

## **Syrian Refugees' Acceptance and Use of Mobile Learning Tools During the Covid-19 Pandemic**

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### **Abstract**

Mobile learning, which is widely used in educational settings during the Covid-19 pandemic, will continue playing a critical role in learning environments in the future. Since the successful implementation of mobile learning in education is largely based on users' acceptance of these technologies, it is essential to understand the factors affecting learners' acceptance of mobile devices as learning tools. This study investigated Syrian adult refugees' acceptance and use of mobile learning tools. The results revealed that Syrian adult refugees were positive about using mobile devices in learning Turkish as a second/foreign language, and there exists a concrete and significant correlation among all the constructs of the mobile learning tools acceptance like Perceived Ease of Use, Contribution to Foreign Language Learning, Negative Perceptions, and Voluntariness of Use. Factors affecting mobile learning acceptance was also investigated in the study, and the results indicated significant differences among the refugees regarding their characteristics such as age, gender, level of education. The results also revealed that while the refugees did better in the tests over time, mobile learning acceptance had no significant effect on foreign language achievement. Depending on these results, it can be suggested that mobile devices should be integrated into the education system as a component of the curriculum.

**Keywords:** Mobile learning tools acceptance, refugees, Covid-19 pandemic, Turkish as a second/foreign language

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## Introduction

Because of the demands of the 21<sup>st</sup> century, radical changes have occurred in learning environments; the classrooms are being flipped, constructivist approach is used in teaching, authentic and personalized learning is preferred by the students, and the role of teachers is largely to facilitate learning rather than to convey information. It is essential for educators to keep up with these changing trends so that education is on the leading edge. In learner-centered environments, where the teacher is not the focus of the learning process, ample opportunities are provided for obtaining, transferring and constructing new information for learning purposes moving it away from the one-size-fits-all approach inherent in traditional learning (Cardullo et al., 2015, p. 12).

One common feature in all classroom settings is the variety of learning levels and needs among students. Therefore, it is crucial to determine the best ways to meet the needs of all learners and differentiate instruction to ensure that all learners are challenged adequately and appropriately in their learning. In this context, the following principals can be listed as the key for effective instruction (Smaldino et al., 2014, pp. 37-38):

- Assessing prior knowledge
- Considering individual differences
- Stating objectives
- Developing metacognitive skills
- Providing social interaction
- Incorporating realistic (real life) contexts
- Engaging students in relevant practice
- Offering frequent, timely, and constructive feedback

Accelerated societal changes are driving students' preferences on how and what they learn, and when they learn as well (Cardullo et al., 2015, p. 11). In the past, students would spend more time at schools, libraries and conference halls. However, it is clearly seen that the components of traditional learning can no longer satisfy the needs of today's generation. With the introduction of technology, learning environments are much different today. Especially after the 2000s, the tendency of people not to stay long in the same location, in other words to be mobile, has completely changed our lifestyle with the effect of developing mobile technologies. Today, we are in the time where mobile devices such as laptops, tablet PCs and smartphones are common learning tools in classrooms, and videoconferencing systems, social networking sites, digital libraries, learning management

systems are standard learning environments in educational settings. Due to the influence of this paradigm shift, there is a strong need for educators to be aware of learners' attitudes towards learning, their needs and preferences.

In today's information age, digital natives do not learn in isolation that they engage in multitasking and view information in a broad and networked format (Smaldino et al., 2014, p. 32). They are keen on taking advantage, to the utmost, of technologies in their learning process. The most important criterion for them is that they find the learning method to be applied meaningful and worth spending time, and they use technology.

### **Mobile Learning**

A paradigm shift in education is brought about by the ubiquity of mobile devices. Among all age groups the use of mobile devices has rapidly increased, and mobile learning (m-learning) has ranked top in the list of popular approaches in education. The availability of mobile devices to many of us already and our life becoming more and more dependent on them makes the usefulness of these devices as effective learning tools indisputable and with the use of these technologies in education, students with diverse learning styles can be incorporated into educational settings.

There are many definitions of mobile learning in the literature emphasizing that learning takes place or is supported by means of mobile technologies such as tablet PCs, laptops, PDAs and smartphones. There also are definitions focusing purely on the mobility of the devices (Traxler, 2007, p. 4). In the early 2000s, researchers agreed that the basic premise of mobile learning involved e-learning that use mobile devices and wireless transmission. A few years later, m-learning was asserted to be basically a more transportable version of e-learning (Stevens & Kitchenham, 2011, p. 2). However, mobile learning is not simple but a complex process which involves the mobility of the technology, the mobility of the learner and the mobility of the information (Pachler et al., 2010, p. 6).

The primary focus of mobile learning is not merely related to the acquisition of knowledge through mobile devices, but we have to consider it as a means to support meaning-making part of the learning process and help learners shape their knowledge. From this aspect, mobile learning is not simply using technology and delivering content with mobile devices. Instead, it is about learning and operating in new and ever-changing contexts and also being able to utilize our everyday life-worlds as learning spaces (Pachler et al., 2010, p. 6). In order for the individuals to achieve learning outcomes, it needs to be ensured that technology is an integral part of the curriculum with clear goals and alignment across content; and teachers must be metacognitive in their instruction where they coordinate their technological, pedagogical, content knowledge to engage students and foster ubiquitous learning (Cardullo et al., 2015, p. 10).

While many view mobile devices as a factor driving disruption in the classroom, an abundance of evidence from research suggests the idiosyncratic features of these devices have clearly consolidated its role in education. Mobile devices have become an essential component of the learning process as they gain popularity among all age groups. They have the potential to extend interaction beyond classroom, enhance individualized and self-directed learning, and encourage the active participation of learners in the learning process.

