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Mobile or hostile? Using smartphones in learning English as a foreign language[1]

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ABSTRACT

The purpose of this paper is to investigate the views of freshmen on using their smartphones in learning English as a foreign language. The study was designed based on a quantitative associational model. The data were collected from the 428 freshmen attending the English preparation programs run at İnönü and Fırat Universities, Turkey, using "Smartphone Use in Learning Foreign Language Scale". The results showed that participants use their smartphones more frequently to engage in English listening and speaking activities than reading and writing activities. The participants also believe that smartphones scarcely have adverse effects on learning English. However, it was also found that the more time students spend online, the more they suffer from the adverse effects of smartphones in terms of language learning. Results about gender revealed that female students use their smartphones more frequently than their male peers to engage in formal language learning activities. Significant differences related to frequency of smartphone use for both formal and informal language learning purposes were detected, with the Business Administration and Molecular Biology and Genetics department students showing higher frequency. No statistically significant difference was found between students' views about using smartphones for language learning according to the types of Internet connection (Wi-Fi, mobile data, or both).

KEYWORDS

Adverse effects; mobile assisted language learning; mobile learning; smartphones

Introduction

The effects of rapid developments in technology have been witnessed in all aspects of life from art and sports to education and commerce. One common and effective technology overwhelmingly used in our time is the smartphone. What makes smartphones so effective is their ability to be used anywhere anytime when needed (Geddes, 2004; Gheytasi, Azizifar, & Gowhary, 2015; Kukulska-Hulme & Shield, 2008). Smartphones are

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evolving very fast and they affect a large spectrum of aspects of life from marketing and business to education and mobile industry (Aldhaban, 2012). Owing to the baseline capabilities smartphones offer, including easy and ubiquitous access to information, wireless Internet connection and mobility, the popularity of smartphones has increased unprecedentedly (Özsoy & İzmir, 2016). Today, smartphones have become, far beyond being just a means of mobile communication, a device people always need in every field of life due to the applications and functions they involve (Campbell, 2007; Şad & Göktaş, 2014).

Smartphones have also become one of the leading tools in the area of mobile-assisted learning (Kukulska-Hulme & Traxler, 2005; Simonova, 2016). Students prefer smartphones over desktop computers or laptops because of their capabilities like portability, easy Internet connection, multi-media files etc. Moreover, as a personalized learning tool, smartphones allow students to learn at an individualized pace (Pengnate, 2018). When used with appropriate applications, smartphones can also be quite effective in the classroom (Saral, 2013). They can draw students' attention, provide instant access to information, help students understand feasibly by visualizing abstract concepts, record everything that happens in the class and make individual learning possible at any time (Yıldırım, Yaşar, & Duru, 2016). These features make smartphones promising tools for teaching or learning a large spectrum of subjects.

Smartphones are also used to teach and learn a foreign language both in and outside the classes yielding favorable outcomes (Başoğlu & Akdemir, 2010; Chinnery, 2006; Chung, Chen, & Kuo, 2015; Cui & Wang, 2008; Duman, Orhon, & Gedik, 2015; Kiernan & Aizawa, 2004; Kim & Kwon, 2012; Muhammed, 2014; Simonova, 2016). These favorable outcomes can be attributed to state-of-the-art features available on smartphones that allow learners to watch videos, look up words in offline or online dictionaries, read or write on online platforms, listen to songs or tracks, do language exercises, or test their language skills. Thanks to these and other features, smartphones can be used as an effective mobile-assisted language learning tool to introduce learners the key concepts, skills and terms; to help them understand these key concepts, skills and terms through demonstration, illustrations, and examples; to master them through drill-practices, simulations, games etc.; and to assess the progress or achievement through tests (Hussin, Manap, Amir, & Krish, 2012). The unprecedented capabilities of smartphones also inspired the researchers to study the efficacy of using these state-of-art tools on language learning by matching certain features of smartphones with certain language skills or areas, such as using smartphone cameras and Web 2.0 technologies to teach vocabulary (Alemi, Sarab, &

Lari, 2012; Foomani & Hedayati, 2016; Hu, 2013; Wong, Chen, & Jan, 2012; Wong, 2013) or using the functions of location-based-service, quick response (QR) code, social media platforms, audio and video records, mobile chat applications, SMS-ing in order to improve learners' communicative competence (Andujar, 2016; Lan & Lin, 2016; Ogunduyile, 2013; Şad; 2008; Wang, 2014).

While previous research on smartphones use in education in general and in language learning and teaching, in particular, reveal positive results, some research findings also refer to the adverse effects of smartphones including lack of attention, distraction, waste of time, lack of knowledge on how to implement mobile instruments, and using them for non-educational purposes (Biçen & Kocakoyun, 2013; Chinnery, 2006; Dewitt & Siraj, 2010; Duman et al., 2015; Gheytasi et al., 2015; Hwang & Wu, 2014; Kiernan & Aizawa, 2004; Pengnate, 2018; Ugur & Koc, 2015). Successful integration of mobile phones into language learning is closely related to students' attitudes and how they are put into action (Botero, Questier, Cincinnato, He, & Zhu, 2018). The optimum benefit one can gain from a technology depends of his/her intention to use it efficiently. And users' perceptions of mobile learning regarding its usefulness and ease of use are decisive on their intention to use it (Cheon, Crooks, Chen, & Song, 2012). Therefore, in the present study it was aimed to investigate students' views on how they use smartphones during prolonged foreign language learning experiences and what positive and negative effects they have on learners within the context of foreign language education in tertiary preparation class.

