Alzubi, 2016; Amry, 2014; Song, 2014; Bansal & Joshi, 2014; Bouhnik & Deshen, 2014; Han & Keskin. , 2016; Willemse, 2015). It has been directly observed that students lose their motivation towards the end of the academic year and are less eager and more reluctant towards any learning content. Thus, it can be said that the seamless learning approach alone cannot increase the effectiveness of a teaching process or improve student attitudes. Almekhlafy and Alzubi (2016) also stated that mobile seamless learning applications should be examined in a way to support in-class education. In this context, practitioners should also consider that seamless learning tools will be more effective when used to provide quality content.

It was observed that the experimental procedure applied did not significantly affect the students' "English success" and "attitudes towards the English lesson", and the possible reasons for these were tried to be explained with the qualitative data obtained. Students made suggestions that WhatsApp and Kahoot activities should be done more frequently, regularly and continuously, and that the activities should be more challenging and academic. Accordingly, it is thought that the implementation of seamless learning activities in all lessons, covering all subjects, at regular intervals and for longer periods, without being bound to only certain units of a lesson, will have

a greater impact on student success. When the students' opinions about the "attitude towards the English lesson" were examined, it was found that the attitude scores of the students towards the English lesson decreased due to a) The routine of preparatory education, b) The increasing difficulty of preparatory education, c) academic failure, and d) Anxiety factors. Although the students think that WhatsApp and Kahoot activities are "useful" and "fun", variables such as the difficulty of lessons, the materials used, anxiety and fear of failure explain the decrease in the students' attitude scores. Castrillo et al. (2014) suggested that using the WhatsApp application in language learning would be beneficial. In our research, the students' use of expressions such as "useful" and "fun" together with expressions such as "activities were not enough", "more activities would be better" gives an important message to the practitioners who will do these activities. Considering these statements, it is thought that researchers and educators doing seamless learning activities more frequently will increase the quality of seamless learning activities. Malandrino et al., (2015) stated as an advantage that seamless learning applications can run on any device and operating system independent of the platform. Accordingly, WhatsApp and Kahoot are suitable applications for seamless learning activities since students can use the applications without any compatibility problems. However, technical problems that are not related to these applications such as not having a smartphone or limited storage capacity are mentioned. The fact that there are no technical problems related to the applications and that they can be easily used by students reveals that these applications can be used effectively in the context of seamless learning (Amry, 2014; Foomani & Hedayati, 2016; Malandrino et al., 2015; Wong et al. 2012; Yetik & Keskin, 2016).

In line with the results obtained from the research, the following recommendations are proposed for researchers and practitioners:

- Students have not experienced any technical problems related to WhatsApp and Kahoot applications, which are available on different platforms, do not have cross-platform compatibility problems. Thus, such applications should be preferred while engaging students with seamless learning.
- It is advantageous to use applications that students already use in their daily lives, such as WhatsApp, for seamless learning activities.

Conflict of Interest

The authors of this study declare no conflicts of interest. The research was conducted independently of any financial support or sponsorship from external organizations, ensuring that there are no personal or professional interests that could have influenced the outcomes of this research.

Ethical Declaration

This research was conducted within ethical standards to respect the rights and privacy of participants. Informed consent was obtained from all participants, and their identities have been kept confidential throughout the study.

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Genişletilmiş Özet

Günümüzün hızla gelişen teknolojik ortamında eğitim, öğrenme deneyimlerini geliştirmek için dijital araçları benimsemiştir. Bu çalışma, kesintisiz öğrenme yaklaşımlarının, özellikle WhatsApp ve Kahoot kullanımının, İngilizceyi Yabancı Dil olarak (EFL) öğreten sınıflardaki öğrenci başarısı ve tutumları üzerindeki etkisini araştırmaktadır. Araştırmanın amacı, bu araçların öğrencilerin İngilizce derslerine yönelik başarı ve algılarını nasıl etkilediğine dair deneysel kanıtlar sunmaktır.