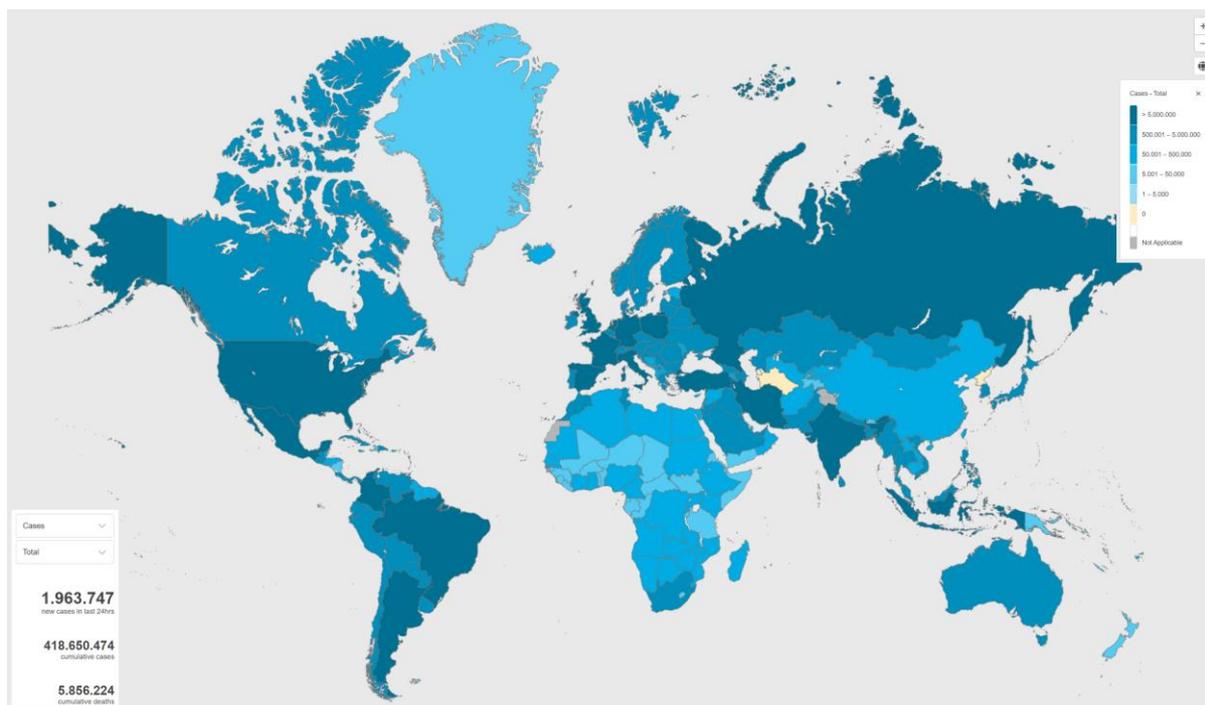
Donohue and Crosby (2013, p. 211) highlights the unique powers of mobile learning as the instant access to the world, encouraging student enjoyment and developing personal responsibility for learning, and integrating Web 3.0 technology to learning where the device performs decision-making about the content to push to the learner. It is another remarkable feature of m-learning that learners can combine the school content with real-life experiences. They move seamlessly across different settings and connect up learning in different locations. Taking this advantage of mobile technologies, learners are able to engage in situated learning and make use of context-specific resources (Kumar Mishra, 2015, p. 226). From this perspective, the mobile component lets learners inquire and process their learning as needed, and therefore facilitates natural learning in real time (Donohue & Crosby, 2013, p. 211).

Noticeably, the field of language learning has been attracted by the popularity of mobile devices. By means of these tools, a variety of cultural resources, content and functionalities are available to users, which is significant in language learning. The communicative potential of mobile devices is also important in learning languages as it enables users to interact with themselves, with others and with their environment (Pachler, 2010, p. 5). Concerning the benefits of using mobile in language learning, Djoub (2015, p. 194) claims that the use of mobile devices promises learners' engagement with learning and they facilitate learners' collaboration and participation via social networks. However, merely including mobile devices and various applications in education doesn't guarantee maximizing language learning. The way these devices are integrated in the course and the objective of their use remain crucial issues for educators to consider (Djoub, 2015, p. 195). The teachers should be active users of these technologies and be aware of the strengths and limitations of them as well. To this end, there is a constantly emerging need to investigate how to integrate mobile technologies into language learning and how learners react to it.

Widespread ownership of mobile devices among students and teachers and the growing functionalities of these devices create unique opportunities for using them to support teaching and learning during the Covid-19 pandemic.

### Covid-19 Pandemic and the Educational Practices

Maps have so far been the sources that people have tried to understand the world from the political, physical and economic aspects, and we have followed the developments throughout history through such maps. However, since the Covid-19 outbreak, which has seriously affected human life all over the world for more than two years, we have woken up to the new day with a map updated every day, and this is unfortunately the outbreak world map. This map of the World Health Organization highlights the countries affected by the coronavirus, the number of confirmed cases and unfortunately the deaths.<sup>1</sup>

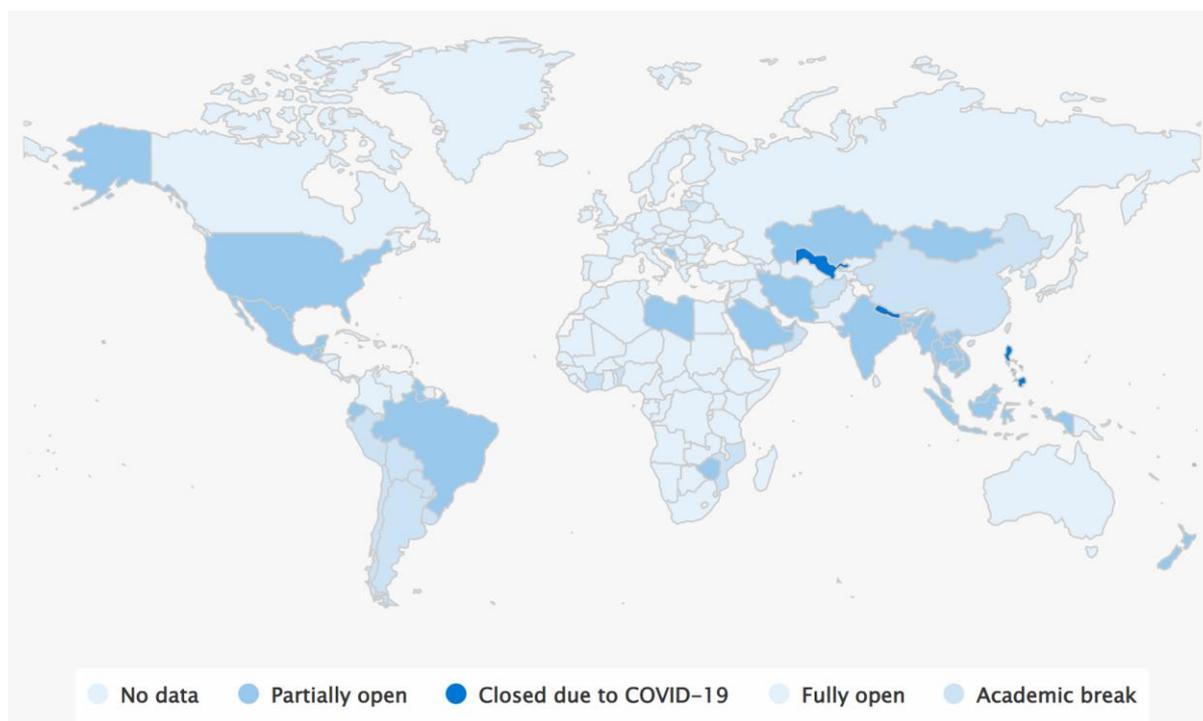


**Figure 1:** WHO Covid-19 dashboard

Assessing the situation on our side, a similar map of this is also found in the field of education. The following map shows the school closures caused by Covid-19, and the number of the affected learners around the world.<sup>2</sup>

<sup>1</sup> Retrieved on February 18, 2022 from <https://covid19.who.int/>

<sup>2</sup> Retrieved on February 18, 2022 from <https://en.unesco.org/covid19/educationresponse>



**Figure 2:** Covid-19 Impact on education

Since the World Health Organization declared the coronavirus outbreak a pandemic on March 11, 2020 (WHO, 2020), official records have shown that the education systems of 191 countries have been affected by the situation. Most governments around the world have temporarily closed schools nationwide and face-to-face education was suspended in an attempt to prevent the spread of the pandemic.