Theoretical framework

M-learning

Thanks to the emergence of state of art technologies like PDAs, tablet PCs, smartphones during the last few decades, mobile learning (m-learning) has been a frequently preferred method in education (Chung et al., 2015; Cui & Wang, 2008; Muhammed, 2014; Simonova, 2016; Şad & Göktaş, 2014). With the increase of the increase in the use of these wireless devices, teachers and students have started to use them inside and outside the classrooms for educational purposes. As these devices provide instant access to information in educational spaces (Cui & Wang, 2008), there has been an increase in mobile learning applications and mobile learning designs. M-learning, with a variety of definitions, can be described as an effective tool that makes learning/teaching activities accessible inside/outside of learning spaces (school/classroom) and provide information anytime and anywhere, with the help of mobile devices (Chen, Chang, & Yen, 2012; Franklin,

2011; Geddes, 2004; Hwang & Chang, 2011; Öz, 2014). Mobile learning can provide the following benefits anytime, anywhere, which clearly distinguishes it from e-learning (Cheon et. al., 2012; Hashemi et. al., 2011): 1. Access to documents and sources, 2. Access to questions and self-evaluation test, 3. Watching classes and tutorials, 4. Access to live and archived classes, 5. Access to audio and video sources, 6. Access to asynchronous content, 7. Exhibiting students' work, and 8. Access to virtual learning communities.

In the context of mobile learning, the word mobile does not only refer to the portable devices (Hashemi et. al., 2011; Sharples, Taylor, & Vavoula, 2005), but it also represents the students and the content. This perspective about m-learning turns learning through mobile devices into a natural and inevitable part of one's daily life. Thus, from a rather seamless learning perspective, Gheytasi et al. (2015) suggest that m-learning provides individuals with learning activities while living their daily routine.

Advantages and disadvantages of mobile learning

Mobile devices are frequently used in daily life for a diverse set of purposes. The reason why these devices are used more than others, is mainly due to their portability. They have already surpassed computers because of their weight, size, affordability, multi-task features and ability to become operational in a short span of time (Chen et al., 2012; Gromik, 2012; Muhammed, 2014; Simonova, 2016; Şad & Göktaş, 2014). So they have an unprecedented capability to access any kind of information anywhere and anytime, i.e., day or night at home, in school, at public transportation means or in wilderness. With all these capabilities, many researchers have found results referring to the positive impact of using mobile devices in learning environments on students' achievement (Baran, 2014; Chung et. al., 2014; Duman et al., 2015; Elmas, Kete, Hizlisoy, & Kumral, 2015; Hwang, Wu, & Ke, 2011; Kukulska-Hulme, 2009; Kukulska-Hulme & Shield, 2008; Rahimi & Miri, 2014; Wu, 2014). Mobile learning approach can improve student achievement, motivation, and interest immensely if proper learning strategies or supports are provided (Hwang & Wu, 2014). For example, Hwang and Chang (2011) have reported significant positive effects across pre- and post-tests on experimental group's results after applying a mobile learning activity on learners. In another study (Saran, Seferoglu, & Çağiltay, 2012), it is stated that students who are supported with mobile devices are more successful than other students who are limited by traditional learning only. In another comprehensible meta-analysis (Sung, Chang, & Liu, 2016), which synthesized the results of 110 experimental articles published from 1993

to 2013, the mean effect size of applying mobile devices (especially the handhelds) to education was estimated at a moderate level (0.523) indicating a moderate effect.

While these are the desired results from mobile learning, not every attempt with mobile learning can be successful. One reason for mobile learning to be ineffective in education is the insufficient integration of mobile devices into learning environments (Baran, 2014) or the financial and technological challenges which are likely to be resolved in the future (Burston, 2014). Ismail, Azizan, and Azman (2013) also accuse the prohibition of smartphones in schools to be a barrier for teachers to integrate these devices into their teaching strategies. As another barrier, Şad and Göktaş (2014) refer the students' ICT illiteracy causing anxiety during mobile learning and distraction caused by the mobile phones during the classes. Actually, lack of attention, distraction and waste of time are among the most commonly referred adverse effects of smartphones in education (Biçen & Kocakoyun, 2013; Gheytasi et al., 2015; Ugur & Koc, 2015). For example, Ugur and Koc (2015) pointed out that 98% of students felt distracted when using their mobile devices in the classroom. Moreover, using mobile devices without Internet (Şad & Göktaş, 2014) or having many users on the same network (Hashemi et. al., 2011) can also cause instability of connection during mobile learning. Moreover, mobile devices can quickly become out of date, new models with updated features can be introduced soon and the prices can often be unaffordable (Hashemi, Azizinezhad, Najafi, & Nesari, 2011; Öz, 2014). That being the case, sometimes despite all the help and advantages mobile devices provide, these limitations can make mobile devices not helpful, but even detrimental in learning. In their research, Gheytasi et. al. (2015) found out that 86% of the participants stated that the adverse effects of their mobile phones are more than the advantages they provide.

MALL (Mobile Assisted Language Learning)

Their ubiquitous nature makes mobile phones and smartphones widely used mobile learning tools in education, including foreign language learning (Klimova, 2018). With the wide use of mobile devices in EFL (English as a foreign language) classes, a new and more specialized form of m-learning called Mobile Assisted Language Learning (MALL) has emerged. MALL is a method of language learning and teaching using smartphones and applications (Burston, 2014; Chinnery, 2006; Rodriguez, Jorge, & Cristina, 2013). Although MALL can be perceived as another form of computer-assisted language learning (CALL) there are considerable differences between them (Kukulska-Hulme, 2018). Previous

studies have shown (Chinnery, 2006; Duman et al., 2015; Kukulska-Hulme & Shield, 2008) that MALL's flexibility and easy access anywhere anytime makes learning continue even after class, but what makes it different from mobile learning or CALL is that it gives students the chance to engage in language learning in their everyday social environment, practice manageable chunks easily, use expressions for their daily communicative and cultural needs and get immediate and motivating reactions from peers and tutors. In MALL, mobile devices are used to provide users with more immediate access to the Internet and a variety of applications enabling language learners to enjoy more attractive alternatives such as listening to radio on the way, playing language games in a queue, reading blog posts on holiday, or watching foreign movies while traveling (Kukulska-Hulme, 2018).