Teknolojik ilerlemeler hayatın her alanına nüfuz etmiş ve eğitim de bu dönüşümden payını almıştır. Dijital yerliler ve mobil toplumun yükselişiyle birlikte, eğitim faaliyetleri giderek çevrimiçi hale gelmiş ve kesintisiz öğrenme gibi yenilikçi öğretim yöntemlerine yol açmıştır. Kesintisiz öğrenme, mobil cihazlar kullanarak farklı ortamlarda sürekli öğrenmeyi mümkün kılarak, öğrencilerin her zaman ve her yerde eğitim faaliyetlerine katılmalarını sağlar. Bu yaklaşım, hedef dil maruz kalma genellikle sınıf ortamlarıyla sınırlı olduğu EFL öğretiminde özellikle faydalıdır. WhatsApp ve Kahoot gibi araçların kullanımı, sınıf dışında ek dil pratiği sağlayarak sürekli etkileşim ve geri bildirim oluşturabilir. WhatsApp, kullanıcıların internet üzerinden mesajlaşma, sesli ve görüntülü arama yapmalarını, dosya paylaşmalarını ve grup sohbetlerine katılmalarını sağlayan ücretsiz bir anlık mesajlaşma uygulamasıdır. Kahoot ise eğitim ortamlarında öğrenci katılımını artırmak için kullanılan, ara sınavlar ve anketler yoluyla oyunlaştırılmış etkileşimli öğrenme deneyimleri sunan bir öğrenci yanıt sistemi platformudur.

Bu araştırmada "İngilizce derslerinde kesintisiz öğrenme yaklaşımının kullanılması hazırlık öğrencilerin başarılarını ve İngilizce öğrenmeye yönelik tutumlarını nasıl etkilemektedir?" sorusuna cevap aranmıştır. Bu soruya cevap aramak için çalışma şu alt soruları ele almaktadır: 1. Kesintisiz öğrenme faaliyetlerini kullanan öğrenciler ile geleneksel yöntemleri kullanan öğrenciler arasında akademik başarı açısından anlamlı bir fark var mıdır? 2. Kesintisiz öğrenme faaliyetleri, geleneksel yöntemlere kıyasla öğrencilerin İngilizce derslerine yönelik tutumlarını nasıl etkiler? 3. Öğrencilerin çalışma kapsamında kullanılan kesintisiz öğrenme faaliyetlerine ilişkin görüşleri nelerdir? Çalılma bu araştırma problem ve alt araştırma soruları kapsamında uygun görülen araştırma yöntemi ve veri toplama araçları kullanılarak yürütülmüştür.

Bu çalışma, araştırma problemini kapsamlı bir şekilde anlamak için nicel ve nitel verileri birleştiren karma yöntem araştırma deseni kullanmaktadır. Nicel bileşen, öntest-sontest kontrol gruplu yarı deneysel bir tasarım kullanır. Çalışma, İnönü Üniversitesi Yabancı Diller Yüksekokulu'nda öğrenim gören 47 öğrenciyi içermektedir ve başlangıçtaki İngilizce yeterlilik seviyelerine göre deney ve kontrol gruplarına ayrılmıştır. Deney grubu, WhatsApp ve Kahoot kullanarak kesintisiz öğrenme faaliyetlerine katılırken, kontrol grubu geleneksel kâğıt temelli faaliyetleri takip etmiştir. Veriler, Gömleksiz (2003) tarafından geliştirilen "İngilizce Derslerinde Duyuşsal Alan Tutum Ölçeği" ve 40 maddelik İngilizce Başarı Testi kullanılarak toplanmıştır. Tutum ölçeği, beş boyutta öğrencilerin İngilizce derslerine yönelik görüş ve tutumlarını ölçer: öğretmen, cinsiyet, güven, yararlılık ve dersin kendisi. İngilizce Başarı Testi, geçerlilik ve güvenilirliği sağlamak için uzman incelemeleri ve pilot testler yoluyla geliştirilmiş ve KR-20 iç tutarlılık katsayısı. 924 olarak belirlenmiştir. Nitel veriler, deney grubundaki 20 öğrenciyle yapılan odak grup görüşmeleri yoluyla elde edilmiş ve kesintisiz öğrenme faaliyetlerine ilişkin daha derinlemesine veriler sunmuştur.