Throughout the period, many countries have taken preventive measures to get through the crisis with minimal damage and have continued their instructional activities through distance education. As of today, it is stated that schools in 6 countries are still closed and 43,518,726 students are negatively affected by the coronavirus outbreak (UNESCO, 2022). Under the measures taken; primary schools, secondary schools, high schools, and universities in Turkey have been implementing distance education since March 20, 2020.

### **The Case for Syrian Refugees**

The European Union (EU) and United Nations Development Programme (UNDP) collaborate in contributing to the economic and social resilience of Syrians displaced due to the Syrian crisis and now living in Turkey. To this end, several resilience projects have been initiated since the refugee influx to Turkey. “The Support for School Enrolment (SSE) programme” is a partnership between

UNICEF, the Ministry of National Education (MoNE) and ASAM, and enables out-of-school refugee children in Turkey to access formal and non-formal education opportunities.<sup>1</sup>

“Qudra 2 - Resilience for refugees, IDPs, returnees and host communities in response to the protracted Syrian and Iraqi crises” supports children and youth who cannot easily access education to develop their potential, which will contribute to a secure, stable and prosperous future for the region.<sup>2</sup> However, the Covid-19 pandemic severely disrupted the education and some trainings have shifted online.

“Turkey Resilience Project in Response to the Syria Crisis (TRP) - Turkish Language Training for Adults (TLTA)” began on February 1, 2018. The project, which is one of the best practices in terms of the teaching method used and the number of people participated in the trainings,<sup>3</sup> is implemented by UNDP in collaboration with the General Directorate of Lifelong Learning of the Turkish Ministry of National Education (MoNE - GDLL).<sup>4</sup> The Turkish language trainings are organized in accordance with the four basic language skills of the Common European Framework of References for Languages (CEFR) in a way that Syrian refugees will acquire the necessary language skills to support their integration into the community. For this purpose, tailor made educational content is developed, published and distributed.<sup>5</sup> As for the method, all the courses in the project are taught by using blended learning model, which is a combination of face-to-face learning in-class and online learning methods.<sup>6</sup> With the Covid-19 outbreak, Turkish language trainings for refugees in PECs was suspended by the decision of the Ministry of National Education and online distance education was initiated as in other schools throughout the country as a remedial training for unperformed in-class lessons. This time, Syrian refugees had to continue their education online with the same course content via videoconferencing tools and learning management systems (Türker, 2020, p. 328).

### **Aim of the Study**

Language trainings for adult Syrians under temporary protection in Turkey aim to contribute to their integration into the community. With the coronavirus outbreak, however, distance education is initiated as a method for remedial trainings and the trainees have participated in the synchronous courses using mobile devices such as laptop computers, tablets and smartphones.

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<sup>1</sup> Retrieved on December 1, 2021 from <https://www.unicef.org/turkey/en/support-school-enrolment-sse-programme>

<sup>2</sup> Retrieved on December 1, 2021 from [https://qudra-programme.org/wp-content/uploads/2021/09/qudraii\\_factsheet\\_general\\_website.pdf](https://qudra-programme.org/wp-content/uploads/2021/09/qudraii_factsheet_general_website.pdf)

<sup>3</sup> Retrieved on March 1, 2021 from <https://epale.ec.europa.eu/en/blog/undp-turkey-resilience-project-response-syria-crisis-trp-adult-language-training-blended-2>

<sup>4</sup> Retrieved on March 1, 2021 from <http://www.ytde.info/en/343-2/>

<sup>5</sup> Retrieved on March 1, 2021 from <https://www.avrupa.info.tr/en/project/undp-turkey-resilience-project-response-syria-crisis-trp-7512>

<sup>6</sup> Retrieved on March 1, 2021 from <https://www.tr.undp.org/content/turkey/en/home/presscenter/pressreleases/2017/03/turkey-resilience-project-in-response-to-the-syria-crisis--trp--.html>

There is no doubt that mobile technology plays a major role in distance learning through the Covid-19 pandemic as it makes learning more widely available and accessible than other e-learning tools. This can be proven by the figures. By March 2021, the number of smartphone users in the world is 3.8 billion, which corresponds to 48.41% of the world's population.<sup>1</sup> In total, the number of people who own a mobile phone (smart phone + feature phone) is over 4.8 billion which is 62.17% of the world's population.<sup>2</sup> In this case, the need arises for investigating the strategies, applications, and resources necessary to support mobile learning. The current study aims to find out Syrian refugees' acceptance of mobile learning tools and their Turkish language achievement during the Covid-19 pandemic.

### **Significance of the Study**

In recent years, many refugees from Syria, Iraq, Afghanistan and other nationalities have migrated to Turkey for reasons such as wars, internal conflicts, economic problems, and poor living conditions in their countries. Official figures report the current number of refugees in Turkey as 4 million. This data is positioning Turkey as the country which hosts the largest number of refugees among all the countries in the world.

The language-based problems are the biggest barrier for refugees to living in harmony with the host communities and earning their lives. The same is true for Syrians residing in Turkey that Turkish language training is of utmost importance to them. Hoping a better life in their new country, they learn Turkish as a second language to empower themselves and participate in social life.

Considering that distance education, which has gained importance worldwide with the Covid-19 outbreak, will continue to be implemented from now onward, studies in this field will shed light on the planning of educational activities. As a component of distance learning, it is essential to make the most of mobile learning in teaching foreign languages as in all areas of education.

The results of this study, which examines Syrian adult refugees' acceptance and experiences of mobile learning will contribute to the field by helping teachers and instructional designers increase the effectiveness of mobile language learning environments, determine the problems experienced, and seek permanent solutions to these problems.

### **Literature Review**

Mobile devices have long been claimed to be beneficial learning aids both for native speakers in L1 contexts as well as in foreign/second language learning contexts. Therefore, several research has

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<sup>1</sup> Retrieved on March 8, 2021 from <https://www.statista.com/statistics/330695/number-of-smartphone-users-worldwide/>

<sup>2</sup> Retrieved on March 8, 2021 from <https://www.statista.com/statistics/274774/forecast-of-mobile-phone-users-worldwide/>

been conducted to examine learners' acceptance of mobile learning, which has been a global learning trend especially during the Covid-19 pandemic.