MALL can unprecedentedly contribute to language learning thanks to its seamless nature (Botero, Questier, & Zhu, 2019). Today language education does not only occur in the classroom and should not stop after the learners leave the classroom (Sarica & Cavus, 2009). Smartphone applications may even turn a workplace into an effective language learning environment (Komppa & Kotilainen, 2018). MALL is being enhanced as more and more smartphone applications are launched (Troussas, Krouska, & Virvou, 2017). Among those instruments or features researchers have used in studies examining MALL are smartphone applications (e.g., WeChat, WhatsApp, Padlets, Duolingo), voice messaging and audiobooks (Han & Keskin, 2016; Loewen et al., 2019; Reinders & Cho, 2010; Shi, Luo, & He, 2017; Xu & Peng, 2017). Wong et al. (2012) and Wong (2013), for example, asked primary school students to use their smartphones to take photos of the real-life contexts, describe the photos with sentences using idioms or conjunctions, and post them onto a wiki space for peer reviews for vocabulary teaching purposes. Similarly, Foomani and Hedayati (2016) had a group of Iranian language students use their smartphones to take photos and create artifacts to represent English idioms and share them on Padlets with their peers for discussion and feedback purposes. Hu (2013) also suggested that profound understanding of the idioms can be achieved through rapid artifact revision and interaction with a blended use of mobile phones and Web 2.0 technologies. Alemi et al. (2012) used short message service on mobile phones to send the definitions of English words with example sentences on a regular basis two times a week to students to enhance learning and retaining vocabularies in their long-term memory. Troussas et al. (2017) designed an interactive ChatterBot application to practice English conversation tasks to boost or even evaluate learners' vocabulary. Lan and Lin (2016) designed a mobile assisted language platform on learners'

smartphones to provide timely support in real-world communications and to record and share learners' experiences with their peers using the functions of location-based-service and quick response (QR) code in order to improve learners' oral pragmatic communication competence, i.e., "the ability to use language appropriately in different social situations." (p.335). Wang (2014) used a variety of mobile apps such as Facebook, LINE, WeChat, Skype and Google + Hangouts on smartphones of 55 undergraduate students to enhance e-cooperative learning in a speech and debate course. To teach Nigerian secondary school students English, Ogunduyile (2013) used mobile and digital media tools including chat apps, blogs, and social media platforms, audio records, mobile chat applications, and SMS-ing for communicating questions and instructions. In an early study, when smartphones, were not used as extensively as they are used today, Şad (2008) recommended the use of mobile phones to develop inherently interesting and motivating video-projects (e.g., a short film, a documentary, an instructional video, or a commercial) to improve students' speaking skills with authentic communicative language tasks. Andujar (2016) used mobile instant messaging feature of smartphones to support and maintain communication out of class on a daily basis to improve English writing skills of Spanish university students in terms of grammatical, lexical and mechanical accuracy, and syntactic complexity.

Thanks to these innovative applications and methods used on smartphones, MALL has become a very useful method as it provides both students and teachers with rich language learning experiences (Chen et al., 2012; Kiernan & Aizawa, 2004; Kukulska-Hulme & Traxler, 2005; Kukulska-Hulme & Shield, 2008). Moreover, researchers report favorable outcomes of mobile assisted language learning. Shi et al. (2017), for example, found that when evaluating their mobile assisted language learning experiences students were motivated to speak in foreign language, felt more comfortable and learned more with the MALL method. Loewen et al. (2019) found that university students showed improvement on learning Turkish as a second language and had positive learning experiences thanks to the flexibility and gamification aspects of Duolingo used as a mobile assisted language learning tool. Foomani and Hedayati (2016) also praised mobile-assisted language learning potential of smartphones to support greater learner autonomy among language learners. Troussas et al. (2017) reported that English conversation tasks on mobile phones fostered learners' motivation and engagement, incremented crucial language learning and assisted in the acquisition of cognitive skills.

Kukulska-Hulme and Traxler (2005) state that user experience in mobile learning is highly subjective and dependent on users' expectations, which in turn are shaped by their age, education, cultural background, gender

and many other factors. Due to its multifaceted nature, effectiveness of MALL also should be investigated considering relevant variables such as students' gender and their field of study. With the rapid development of computer and mobile technologies, students can find and use plenty of mobile apps and tools for learning. However, students' acceptance levels of this tools (Abu-Al-Aish & Love, 2013) are very important, since students' acceptance of mobile devices is critical in terms of integration of these devices into their education (Botero et al., 2018). Considering the vital importance of motivation and will in learning a second language (Lennartsson, 2008), the effect of students' gender and field of study on their motivation and acceptance to use mobile technologies for language learning becomes an important issue. Gender is an important and interest-arousing issue in language learning (Gee & Lee, 2016; Kobayashi, 2002). However, it has been under-researched in the context of technology-mediated learning environments (Gee & Lee, 2016) and the connection between gender and language learning is still elusive (Norton & Pavlenko, 2004). Although some research results indicate that females are more intrinsically motivated to learn English since they consider it as a means of empowerment (Norton & Pavlenko, 2004), there are no consistent gender differences in learning preferences of males and females for different kinds of educational technologies such as smartphones (as cited in Gee & Lee, 2016). For instance, Ahn (2018) reported that women perceive smartphone apps significantly more convenient for learning language, while men perceive them significantly more enjoyable. In terms of field of study, Thongsri, Shen, and Yukun (2019) found that students from science, technology, engineering and math departments (STEM) get higher language learning and satisfaction scores compared to the students of other departments. They suggested that STEM students generally have technological skills acquired during their previous educational experiences and therefore they are likely to have higher self-efficacy towards computers, mobile and/or smartphones compared to their non-STEM counterparts. Also, Ahn (2018) found that, compared to non-English majors, students from English-related majors have higher level of technology acceptance in terms of using smartphone apps for English language learning. Therefore, more research needs to be conducted on the role of gender and field of study in terms of language learning through mobile devices.