Başarı puanlarının analizi, hem deney hem de kontrol gruplarının öntest ve sontest arasında önemli bir iyileşme gösterdiğini ortaya koymuştur. Ancak, iki grubun sontest puanları arasında istatistiksel olarak anlamlı bir fark bulunmamış, bu da kesintisiz öğrenme faaliyetlerinin öğrenci başarısı üzerinde geleneksel yöntemler kadar etkili olduğunu göstermektedir. Öğrencilerin tutumlarına gelince, her iki grup da zamanla puanlarında bir düşüş yaşamış, ancak bu düşüş deney grubunda istatistiksel olarak anlamlı olmamıştır. Bu durum, kesintisiz öğrenme faaliyetlerinin, geleneksel yaklaşımlara kıyasla, İngilizce derslerine yönelik daha olumlu tutumları korumaya yardımcı olabileceğini düşündürmektedir. Odak grup görüşmeleri, öğrencilerin genel olarak kesintisiz öğrenme faaliyetlerini yararlı ve eğlenceli bulduklarını, ancak daha sık, düzenli ve akademik olarak daha zorlu faaliyetler yapılması gerektiğini ifade ettiklerini ortaya koymuştur. Öğrenciler, mevcut faaliyetlerin kısa ve yetersiz olduğunu, bu nedenle önemli bir etki yaratmadığını belirtmişlerdir. Nitel bulgular Whatsapp ve Kahoot etkinliklerinin daha sık, düzenli ve sürekli yapılması, etkinliklerin daha zorlayıcı ve akademik olması gerektiği yönünde öğrenciler tarafından önerilerde bulunulmuştur. Ayrıca, hazırlık eğitiminin rutini, artan zorluk seviyeleri, akademik başarısızlıklar ve kaygı gibi faktörlerin, İngilizce derslerine yönelik olumsuz tutumlara katkıda bulunduğunu belirtmişlerdir. Çalışma, WhatsApp ve Kahoot kullanarak yapılan kesintisiz öğrenme faaliyetlerinin akademik başarıyı artırmada geleneksel yöntemlerden önemli ölçüde daha üstün olmadığını, ancak en az onlar kadar etkili olduğunu ve öğrencilerin İngilizce derslerine yönelik daha olumlu tutumlarını korumaya yardımcı olabileceğini ortaya koymaktadır. Nitel veriler, kesintisiz öğrenme faaliyetlerinin sıklığının, düzenliliğinin ve akademik zorluğunun artırılmasının etkilerini artırabileceğini önermektedir. WhatsApp ve Kahoot kesintisiz öğrenme faaliyetleri için uygun uygulamalardır çünkü öğrenciler bu uygulamaları herhangi bir uyumluluk sorunu olmadan kullanabilmektedir. Ancak, akıllı telefona sahip olmama veya sınırlı depolama kapasitesi gibi bu uygulamalarla ilgili olmayan teknik sorunlardan bahsedilmektedir. Uygulamalarla ilgili herhangi bir teknik sorun yaşanmaması ve öğrenciler tarafından kolaylıkla kullanılabilmesi, bu uygulamaların kesintisiz öğrenme bağlamında etkili bir şekilde kullanılabileceğini ortaya koymaktadır

Bu bulgulara dayanarak, araştırmacılara ve uygulayıcılara şu önerilerde bulunulmaktadır: Kesintisiz öğrenme faaliyetlerini tüm derslere yayarak daha sık ve düzenli olarak uygulayın. Öğrencileri daha iyi meşgul etmek için daha zorlu ve akademik olarak yoğun kesintisiz öğrenme görevleri tasarlayın. Öğrencilerin kesintisiz öğrenme süreçlerine dahil edilmesinde, teknik avantajları ve erişilebilirlikleri göz önüne alarak WhatsApp ve Kahoot gibi yaygın kabul görmüş ve kullanıcı dostu uygulamaları kullanın. Bu stratejiler, kesintisiz öğrenme yaklaşımlarının EFL eğitiminde hem öğrenci başarısını hem de tutumlarını artırma potansiyelini en üst düzeye çıkarmaya yardımcı olabilir.