Donaldson (2011) conducted a research to test the determinants of the behavioral intention to use mobile learning and to discover age or gender differences in the acceptance of mobile learning by the community college students. The results indicated that performance expectancy, social influence, perceived playfulness of learning, and voluntariness of use are all significant determinants of behavioral intention to use mobile learning; however, age and gender have no relationship on intended use of mobile learning.

In his study, Nikolopoulou (2018) investigated secondary school students' perceptions regarding mobile device usage and mobile learning acceptance in terms of specific characteristics. The study found significant differences in students' perceptions of mobile learning acceptance in favor of older secondary students, and those frequently go online and have more experience using a mobile device. Gender had no effect on any factor.

Alasmari and Zhang (2019) studied with a total of 1203 college students to examine mobile learning technology acceptance in Saudi Arabian higher education. They found that learning expectancy, effort expectancy, social influence, and characteristics of mobile learning are significant predictors of students' intentions to use mobile learning technologies. Among the characteristics - gender, age, and eLearning experience- of the participants, social influence was found as moderated by gender, where men showed a stronger behavioral intention to use mobile learning technology than women.

An empirical analysis on factors impacting mobile learning acceptance in higher engineering education was carried out by Huang (2014). The results showed that performance expectancy, perceived enjoyment, ubiquity, service quality, attainment value, and self-management of learning are significant predictors of behavioral intention to use mobile learning while facilitating conditions, social influence, effort-expectancy, and self-efficacy were found to be insignificant. In terms of gender, the results signaled a significant difference between females and males' intention to use mobile learning suggesting that females scored higher than the males on the intention to use mobile learning. However, no significant differences were found on students' intention to use mobile learning regarding their age, college level, and years of using mobile devices.

Aiming to determine the factors that significantly influence the acceptance and intent to use mobile devices for learning in university contexts, Aliaño et al. (2019) designed a data collection tool and collected data from 370 university students in Spain. Through the data collected, it was concluded that university students had a high pre-disposition for the use of mobile devices for learning, with a direct relationship with the constructs validated, as well as the demographic variables -age, gender,

degree year and field of knowledge- that could be considered moderating variables of the pre-disposition observed.

Wang et al. (2009) conducted a study with the participation of 330 respondents from five organizations in Taiwan to investigate the determinants of m-learning acceptance and to discover age or gender differences in the acceptance of m-learning. The results revealed that performance expectancy, effort expectancy, social influence, perceived playfulness, and self-management of learning are all significant determinants of behavioral intention to use m-learning. It was also among the results that age differences moderate the effects of effort expectancy and social influence, and that gender differences moderate the effects of social influence and self-management of learning on m-learning use intention.

In an investigation of the factors that influence faculty members' and students' acceptance of mobile learning in online higher education, Marrs (2013) found significant differences among faculty members and students regarding their age, mobile device experience levels, and desired academic uses of mobile devices. The results indicated that younger participants are significantly more positive than older participants and those with more experience and greater abilities to use mobile devices for communicating are more positive than those having less experience. Yet, it was revealed that gender have no significant effects on perceptions of m-learning among faculty members and students.

In the literature, there exists studies carried out with teachers or pre-service teachers. One of these studies was conducted by Pullen et al. (2015). In their study, they used the UTAUT model as a theoretical framework to investigate the factors that influenced Malaysian pre-service teachers' acceptance and use of mobile learning. The results of the study illustrated that performance expectancy, effort expectancy, social influence, attitude toward technology and self efficiently are all significant determinants of behavioral intentions to use mobile devices for learning. However, no significant differences were found in the acceptance of mobile learning based on demographic variables such as age and gender.

In a similar study, Papadakis (2018) examined pre-service teachers' perceptions of the use of mobile devices in the classroom, and age and gender differences on the acceptance of mobile learning. The results indicated that pre-service teachers have positive opinions on the use of mobile devices as learning tools; however, there were no gender and age differences regarding mobile devices acceptance.

Another study was carried out by Al-Hunaiyyan et al. (2017) to examine instructor perceptions of m-learning and social media learning tools, as well as to investigate gender and age differences in the acceptance of m-learning. The study revealed that instructors from different higher

education institutions had moderately positive opinions about m-learning and the findings confirmed significant gender and age differences in instructors' acceptance of m-learning.

## **Method**

### **Research Design**

This study emphasizes the mobile learning experiences of Syrian refugees' residing in Turkey and learning Turkish as a second language during the Covid-19 pandemic. In this context, a cross-sectional survey approach was employed in this quantitative research to examine the associations between refugees' acceptance of mobile learning tools and their Turkish language achievement. Cross-sectional surveys involve observations of a specific population at a single point in time (Babbie, 2017, p. 107; Creswell, 2005, p. 355), which can be very useful for providing one-off information about the attributes of that population (Wyse et al., 2017, p. 399).

The research questions addressed in the study are as follows:

1. What is the level of mobile learning tools acceptance of Syrian refugees?
2. What are the relationships among the constructs of the mobile learning tools acceptance?
3. Is there a significant difference in refugees' acceptance of mobile learning tools with regard to specific characteristics (age, gender, level of education)?
4. What is the level of Turkish language achievement of Syrian refugees?
5. What is the effect of Syrian refugees' acceptance of mobile learning tools on their language achievement?

### **Population and Sample**

With the internal conflicts in their countries turning into a civil war, Syrian refugees who are forced to migrate to Turkey are in need of learning Turkish for different reasons in the process of building a sustainable future in their new countries. Syrian adults residing in Turkey are taught in PECs of their provinces. The population of the research is Syrian adult refugees who learn Turkish as a second language. A cluster sampling technique was employed to select the sample. Cluster sampling, a probability sampling technique, is used where it is very difficult, if not possible, to list all the members of a target population and select the sample from among them. In this sampling technique, researchers divide the population into clusters and a simple random sample among the groups is then selected (Ary et al., 2014, p. 167; Gliner et al., 2017, p. 146; Laher & Botha, 2012, p. 91). In this context, Syrian adult refugees who are taught Turkish online at B2 level in the PECs constitute the sample of the study. Demographic information regarding sampling is shown in Table 1.