Purpose

The purpose of this paper is to investigate the views of students attending the first-year preparation classes at two universities located in the eastern part of Turkey, on using their smartphones in learning English

as a foreign language. With this main purpose we tried to answer the following research questions:

1. What are the views of English preparatory school students about using smartphones in language learning?
2. Is there a statistically significant difference between English preparatory school students' views on smartphone use in language learning in terms of their gender, department/program and type of Internet connection (cellular, Wi-Fi or mixed)?
3. Is there a statistically significant correlation between English preparatory school students' views on smartphone use in language learning and average daily time they spend online?

Material and method

Design

This study is based on a survey design followed up by an associational research model. While the survey designs aim to define participants' views, attitudes, skills etc., the associational researches are intended to study the correlations and connections between variables (Büyüköztürk, Çakmak, Akgün, Karadeniz, & Demirel, 2008; Fraenkel, Wallen, & Hyun, 2012).

Study group

Data were collected from the 428 freshmen attending the English preparation programs at Schools of Foreign Languages in İnönü University and Fırat University during the spring semester of the 2017-2018 academic year. Both universities offer compulsory and optional English Preparation education to all freshmen for about 24 hours a week and 740 hours a year. This policy of both universities to provide one year of intensive English teaching program for the freshmen was the main reason for our strategy to choose preparatory school students as the study group. It is believed that as the participants are exposed to a very intensive schedule of foreign language learning program, they can provide us more reliable and rich data regarding the research questions based on their experiences. All the students enrolled in English Preparation Program are required to take the placement test at the beginning of the year and placed to either A1 or A2 level classes with no regards to their departments. Students who are above these levels are accepted to their departments and do not have to study at the English Preparation Program. After being placed to the appropriate level students receive

Table 1. Demographics about the participants.

Variable	Group	N	%
Gender	Male	220	51.4
	Female	208	48.6
	Total	428	100
Department/ program	Philosophy	42	9.81
	Engineering	176	41.12
	Business Administration	133	31.07
	Molecular Biology and Genetics	36	8.41
	Medical School	20	4.67
	English Language and Literature	21	4.91
	Total	428	100
Total	Wi-Fi	86	20.09
	Mobile data	98	22.89
	Both (mixed)	240	56.07
	Total	424	100
Average time spent online a day (hours)	N= 413 (not all participants answered the question); $\bar{X}$ = 5.64; S = 4.37; Min.-Max.=0-12		

Main Course, Listening & Speaking and Reading & Writing classes in their level. Demographic information about the participating students are given below.

As seen in Table 1, almost half (51.4%; N = 220) of the participants were male and the remaining (48.6%; N = 208) were females. Students from different departments study English for one year at the preparation program either obligatorily or voluntarily before they start studying at their own departments/programs. The main criteria for participating the survey were to possess a smartphone and being voluntary to take part in this research.

Data collection and analysis

The data were collected using "*Smartphone Use in Learning Foreign Language Scale*" originally developed by Şad and Yakar (2017). The scale consisted of 21 items. This five-point (Always-Never) Likert scale aims at measuring the university students' views about using smartphones particularly in language learning, and smartphones' negative effects on language learning. The scale has four subscales including *General Contribution*, *Reading & Writing*, *Listening & Speaking*, and *Adverse Effects*. The exploratory factor analysis results showed that all items in the scale accounted for about 55% of the total variance with factor loadings ranging between ".837" and ".516", and communalities ranging between ".373" and ".709". The Cronbach Alpha internal consistency coefficients were ".817" for Adverse Effects subscale; ".808" for General Contribution subscale; ".786" for Reading & Writing subscale; and ".680" for Listening & Speaking subscale. These figures proved that the scale met the optimum criteria for validity and reliability (Şad & Yakar, 2017). The "*Adverse Effects*" subscale measures students' views on negative

effects of smartphones on their language learning process (e.g., "*I have difficulty in focusing on my English classes because of my smartphone.*". The "General Contribution" subscale measures how often students use their smartphones to perform general language learning activities especially via apps or websites formally designed for language learning purposes (e.g., "*I download and use English learning applications on my smartphone.*"). Other two sub-scales, "Reading & Writing" and "Listening & Speaking", measure how often students benefit from smartphones to practice four language skills extensively or informally (e.g., "*I read English e-books on my smartphone.*" and "*I watch videos in English on my smartphone.*"). The Cronbach Alpha coefficients calculated for the data set collected from 428 students in the present study were found ".804" for Adverse Effects subscale; ".804" for General Contribution subscale; ".792" for Reading & Writing subscale; and ".690" for Listening & Speaking subscale, which also indicates adequate proof of reliability. The results about the first research question were presented using descriptive statistics (f and %) for each item in the scale. Since the univariate normality assumptions were met, the group means were compared using independent *t* test and one-way Anova tests to answer the second research question, while the correlations were tested using Pearson analysis for the third research question. The significance level was set to $p<.05$.

Results

Preparatory school students' views on smartphone use in EFL

In this research, we first investigated freshmen's frequency of smartphone use in favor of or against learning English as a foreign language. Results of descriptive analysis of students' views about using mobile phones for language learning purposes are presented in Table 2.

As it is seen in Table 2, in terms of General Contribution subscale, which included language learning activities formally designed for language learning purposes, it was found that 30.8% (f = 132) of the students stated that they *always* do English vocabulary activities on their smartphones, whereas 21% (f = 90) of them stated they *never* do activities on English learning websites on their smartphones. For the Reading & Writing subscale, which is characterized with extensive and informal activities, it was found that 77.8% (f = 333) of the students *never* blog in English, 65% (f = 278) *never* comment on English websites, 64.7% (f = 277) *never* read English e-books, 46% (f = 197) *never* read English content on international forums through their smartphones. These results suggest that participating students do not prefer engaging in

Table 2. Preparatory school students' views on using smartphone in learning English as a foreign language (N = 428).