**Table 1.** Demographic information of the participants

Variable	Features	n	%
Gender	Male	33	25
	Female	99	75
Age	18-22	22	16.7
	23-28	23	17.4
	29-35	39	29.5
	36-42	20	15.2
	43-49	21	15.9
	50 and +	7	5.3
Level of education	Primary school	6	4.5
	Secondary school	14	10.6
	High school	54	40.9
	College	58	43.9
Mobile device used	Smart phone	115	87.1
	Tablet	6	4.5
	Laptop	11	8.3
Total		132	100

Syrian refugees participated in the study ranged in age from 18 to 58. The female/male ratio was close to 4:1. Around 4.5% of the refugees graduated from primary school, 10.6% graduated from secondary school, 40.9% are high school graduates, and %43.9 have got college degree. Over 87% of the refugees reported they used their smart phones in the distance learning process during the pandemic. This reveals that the smart phone is the primary device which is used daily by almost all refugees. Among the rest, 11 refugees used a laptop computer, and 6 used their tablet PCs.

### Data Collection Tools

The data of this quantitative research were obtained from two instruments: a mobile learning acceptance survey and language achievement tests. The mobile learning acceptance survey consists of five demographic questions and the “Mobile Learning Tools Acceptance Scale (MLTAS)” developed by Özer and Kılıç (2017) for foreign language learning. The scale which was validated in four dimensions: perceived ease of use (PEoU), contribution to foreign language learning (CtFLL), negative perception (NP) and voluntariness of use (VoU) yielded high internal consistency reliabilities (Cronbach’s Alpha=0.83) and construct validity coefficients. The findings showed that the scale had strong validity and was proven to be reliable when assessing foreign language learners’ acceptance of mobile learning tools.

In order to assess Syrian refugees’ Turkish language skills, two achievement tests were developed and implemented by the researcher. Both tests were prepared based on language structures

and the content taught in line with the curriculum at B2 level. The first test, which included 24 multiple choice questions, was administered three weeks after mobile learning was initiated. The second achievement test including 40 multiple choice questions was implemented three weeks following the first test. Prior to the study, the tests were piloted with 23 adult learners of Turkish for the validity, reliability, and item analyses of the tests. The results of the analyses showed that the tests have strong validity and are proven to be highly reliable ( $KR-20 = 0.80$ ). In addition, all items were confirmed to have a strong item discrimination power and can be used in the tests ( $r > 0.30$ ).

### **Data Analysis**

With regard to the first research question, the aim of which was to explore Syrian refugees' acceptance of mobile learning tools, the data obtained from the MLTAS were analyzed using SPSS 22.0 (Statistical Package for the Social Sciences). First, a normality test was conducted to see whether the data were normally distributed. Since the data were found to be normally distributed, parametric statistical procedures were used to calculate the frequencies, percentages, mean values and standard deviations of the scores obtained from the MLTAS. Next, the correlation coefficients of the scores obtained from the MLTAS were calculated. To analyze the second research question, the correlation coefficients among factors and characteristics of the participants (age, gender, level of education) were calculated. In order to address the second research question, a similar procedure was followed for the data obtained from each achievement test. First, the raw scores from the tests were converted into percentages and then the mean values and the standard deviations from the achievement tests were calculated using SPSS. A paired-samples t-test was later performed to see the progress of the refugees in the process. In response to the fourth research question, the correlation coefficients of the scores obtained from the MLTAS and the language achievement tests were calculated using "Pearson Correlation Analysis". The results were interpreted with a significance level of 0.05.

### **Results**

The data of this quantitative research that aimed to find out Syrian refugees' acceptance levels of mobile learning tools and its effect on language achievement were analyzed using SPSS version 22.0 and interpreted in the context of each research question.

#### **1. Syrian Refugees' Acceptance of Mobile Devices as Learning Tools**

Data gathered from the MLTAS were analyzed quantitatively in reference to the first research question, in order to find out Syrian refugees' acceptance levels of mobile learning. Prior to the statistical analyses, a test of normality was conducted in order to see whether the data were normally distributed. The results of the test of normality are illustrated in Table 2.

**Table 2.** Test of normality results for MLTAS

Sub-dimension	SD	Skewness	SE	Kurtosis	SE
PEoU	0.900	-0.764	0.211	-0.548	0.419
CtFLL	0.887	-0.342	0.211	-0.932	0.419
NP	0.925	0.107	0.211	-0.540	0.419
VoU	0.889	-0.498	0.211	-0.521	0.419
MLTAS (Total)	0.704	0.232	0.211	-0.621	0.419

The empirical measures reflecting the shape of the distribution (skewness and kurtosis) can be used in order to assess normality of the metric variables (Hair et al., 2014, p. 77). Skewness is an index that helps determine how much a variable's distribution deviates from the distribution of the normal curve. In other words, it refers to the lack of symmetry in a frequency distribution (Leech et al., 2008, p. 21). Skewness values falling outside the range of -1 to +1 indicate a substantially skewed distribution (Hair et al., 2014, p. 34). Kurtosis is a measure of the "peakedness" or the "flatness" of a distribution. A kurtosis value between  $\pm 1.0$  is considered excellent for most psychometric purposes (George & Mallery, 2020, p. 114). Since MLTAS with all the sub-dimensions has skewness and kurtosis values between  $\pm 1.0$ , the data were accepted to be normally distributed and parametric statistical procedures were applied to analyze MLTAS. Primarily, means and standard deviations were calculated on the data obtained from the scale (See Table 3).

**Table 3.** Descriptive statistics for MLTAS

Sub-dimension	n	$\bar{X}$	SD	SEM
PEoU	132	4.15	0.900	0.078
CtFLL	132	3.90	0.887	0.077
NP	132	2.49	0.925	0.080
VoU	132	3.88	0.889	0.077
MLTAS (Total)	132	3.71	0.704	0.061

Evaluating the data in the context of the sub-dimensions of the scale, it is seen that the highest average score is obtained from the "PEoU" sub-dimension ( $\bar{X} = 4.15$ ). This reflects that mobile devices are viewed as a useful component of distance learning model by Syrian adult refugees, and they find mobile devices easy to navigate when working on learning tasks. The "CtFLL" has the second highest average score that mobile devices are considered powerful educational tools in learning Turkish as a second language ( $\bar{X} = 3.90$ ). It can be inferred from Table 3 that while improving achievement, mobile devices contribute to the development of language and communication skills. A very similar average score in MLTAS was obtained from the "VoU" sub-dimension ( $\bar{X} = 3.88$ ).

Voluntariness plays a major role in the learning process as it is a key determinant of whether or not to adopt a learning technology and engage in activities. The results revealed that the Syrian refugees are inclined and eager to take advantage of mobile devices. Negative perceptions of mobile devices as learning tools by the refugees has the lowest average score ( $\bar{X}= 2.49$ ) confirming the results in other sub factors. From these results, it can be concluded that mobile devices are accepted as useful learning tools in learning Turkish as a second language by Syrian adult refugees.

## 2. The Relationships Among the Constructs of the Mobile Learning Tools Acceptance

Regarding the second research question, the correlation coefficients of the scores obtained from the MLTAS were calculated using “Pearson Correlation Analysis”. The results were interpreted with a significance level of 0.05 (See Table 4).

**Table 4.** Correlation coefficients of the MLTAS

Sub-dimension		PEoU	CtFLL	NP	VoU
PEoU	Pearson Correlation	1	0.656**	-0.377**	0.664**
	Sig. (2-tailed)		0.000	0.000	0.000
	n	132	132	132	132
CtFLL	Pearson Correlation	0.656**	1	-0.282**	0.768**
	Sig. (2-tailed)	0.000		0.001	0.000
	n	132	132	132	132
NP	Pearson Correlation	-0.377**	-0.282**	1	-0.256**
	Sig. (2-tailed)	0.000	0.001		0.003
	n	132	132	132	132
VoU	Pearson Correlation	0.664**	0.768**	-0.256**	1
	Sig. (2-tailed)	0.000	0.000	0.003	
	n	132	132	132	132

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

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

Correlation coefficients can range from -1.00 to +1.00 where -1.00 represents a perfect negative correlation +1.00 represents a perfect positive relationship (Bryman & Cramer, 2005, p. 219; Field, 2013, p. 267; George & Mallery, 2020, pp. 139-140). The correlation is strong when  $r= \pm 0.6$  or takes higher positive or negative values, the correlation is moderate when  $r$  is between  $\pm 0.3$  and  $\pm 0.6$ , the correlation is weak when  $r= \pm 0.1$  or takes lower positive or negative values, the correlation is null when  $r= 0$  (Levin et al., 2017, p. 187).

From the correlation analysis, it is seen that all the factors of the MLTAS are significantly correlated with each other. There is a moderate positive correlation between PEoU and CtFLL ( $r =$

0.66,  $p < 0.001$ ) suggesting that that the learners' ability to use mobile devices as learning tools is a significant factor to contribute to foreign language learning, and vice versa. PEOU is negatively correlated with NP in moderate level ( $r = -0.38$ ,  $p < 0.001$ ) that the more skilled the refugees are at using mobile technologies, the less negative perceptions they have towards the use of mobile learning tools. PEOU is also seen to have a moderate positive correlation with VoU ( $r = 0.66$ ,  $p < 0.001$ ), the refugees' willingness to try mobile devices while learning Turkish as a second language. Similarly, CtFLL is negatively correlated with NP ( $r = -0.28$ ,  $p < 0.001$ ), and positively correlated with VoU ( $r = 0.77$ ,  $p < 0.001$ ). Another negative correlation exists between NP and VoU ( $r = -0.26$ ,  $p < 0.001$ ), which indicates that there is a tendency for refugees having fewer negative perceptions towards the use of mobile learning tools to be more willing to use mobile devices as learning tools while learning Turkish.

### 3. The Effect of Syrian Refugees' Characteristics on Their Acceptance of Mobile Learning Tools

Given significant correlation exists among all the factors of MLTAS, relations between each factor and refugees' characteristics were then explored. For this purpose, Independent Samples T-Test was used to examine whether the participants' acceptance of mobile learning tools differed significantly regarding gender. On the other hand, One-way ANOVA test was used to examine the MLTA level differences in terms of age and level of education. The following sections present the results of Independent Samples T-Test and One-way ANOVA test.

#### *MLTA and Gender*

When comparing genders, since Levene's Test of homogeneity of variances was achieved ( $p > 0.05$ ) equal variances assumed option was used for the analysis (Field, 2013, p. 374; Pallant, 2016, p. 246). Table 5 below presents the results of the Independent-Samples t-Tests.

**Table 5.** MLTA levels and gender

Sub-dimension	Group	n	$\bar{X}$	SD	<i>t</i>	df	<i>p</i>
PEoU	Male	33	4.39	0.817	1.800	130	0.074
	Female	99	4.07	0.917			
CtFLL	Male	33	4.13	0.792	1.734	130	0.085
	Female	99	3,82	0.908			
NP	Male	33	2,10	0.810	-2.867	130	0.005**
	Female	99	2,62	0.929			
VoU	Male	33	4.13	0.832	1.917	130	0.057
	Female	99	3,79	0.896			

\*\*The mean difference is significant at the 0.01 level.

In terms of gender, the results of Independent-Samples T-Test revealed a significant difference only in NP ( $t = -2.867$ ;  $df = 130$ ;  $p < 0.01$ ), as seen on Table 5, and no significant differences were observed for PEOU, CtFLL and VoU ( $p > 0.05$ ). These results illustrate higher NP levels for female participants compared to male participants, which implies that male participants are less negative towards the use of mobile learning tools. For the other sub dimensions, however, the results reveal similar scores for male and female participants, suggesting that gender is not a determinant for PEOU, CtFLL and VoU.

### ***MLTA and Age***

In terms of age, Brown-Forsythe statistic was used for PEOU and CtFLL since Levene's Test of homogeneity of variances was not achieved ( $p < 0.05$ ) whereas ANOVA statistic was utilized for NP and VoU as homogeneity of variances was achieved ( $p > 0.05$ ) (Field, 2013, p. 443; Pallant, 2016, p. 259). Table 6 presents the results of One-way ANOVA test.

**Table 6.** MLTA levels and age

Sub-dimension	Group	n	$\bar{X}$	SD	F	p
PEoU	18-22	22	4.02	0.735	4.54	0.001**
	23-28	23	3.59	1.004		
	29-35	39	4.26	0.868		
	36-42	20	4.58	0.580		
	43-49	21	4.05	1.057		
	50 and +	7	4.75	0.381		
CtFLL	18-22	22	3,63	0.872	3.01	0.014*
	23-28	23	3,46	0.973		
	29-35	39	4,01	0.938		
	36-42	20	4,21	0.706		
	43-49	21	4,04	0.836		
	50 and +	7	4,14	0.190		
NP	18-22	22	2,40	0.884	0.42	0.833
	23-28	23	2,66	1.055		
	29-35	39	2,53	0.973		
	36-42	20	2,28	1.012		
	43-49	21	2,50	0.722		
	50 and +	7	2,40	0.757		
VoU	18-22	22	3,46	1.009	4.55	0.001**
	23-28	23	3,40	0.796		
	29-35	39	4,10	0.773		

36-42	20	4,09	0.883
43-49	21	3,95	0.838
50 and +	7	4,62	0.390

\*The mean difference is significant at the 0.05 level.

\*\*The mean difference is significant at the 0.01 level.