	Never		Rarely		Sometimes		Often		Always	
Items/Subscale	f	%	f	%	f	%	f	%	f	%
General Contribution										
1. I download and use English learning applications on my smartphone.	38	8.9	64	15.0	130	30.4	105	24.5	91	21.3
2. I do activities on English learning websites on my smartphone.	90	21.0	104	24.3	149	34.8	49	11.4	36	8.4
3. I watch English tutorials on my smartphone.	73	17.1	95	22.2	136	31.8	78	18.2	46	10.7
4. I do English vocabulary activities on my smartphone.	33	7.7	70	16.4	102	23.8	91	21.3	132	30.8
5. I do English listening activities on my smartphone.	74	17.3	94	22.0	136	31.8	67	15.7	57	13.3
6. I do English pronunciation activities on my smartphone.	83	19.4	84	19.6	125	29.2	71	16.6	65	15.2
Reading and Writing										
7. I blog in English through my smartphone.	333	77.8	60	14.0	22	5.1	6	1.4	7	1.6
8. I comment on English websites through my smartphone.	278	65.0	72	16.8	42	9.8	19	4.4	17	4.0
9. I read English e-books on my smartphone.	277	64.7	83	19.4	36	8.4	22	5.1	10	2.3
10. I read English content on international forums on my smartphone.	197	46.0	96	22.4	65	15.2	47	11.0	23	5.4
11. I read English news and articles on my smartphone.	170	39.7	114	26.6	70	16.4	49	11.4	25	5.8
Listening and Speaking										
12. I watch videos in English on my smartphone.	26	6.1	60	14.0	180	42.1	101	23.6	61	14.3
13. I listen to English songs on my smartphone.	29	6.8	31	7.2	81	18.9	98	22.9	189	44.2
14. I watch serials, movies, news etc. with subtitles on my smartphone to improve my listening skills.	33	7.7	57	13.3	89	20.8	95	22.2	154	36.0
15. I speak to foreigners in English on social media through my smartphone.	181	42.3	75	17.5	86	20.1	45	10.5	41	9.6
Adverse Effects										
16. I have difficulty in focusing on my English classes because of my smartphone.	185	43.2	110	25.7	71	16.6	36	8.4	26	6.1
17. I can't spare enough time to study English as I can't leave my smartphone.	186	43.5	110	25.7	66	15.4	35	8.2	31	7.2
18. I am distracted in class because of my smartphone.	179	41.8	135	31.5	68	15.9	29	6.8	17	4.0
19. I prefer idling with my smartphone to studying English.	112	26.2	99	23.1	128	29.9	46	10.7	43	10.0
20. I forget English language contents quickly because I can access them easily through my smartphone.	84	19.6	109	25.5	122	28.5	74	17.3	39	9.1
21. Instead of using my own sentences, I prefer using ready contents from Internet.	143	33.4	142	33.2	90	21.0	28	6.5	25	5.8

Table 3. Results of *t*-test comparing students' views in terms of gender.

Subscale	Gender	N	$\bar{X}$	Sd	df	*t*	p	Cohen's d
General Contribution	Male	220	2.91	0.91	426	−2.264	.024*	0.23
	Female	208	3.11	0.86				
Reading & Writing	Male	220	1.90	0.84	425.996	3.561	.000*	0.34
	Female	208	1.63	0.73				
Listening & Speaking	Male	220	3.32	0.92	426	1.014	.311	
	Female	208	3.23	0.86				
Adverse Effects	Male	220	2.27	0.88	426	.104	.918	
	Female	208	2.26	0.83				

*$p < .05$.

English reading and writing activities through their smartphones. As for the Listening & Speaking subscale, which is also characterized with extensive and informal activities, it was determined that 44.2% (f = 189) of the student *always* listen to English songs and 36.0% (f = 154) of them *always* watch serials, movies, news etc. with subtitles while 42.1% (f = 180) *sometimes* watch English videos on their smartphones. However, 42.3% (f = 181) of the students *never* speak to foreigners in English on social media through their smartphones. These results indicate that using smartphones for English speaking and listening activities are most commonly preferred purpose for participating students. Finally, in terms of adverse effects subscale, it was found that 43.5% (f = 186) are *never* able to spare enough time to study English as they cannot leave their smartphones, 43.2% (f = 185) *never* have difficulty in focusing on their English classes and 41.8% (f = 179) of them are *never* distracted in class because of their smartphones. These results suggest that students believe smartphones do not have so much adverse effects on learning English. However, for the item "*I forget English language contents quickly because I can access them easily through my smartphone*" 28.5% (f = 122) participants answered *sometimes* and 17.3% (f = 74) answered *often*. This means that while smartphones do not pose a real threat in the language learning process, easy access to English language content via smartphones sometimes hinders the required cognitive depth which is necessary for long-term retention.

Preparatory school students' views on using mobile phones in EFL in terms of gender

The second aim of this research was to compare EFL students' views on smartphones in terms of gender. Results are given in Table 3.

When both male and female students' views were compared, no significant difference was observed between *Listening & Speaking* ($t_{(426)}$= 1.014, p > .05) and *Adverse Effects* ($t_{(426)}$= .104, p > .05) subscale scores. This suggests that mean scores of both male ($\bar{X}$=3.32) and female

Table 4. Results on students' views about smartphone use in EFL by department/program.