The results of the ANOVA test, as shown in Table 6, reveal significant differences in PEOU ( $F=4.54$ ;  $p< 0.01$ ), CtFLL ( $F=3.01$ ;  $p< 0.05$ ) and VoU ( $F=4.55$ ;  $p< 0.01$ ). However, NP didn't differ significantly in terms of age ( $p> 0.05$ ). In order to examine in which age groups significant differentiation occurs Tamhane's T2 (for PEOU, CtFLL) and Tukey (for VoU) post hoc tests were conducted. Post-hoc Tamhane test results revealed a significant difference between 18-22 year olds and 50 year olds and over ( $md = -0.72$ ;  $p< 0.05$ ), between 23-28 year olds and 36-42 year olds ( $md = -0.99$ ;  $p< 0.01$ ) and between 23-28 year olds and 50 year olds and over ( $md = -1.15$ ;  $p< 0.01$ ). The participants at the age of 50 and over demonstrated higher PEOU than all other younger age groups. For CtLL, the results revealed a significant difference between 18-22 year olds and 36-42 year olds ( $md = -0.57$ ;  $p< 0.05$ ), between 23-28 year olds and 29-35 year olds ( $md=-0.55$ ;  $p< 0.05$ ), between 23-28 year olds and 36-42 year olds ( $md= -0.75$ ;  $p< 0.01$ ), between 23-28 year olds and 43-49 year olds ( $md=-0.59$ ;  $p< 0.05$ ) suggesting that 36-42 year olds had higher CtFLL levels compared to other age groups. Regarding VoU, Tukey post hoc test results indicated significant differences between 18-22 year olds and 50 year olds and over ( $md = -1.16$ ;  $p< 0.05$ ), between 23-28 year olds and 29-35 year olds ( $md=-0.70$ ;  $p< 0.05$ ), between 23-28 year olds and 50 year olds and over ( $md = -1.22$ ;  $p< 0.05$ ). The refugees at the age of 50 and over demonstrated the highest VoU levels among all age groups.

### ***MLTA and Level of Education***

As for the level of education, Levene's Test of homogeneity of variances was achieved for all sub dimensions ( $p>0.05$ ), so ANOVA statistic was utilized (Field, 2013, p. 443; Pallant, 2016, p. 259). The results can be seen in Table 7 below.

**Table 7.** MLTA levels and level of education

Sub-dimension	Group	n	$\bar{X}$	SD	F	p
PEoU	Primary school	6	3.75	1.095	3.99	0.009**
	Secondary school	14	4.07	0.948		
	High school	54	3.90	0.910		
	College	55	4.44	0.791		
CtFLL	Primary school	6	3,50	1.212	1.50	0.219
	Secondary school	14	3,93	0.704		
	High school	54	3.76	0.901		
	College	55	4,06	0.868		

NP	Primary school	6	2,27	0.807	2.17	0.095
	Secondary school	14	2,96	0.922		
	High school	54	2,57	0.953		
	College	55	2,32	0.882		
VoU	Primary school	6	3,20	1.252	3.56	0.016*
	Secondary school	14	3,67	1.031		
	High school	54	3.74	0.792		
	College	55	4,13	0.847		

\*The mean difference is significant at the 0.05 level.

\*\*The mean difference is significant at the 0.01 level.

As shown in Table 7, MLTA levels of the participants differ significantly depending on the level of education in PEOU ( $F=3.99$ ;  $p< 0.01$ ) and VoU ( $F=3.56$ ;  $p< 0.05$ ). However, no significant differences were observed in CtFLL and NP ( $p> 0.05$ ). Tukey post hoc tests were conducted to investigate which levels of education caused significant differences in these sub dimensions. The results suggest a significant difference for PEOU levels between high school and college graduates ( $md = -0.53$ ;  $p< 0.01$ ) in favor of the participants who hold a college degree. For VoU, the results showed significant differences between primary school and college graduates ( $md = -0.93$ ;  $p< 0.05$ ), between high school and college graduates ( $md = -0.39$ ;  $p< 0.05$ ). The participants holding a college degree demonstrated the highest VoU levels among all groups.

#### 4. Syrian Refugees' Turkish Language Achievement

In order to investigate to what extent the refugees placed at B2 level achieved the learning outcomes specified in CEFR, two achievement tests were administered online at three-week intervals. After the tests were administered and assessed, the raw scores were converted into percentages and the data were coded into SPSS. First, a test of normality was conducted in order to see whether the data were normally distributed. Table 8 presents the results of the test of normality.

**Table 8.** Test of normality results for achievement tests

Tests	SD	Skewness	SE	Kurtosis	SE
Achievement test 1 (24 items)	16.840	-0.730	0.211	0.357	0.419
Achievement test 2 (40 items)	11.989	-0.961	0.211	0.576	0.419

As seen in Table 8, both achievement tests have skewness and kurtosis within the limits of  $\pm 1.0$ . For the normally distributed data, parametric statistical procedures were applied to analyze the achievement tests. Means and standard deviations of the data obtained from the tests are displayed Table 9.

**Table 9.** Descriptive statistics for achievement tests

Tests	n	$\bar{X}$	SD	SEM
Achievement test 1 (24 items)	132	73.70	16.840	1.466
Achievement test 2 (40 items)	132	79.83	11.989	1.043

According to the results shown in Table 9, the refugees got higher scores in the second achievement test that they took three weeks after the first test. In order to find out whether this 10-point difference between the tests was statistically significant, a paired-samples t-test was performed on the mean scores. The results were interpreted with a significance level of 0.05 (See Table 10).

**Table 10.** Paired-samples t-test results for achievement tests

Tests	n	$\bar{X}$	SD	<i>t</i>	df	<i>p</i>
Achievement test 1 (24 items)	132	73.70	16.840	-8.063	131	0.000**
Achievement test 2 (40 items)	132	79.83	11.989			

\*\*The mean difference is significant at the 0.01 level.

Table 10 shows that the difference between the achievement tests is statistically significant (*t*: -8,063; *p* < 0.001). The results can be interpreted as the language achievement levels of the refugees improved over time, as they continued to use them as learning tools in their learning process.

### 5. Effect of Syrian refugees' acceptance of mobile learning tools on language achievement

With respect to the fifth research question, the correlation coefficients of the scores obtained from the MLTAS and the achievement tests (mean score,  $\bar{X}$ = 76.77) were calculated using "Pearson Correlation Analysis". The results were interpreted with a significance level of 0.05 (See Table 11).

**Table 11.** Correlation coefficients of the MLTAS and the achievement tests

		PEoU	CtFLL	NP	VoU
Achievement ( $\bar{X}$ = 76.77)	Pearson Correlation	0.122	0.106	0.039	0.119
	Sig. (2-tailed)	0.163	0.224	0.661	0.175
	n	132	132	132	132

As illustrated in Table 11, level of achievement and MLTA of the participants had no significant correlations in PEoU (*r* = 0.12, *p* > 0.05), CtFLL (*r* = 0.11, *p* > 0.05), NP (*r* = -0.04, *p* > 0.05) and VoU (*r* = 0.12, *p* > 0.05), which implies that the refugees' acceptance of mobile learning tools as learning devices is not a significant factor to contribute to language learning.