Subscale	Department/program	n	$\bar{X}$	s	df	F	p	Post-Hoc
General Contribution	1. Philosophy	42	2.63	0.90	5	6.909	.000*	3-1
	2. Engineering	176	2.91	0.86	422			3-5
	3. Business Administration	133	3.22	0.86	427			4-1
	4. Molecular Bio. & Genetics	36	3.31	0.93				4-5
	5. Medical School	20	2.40	0.71				
	6. English Language	21	3.24	0.69				
	Total	428	3.01	0.89				
Reading & Writing	1. Philosophy	42	1.57	0.77	5	1.14	.339	
	2. Engineering	176	1.78	0.83	422			
	3. Business Administration	133	1.75	0.77	427			
	4. Molecular Bio. & Genetics	36	1.94	0.87				
	5. Medical School	20	1.82	0.68				
	6. English Language	21	1.94	0.69				
	Total	428	1.77	0.80				
Listening & Speaking	1. Philosophy	42	2.82	0.79	5	3.493	.004*	4-1
	2. Engineering	176	3.27	0.94	422			
	3. Business Administration	133	3.29	0.81	427			
	4. Molecular Bio. & Genetics	36	3.58	0.97				
	5. Medical School	20	3.30	0.74				
	6. English Language	21	3.55	0.95				
	Total	428	3.27	0.89				
Adverse Effects	1. Philosophy	42	2.22	0.86	5	2.15	.059	
	2. Engineering	176	2.26	0.88	422			
	3. Business Administration	133	2.30	0.83	427			
	4. Molecular Bio. & Genetics	36	2.05	0.80				
	5. Medical School	20	2.77	0.89				
	6. English Language	21	2.10	0.70				
	Total	428	2.27	0.85				

*$p < .05$.

($\bar{X}$=3.23) students about using their smartphones to engage in listening and speaking activities are alike. Besides, they have similar views about the adverse effects of smartphone use on language learning ($\bar{X}_{(male)}$=2.27 and $\bar{X}_{(female)}$=2.26). On the contrary, female students ($\bar{X}$=3.11) were found to use their smartphones for formal language learning purposes (e.g., downloading and using English applications, visiting English learning websites, watching English tutorials, engaging in vocabulary and pronunciation activities) statistically significantly more than their male peers ($\bar{X}$=2.91), [$t_{(426)}$= −2.264, p<.05; Cohen d = 0.23]. Similarly, although both groups admitted the limited use of smartphones for reading and writing, male students ($\bar{X}$=1.90) were found to use their smartphones statistically more than female peers ($\bar{X}$=1.63) to engage in informal reading & writing activities in English ($t_{(425.996)}$= 3.548, p < .05; Cohen d = 0.34).

Preparatory school students' views on smartphone use in EFL according to their departments/programs

Next, comparison was made to reveal differences among views of students from different departments/programs performing one-way Anova tests. Results are given in Table 4 below:

Table 5. Correlation between preparatory school students' views on smartphone use to learn EFL and the average time spent online a day.

		General Contribution	Reading & Writing	Listening & Speaking	Adverse Effects
Average time spent online a day (hours)	r	−.091	.033	.143*	.160*
	p	.065	.509	.004	.001
	n	413	413	413	413

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

Interdepartmental comparisons revealed some significant differences among groups between *General Contribution* ($F_{(5;\ 422)}= 6.909$, $p<.05$; $\eta^2=0.076$) and *Listening & Speaking* ($F_{(5;\ 422)}= 3.493$, $p<.05$; $\eta^2=0.04$) subscale scores. On the contrary, no significant difference was detected for Reading & Writing and Adverse Effects subscales ($p> .05$). According to the post-hoc Scheffe test results, both *Business Administration* ($\bar{X}=3.22$) and *Molecular Biology and Genetics* students ($\bar{X}=3.31$) were found to use their smartphones to engage in formal language learning activities statistically more frequently than *Philosophy* ($\bar{X}=2.63$) and *Medical* ($\bar{X}=2.40$) students. Likewise, *Molecular Biology and Genetics* students ($\bar{X}=3.58$) were found to use their smartphones to engage in informal listening and speaking activities in English statistically more frequently than *Philosophy* students ($\bar{X}=2.82$).

Preparatory school students' views about smartphone use in EFL according to the type of Internet use

Another Anova test was conducted to see whether student views differ significantly according to the type of Internet connection (Wi-Fi, mobile data, or both). The results of the test showed that there is no statistically significant difference between students' views in terms of the type of Internet connection for any of the factors (General Contribution $= F_{(2;\ 423)}= 1.885$, $p>.05$, Reading and Writing $= F_{(2;\ 423)}=.238$, $p>.05$, Listening and Speaking $= F_{(2;\ 423)}=1.598$, $p>.05$, Adverse Effects $= F_{(2;\ 423)}=.661$, $p>.05$).

Correlation between preparatory school student views about smartphone use to learn EFL and the average daily time spent online

Finally, a Pearson correlation analysis was done to test the hypothesis that 'the more students connect online the more frequently they use their smartphones for language learning or the more adversely they are affected'. An initial descriptive analysis of the data based on students' self-reports ($n = 413$) revealed that they are online for "5.64" hours on average a day ($S = 4.37$; min.-max.=0-12). As shown in Table 5 below, statistically significant correlations with small coefficients were found

between average time (hour/day) students spent online and frequency of using smartphones to do English listening and speaking activities ($r = 0.143$, $p < .01$) and frequency of suffering their adverse effects on language learning ($r = 0.160$, $p < .01$). According to these results, as the time students spend online increases, they use their smartphones more frequently to engage in English listening & speaking activities. The estimated effect size ($r^2 = 0.02$) suggests that the time spent online accounts for only about 2% of students' frequency of using their smartphones to do English listening & speaking activities. On the other hand, as the time students spend online increases, they suffer more from the adverse effects of their smartphones (loss of concentration, lack of attention, distraction, waste of time or using their phones for non-educational purposes). The estimated effect size ($r^2 = 0.026$) suggests that the time spent online accounts for only about 3% of the frequency of experiencing adverse effects of smartphones on language learning.