### **Discussion, Conclusion and Recommendations**

Traditional learning methods are falling short to meet the everchanging expectations, and this remains as a problem to be solved. Keeping this in mind and considering the demands of the 21<sup>st</sup> century, it is essential to integrate technologies in teaching and learning environments (Eryaman, 2007).

With the advent of mobile communication technologies, mobile devices have become new learning tools that paved the way for a new learning model, m-learning. Widely used in many educational institutions around the world especially after 2000s, mobile learning has been one of the most popular learning approaches used during the Covid-19 pandemic. Kumar Mishra (2015, p. 236) defines mobile learning as the use of mobile or wireless devices for the purpose of learning while on the move. The major goal of using mobile technologies in education is to set an environment where students find opportunities to actively participate in the learning process.

The purpose of this study, which was carried out with the participation of 132 adult refugees residing in Turkey, was to examine Syrian refugees' acceptance of mobile learning tools, to investigate the effect of refugees' characteristics on their acceptance of mobile learning tools, and to find out the relationship between refugees' acceptance of mobile learning tools and their Turkish language achievement. The results were found to be similar to the results of previous studies.

With regard to the first research question, Syrian refugees' acceptance of mobile learning tools was examined. The refugees expressed positive perceptions indicating mobile learning tools acceptance; in particular, more than half of the sampled refugees agreed and strongly agreed with the items of the constructs "perceived ease of use" (64.3%), "contribution to language learning" (51.4%), and "voluntariness of use" (50.2%). The overall score of the items in "negative perceptions of use" is 2.49, which implies the refugees are not much worried about utilizing mobile devices in learning Turkish as a second/foreign language. These results are consistent with earlier studies, (Kallaya et al., 2009; Nassuora, 2012; Nikolopoulou, 2018), indicating that the refugees have a high tendency towards the use of mobile devices for learning. The reason for this might be that most refugees already use mobile devices frequently and successfully for communication purposes, as their family members or relatives are still in Syria. Therefore, they may not have had troubles in adapting these devices in learning environments.

The second research question, which aimed to explore the relationships among the constructs of the mobile learning tools acceptance, was answered favorably in reference to the findings from Pearson Correlation Analysis. The results of the quantitative data analysis revealed that there exists a concrete and significant correlation among all the constructs of the MLTAS. Contribution to foreign language learning demonstrated the strongest relationship with voluntariness of use ( $r=0.77$ )

suggesting that the refugees have a high pre-disposition for the use of mobile devices for learning as they perceive mobile learning help them improve their performance while learning Turkish. On the other hand, negative perceptions demonstrated the weakest relationship with voluntariness of use ( $r = -0.26$ ), which indicates that the refugees' negative perceptions towards the use of mobile learning tools partly explain their willingness to use mobile devices as learning tools. These results, suggesting a direct relationship with the constructs validated, support the findings of earlier research which is based on relevant technology acceptance literature and the Unified Theory of Acceptance and Use of Technology (UTAUT) as a theoretical framework. Based on the data collected and the findings of earlier research, it can be concluded that the refugees' acceptance of mobile learning tools is high since they perceive mobile learning as advantageous at any time, any place, and on any device (Pullen et al., 2015).

In order to address the third research question, the effect of Syrian refugees' characteristics on their acceptance of mobile learning tools was investigated. Based on the results of Independent Samples T-Test, it was found that gender is only a determinant for NP that males are less negative towards the use of mobile devices as learning tools and both genders are willing to seize the mobile technology advantages in their learning. These results are similar to those obtained in study conducted by Alasmari and Zhang (2019) but contradict the results of the study conducted by Huang (2014) suggesting that females scored higher than the males on the intention to use mobile learning and the other studies where no significant gender differences were found regarding mobile device acceptance (Marrs, 2013; Papadakis, 2018; Pullen et al., 2015). In terms of age, significant differences were observed in favor of the participants at the age of 50 and over in PEOU and VoU, and in favor of 36-42-year-olds in CtFLL. These findings are, in part, consistent with earlier research. Nikolopoulou (2018) highlighted significant differences in students' perceptions of mobile learning acceptance in favor of older secondary students; however, Marrs (2013) found significant differences among faculty members and students regarding their age suggesting that younger participants are significantly more positive than older participants on perceptions of m-learning. Yet, there are other studies which didn't confirm any significant age differences on the acceptance of mobile devices (Alasmari & Zhang, 2019; Donaldson, 2011; Huang, 2014; Papadakis, 2018; Pullen et al., 2015). As to the level of education, the findings showed that college graduates had higher PEOU and VoU levels.

However, these results are not supported by earlier research. In their study, Aliaño et al. (2019) found an inverse relationship with intent to use mobile devices for learning and academic year in university contexts; when the academic year is lower, the intent to use is greater. Another study examining the factors that affect students' intention to use mobile devices for learning was carried out by Huang (2014) suggesting that college level was not a significant predictor of students' intention to use mobile learning. In fact, it can be said that digital technologies like mobile devices are a natural environment surrounding youth. However, with the Covid-19 outbreak, mobile devices have become

primary learning tools for all age groups and students studying in different levels of education. From this point of view, it can be regarded as normal that there are no gender differences or older refugees take the advantage of mobile devices more than younger age groups.

In response to the fourth research question, the extent to which the refugees at B2 level achieved the learning outcomes specified in CEFR, the findings from two achievement tests revealed that the refugees got significantly higher scores in the second achievement test that they took three weeks after the first test. Based on these results, it can be concluded that the refugees gradually become accustomed to this new learning model. The study conducted by Özer and Kılıç (2018) support the results of the current study that the academic achievement of the learners improved over time as they utilized mobile devices as learning tools in the foreign language learning environment.

The effect of Syrian refugees' acceptance of mobile learning tools on their language achievement was also investigated within the scope of the study. While there is a significant increase in the refugees' achievement scores as mentioned above, mobile learning acceptance had no significant effect on foreign language achievement. Therefore, it can be concluded that there exist other motivating factors on refugees' language achievement different from mobile learning tools acceptance.

This study investigated Syrian adult refugees' acceptance and use of mobile learning tools during the Covid-19 pandemic. Understanding the factors that affect refugees' acceptance and use of mobile devices for learning is particularly important for promoting a successful and meaningful use of these devices in learning environments. The results of the study demonstrated that Syrian adult refugees were positive about using mobile devices in learning Turkish as a second/foreign language and they did better in the tests by the time. Depending on these results, it can be suggested that mobile devices should be integrated into the education system as a component of the curriculum. The application of this research is limited to Syrian adult refugees residing in Turkey and learning Turkish as a second/foreign language at B2 level. Further research is recommended in this field with different populations and sample size, and in different learning environments.

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