Discussion

Previous studies on mobile learning (Aldhaban, 2012; Baran, 2014; Barry, Murphy, & Drew, 2015; Chung et. al., 2014; Hwang & Wu, 2014; Sung et al., 2016) suggest that there is a need for more research especially on smartphone use in education with different groups and in terms of different variables. More specifically there is a need to investigate the adverse effects of smartphones in educational contexts. As Baran (2014) remarks, the studies often emphasize the positive aspects of smartphone use in education neglecting the adverse effects. In this study, the views of preparatory class students attending İnönü and Fırat Universities on using smartphones in EFL classes were examined with regard to both negative and positive aspects. Thus, it is believed that our study not only offers implications on smartphone use for EFL teachers from similar contexts, it also stands as a resource for future research.

The results of the initial descriptive analyses showed that students use their smartphones mostly to engage in extensive listening and speaking activities rather informally through watching English videos, TV series, movies, news etc. with subtitles or speaking to foreigners in English on social media. The previous research findings also suggest these state-of-the-art mobile devices can and should be best exploited to improve speaking and listening skills. For example, Gromik (2012) found the positive effect of student-made video recordings with mobile devices on learners' confidence in speaking a foreign language. Xu and Peng (2017) also reported favorable results about the facilitative role of feedback via a mobile-assisted application (WeChat) in enhancing learners' speaking

ability. Likewise, Shi et al. (2017) reported that text and voice messaging was an interesting and motivating mobile-assisted language learning activity for learners. Reinders and Cho (2010) advocated the use of audiobooks on mobile phones as an extensive listening activity for students not good at listening and speaking. From a different perspective, Han and Keskin (2016) also reported the positive impact of using a smartphone application (WhatsApp) to reduce speaking anxiety in EFL classes and to enhance language achievement. Thus, in this context, in order to take advantage of students' intrinsic motivation, teachers can plan structured extensive listening or speaking activities using a collection of listening materials on certain websites or speaking tasks on social media. This way, learners' extra efforts to watch English videos, TV series, movies, news, or communicating with foreigners trough their smartphones can become part of the class and get aligned to the lesson objectives better.

Results also showed that participants occasionally use their smartphones to improve their English skills in general via apps or websites formally designed for language learning purposes, i.e., using English learning applications, doing activities on websites, watching English tutorials, and doing vocabulary and pronunciation activities. These activities are also commonly performed by learners of different levels and age groups on mobile devices, yielding positive outcomes in terms of language learning. Hassan Taj, Ali, Sipra, and Ahmad (2017), for example, tested the effect of vocabulary card activity on WhatsApp upon vocabulary acquisition and found increased learning performance. Yaman, Şenel and Yeşilel (2015) also found that students mostly agree with the general contributions of smartphones to their language learning process. These findings suggest that multimedia features make smartphones tailor-made tools for learners to practice a foreign language grammar, vocabulary, and pronunciation by taking online tests, accessing study sheets, watching tutorials or simply using language learning apps.

With regard to reading and writing skills, participants were found to *hardly* use their smartphones to engage in rather informal reading and writing activities such as reading English e-books, blogging in English, commenting on English websites, reading on international forums or reading English news and articles. Although mobile devices offer a more light-weight, accessible and economic tool for reading (Franklin, 2011), it is surprising that participants rarely or never use their smartphones for reading purposes, which might be because of the small screen size. Bromley (2012) suggests that using smartphones can motivate, scaffold comprehension and cooperate with others in ways that allow deep and thoughtful reading. Smartphones with Internet access can provide

innovative and unprecedented ways to improve reading and writing. For example, in their experimental research Chen, Teng, and Lee (2011) adopted QR codes using mobile technology to deliver supplementary materials and questions to support students' reading. In another study, Rashid, Cunningham, and Watson (2017) asked the learners to complete writing tasks on blogs using smartphones, which promoted self-confidence among learners and enhanced interaction with the teacher and peers. Chen, Carger, and Smith (2017) also found that the use of this mobile technology enhanced the learning motivation and quality of narrative writing abilities of the young learners. In order to encourage the students to use their smartphones, structured intensive (e.g., a task-based reading activity or digital story writing during class) and extensive (e.g., assigning a long-term webquest project and regularly reporting on a social media platform like WhatsApp) reading and writing activities can be developed. Şad (2008), for example, offers two practical text messaging activities students can do in and out of class, i.e., chain reaction to practice "if clause" and chain story as a creative cooperative free writing activity. Likewise, teachers can use students' smartphones to plan structured classroom-based activities including task-based reading, digital story writing based on emojis as a creative cooperative free writing activity.

When it comes to the hostile role of smartphones, the participants were found to believe that in general smartphones scarcely have adverse effects on learning English. However, students were rather negative about smartphones only for one item (e.g., "*I forget English language contents quickly because I can access them easily through my smartphone.*"). This means that while smartphones do not pose a great threat to the language learning process, easy access to English language content via smartphones sometimes prevents the learners from achieving the degree of cognitive depth necessary for long-term retention. This kind of "easy come, easy go" complaint by students seems to contradict Hwang and Wu (2014) point that the rich information from both the real world and the digital world causes an increase of cognitive load. On the other hand, overall findings about the adverse effects of smartphones suggest that participants do not suffer from such issues as loss of concentration, lack of attention, distraction, waste of time or using their phones for non-educational purposes, which are listed in the literature (Biçen & Kocakoyun, 2013; Dewitt & Siraj, 2010; Gheytasi et. al., 2015; Hwang & Wu, 2014; Şad, Göktaş, & Ebner, 2016; Ugur & Koc, 2015) as most common negative effects of mobile devices on learning.

Findings regarding the gender of the participants revealed that both male and female students' views about using smartphones for English listening and speaking activities were alike. Also, both men and women

agreed similarly that smartphones do not have so much adverse effects on language learning. This result mirrors the findings of a study by Barry et. al. (2015) who found an insignificant difference between male and female students' answer to a question about the concentration reducing effect of mobile devices. However, in the present study female students were found to use their smartphones to do general language learning activities (e.g., using English learning applications, doing activities on websites, watching English tutorials, and doing vocabulary and pronunciation activities) significantly more than their male peers. Unlike this finding, Abbasi and Hashemi (2013) found that no significant gender difference in terms of learning vocabulary through mobile phones. And lastly, though performed rarely by both genders, male students were found to use their smartphones significantly more than female peers for English reading and writing activities such as reading online articles, news, blogging, commenting on social media and participating online discussion forums. Thus it seems that gender is one of the factors that influence users' preference of smartphone use while learning a language. Considering the formal nature of activities in the "*General Contribution*" subscale versus the informal nature of activities in the "*Reading & Writing*" subscale, this finding seems to support the idea that female students use their smartphones to engage in formal language learning environments/activities, while male students tend to use their smartphones more to engage in environments/activities of their choosing. While this can be simply regarded as a matter of Internet use preferences of young men and women, this finding has potentially important implications for educators in how they plan formal and informal language learning environments or activities. For example, in the present context female students can be encouraged to engage in language learning environments or activities via apps or websites formally designed for language learning purposes. Likewise, male students can be instructed to practice informal or extensive language learning activities using their smartphones preferably in line with lesson objectives.

There are studies that investigated smartphones either in language learning in particular (Chung et. al., 2014) or in a more general educational context (Yıldırım et. al., 2016), focusing on different levels of education such as elementary, secondary, or tertiary. However, there are limited studies (Ahn, 2018; Thongsri et al., 2019) on the role of majors or fields of study on using mobile technologies for language learning. In our study, *Business Administration* and *Molecular Biology and Genetics* students were found to use their smartphones to engage in rather formal English activities (e.g., using English learning applications, doing activities on websites, watching English tutorials, and doing vocabulary and

pronunciation activities) statistically more frequently than *Philosophy* and *Medical* students. Likewise, *Molecular Biology and Genetics* students were found to use their smartphones to engage in English listening and speaking activities statistically more frequently than *Philosophy* students. This finding concurs with partially with the findings of Thongsri et al. (2019) who found students from STEM-related majors (science, technology, engineering and math) have higher satisfaction regarding mobile assisted language learning. These findings regarding majors suggest that it is important to design and employ different mobile language learning activities with specific content or purposes appropriate for individuals with different professional interests. Thus, it is expected that designing mobile-phone activities considering students' majors would allow students from different departments to benefit more from their smartphones for language learning purposes. Comparing smartphones' effects in language learning among different departments stands out as a genuine aspect of this study which might inspire researchers in their future studies and teachers in their course plans.

In the present study we further investigated the frequency of smartphone usage and found that participants spend 5,64 hours online on average per day, which is can be regarded as a long time. This finding is in line with some previous research findings. For example, Tantarangsee, Kosarussawadee, and Sukwises (2017) reported that university students spend an average of 6-8 hours a day including activities like watching cartoons in English on websites, using online dictionary to solve linguistic problems, reading comments in English from online blogs or forums for pleasure, and watching online entertainment and documentaries in English. Biçen and Karakoyun (2013) also stated that students use their smartphones very often (31 times a day). In another study Gheytasi et al. (2015) also reported that students using smartphones for more than two hours a day were in the majority (87.0%). Although it does not have a large effect size, a positive correlation was found between the time students spend online and their use of smartphones to engage in English listening & speaking activities. On the contrary, a positive correlation between the time students spend online and frequency of suffering from the adverse effects of smartphones was also found. This result suggests that the more time students spend online, the more they suffer from the adverse effects of their smartphones. Thus it can be implied that not the quantity but the quality of the time spent with the smartphones matters in terms of language learning. As recommended by Shadiev, Liu, and Hwang (2020) teachers may give a collection of suggested language learning websites or apps to ensure that students get the most benefit in terms of language learning.

Implications and recommendations

This paper aimed to investigate the views of freshmen on using their smartphones in learning English as a foreign language. The research was not only limited to the positive effects of smartphones but also looked into the adverse effects of smartphones as well as the relations between different variables. One of the main results of this paper was that although there have been many studies suggesting smartphones are beneficial to use in classrooms, they might negatively affect learning/teaching process if their integration is not carefully planned. Smartphones make it possible for learners to access thousands of multimedia content anywhere and anytime. Considering the vastness of these available content and capabilities, practitioners are highly encouraged to develop and use effective strategies and tools such as "problem-based learning guidance, knowledge construction tools (e.g., concept maps), issue-based discussions, collaborative learning, enquiry-based learning design, project-based learning activities, peer assessment strategy and digital storytelling" (as cited in Hwang & Wu, 2014, p. 91-92). For example, language teachers can use smartphones to plan structured classroom-based activities including task-based reading, digital story writing based on emojis as a creative cooperative free writing activity, practicing or assessing foreign language grammar, vocabulary, pronunciations, text or voice messaging across students. Likewise, teachers can teach or assign learners some extensive language learning strategies such as doing a long-term webquest project, watching a popular TV series or movie to write a critic, and publishing a school newspaper on Internet, or writing on blogs etc. This way, teachers can take advantage of students' intrinsic motivation and learners' extra-curricular efforts to learn English can become part of the curriculum and get aligned to the lesson objectives better.

The findings about limited use of reading & writing activities through smartphones, the difference between males and females and departments are expected to be an inspiration for future studies. Moreover, considering the finding that as the time spent online increases both the time spent for listening & speaking activities and the adverse effects of smartphones increase, possible future research may explore what kind of favorable strategies can be taught to students to benefit more from educational functions of smartphones avoiding the possible adverse effects.

Limitations

This research was mainly based on data collected through learners' self-reports. However, the impact of smartphones could have been tested better through an experimental research. Also collecting quantitative data

alone has limited the research in general and the discussion of the findings. Moreover, the sample of this research comes from two universities located in the same region, which also limits the external validity of the research.

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1. The findings of the research were presented as an oral paper at ECER2018, held on 04-07 Sep 2018 in Bolzano, Italy.

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