www.ijte.net

An Examination of the Attitudes of Teacher Candidates towards Mobile Learning

Abdulkadir Kırbaş
Atatürk University, Türkiye

Mesut Bulut
Atatürk University, Türkiye

To cite this article:

Kirbas, A. & Bulut, M. (2023). An examination of the attitudes of teacher candidates towards mobile learning. *International Journal of Technology in Education (IJTE), 6*(4), 681-699. https://doi.org/10.46328/ijte.663

International Journal of Technology in Education
2023, Vol. 6, No. 4, 681-699 https://doi.org/10.46328/ijte.663

An Examination of the Attitudes of Teacher Candidates towards Mobile Learning

Abdulkadir Kırbaş, Mesut Bulut

Article Info

Article History

Received:
05 May 2023
Accepted:
08 September 2023

Keywords

Mobile learning
Teacher candidates attitudes

Abstract

This study aims to ascertain how potential Turkish language and literature and Turkish teacher candidates tend to mobile learning. In this context, it investigates whether there are any notable differences in these aspiring teachers' attitudes toward mobile learning based on elements like gender, age, major field of study, grade level, personal tablet ownership, computer ownership, income level, social media usage, and enrollment in computer courses. A relational survey model, a quantitative research method, is used in this study. 209 females and 65 males who willingly joined the study at a university in Turkey's east comprise its participant pool. The findings reveal that prospective teachers of Turkish language and literature, as well as Turkish language teaching, strongly endorse the statements in the Mobile Learning Attitude Scale. Furthermore, their attitudes towards mobile learning do not exhibit significant variations concerning variables such as gender, major field of study, grade level, personal tablet ownership, possession of a computer, income level, social media usage, and participation in a computer course. Nevertheless, a noteworthy difference is identified in attitudes towards mobile learning across different age groups. The outcomes imply that while substantial distinctions exist among age groups, the attitudes of prospective teachers in the aforementioned fields do not significantly differ in terms of demographic or technological aspects. These results underscore the importance of integrating mobile learning into teaching and learning. Encouraging positive attitudes towards mobile learning and conducting additional research on this subject are strongly recommended.

Introduction

Mobile learning can be defined as the more efficient and significant utilization of learning-teaching activities in daily life by employing portable technology, taking into account numerous criteria (Yeler & Ocak, 2021). Depending on the business, mobile learning technology can mean different things in every community. Additionally, mobile learning is a type of education made possible by mobile tools and technologies, including continuous learning, e-learning that is simple to access, and educational technology (Yılmaz & Çakır, 2022). Since the 2000s, mobile devices have become widely adopted worldwide. This is because wireless communication devices like smartphones and tablets, which have taken the lion's share in the rapid development of technology

since that time, have now become easily accessible to everyone with better, faster, and more affordable models (Keskin & Kılınç, 2015). Consequently, in recent years, technological advancements have evolved from general to more personalized usage. At this stage, the development of mobile technology is remarkable. Mobile devices have enabled mobile technology to permeate all aspects of our lives. They are necessary for various processes, including communication, information access, and conducting business. Mobile technology has significantly influenced and become indispensable in modern life (Karaoğlan Yılmaz et al., 2018).

Mobile technology has altered our lifestyles as well as the way we learn. From this vantage point, mobile learning is also described as the use of mobile technologies alone or in conjunction with other information and communication technologies to enable learning anywhere and whenever it is wanted. Mobile learning has developed into a successful learning strategy thanks to modern, flexible learning chances and cutting-edge mobile technologies (Bozkurt, 2015). Modern developments in communication and information technology offer various application conveniences and options to overcome obstacles that hinder students' participation in the learning process (Yeler & Ocak, 2021). The incorporation of mobile technologies into teaching is another recent development worth noting. The availability of numerous applications, higher usage rates, and the pervasiveness of mobile phones have all contributed to the surge in interest in these Technologies (Gökdaş et al., 2014). Considering the significance of mobile devices in our daily lives, it can be said that mobile learning is crucial in educational environments. Alongside technological advancements, this learning method is constantly evolving (Uygun & Sönmez, 2019).

Learning activities have gained a new dimension as a result of the integration of mobile devices into learning environments, transcending physical boundaries. Specially designed learning applications not only allow users to learn independently of time and place but also bring new and diverse experiences (Altuntaş, 2017). Applications for mobile learning vary based on user requirements. Examples include mobile performance support systems that enhance user performance and vocational training, mobile learning applications containing educational, resource, and reference information, mobile-assisted applications with alerts and notifications, tests and exercises created for user self-assessment, games and simulations for both fun and learning and counseling and guidance services supporting communication and collaboration.

Smartphones, tablets, portable gaming consoles, and digital audio recorders are currently the most popular mobile devices. Platforms like Blackberry, Palm, Windows Mobile, Android, iPhone, Symbian, J2ME, and tablets are among the available platforms (Keskin, 2010). Smartphones, tablets, laptops, iPads, iPod touch, digital audio recorders, portable MP3 players, personal digital assistants, portable gadgets, and USB drives are among the most popular mobile communication tools. One may argue that mobile devices, such as smartphones, tablets, and portable media players, are everyday tools utilized by both adults and kids (Uygun & Sönmez, 2019). Mobile gadgets can be employed in education as well. With the use of mobile devices for educational purposes, the idea of mobile learning emerged (Kalınkara, 2021). With the extensive usage of mobile technology in daily life, mobile learning content is fast evolving. This makes it easier for students to connect with content on mobile devices and permits them to utilize these technologies in the classroom. As a result, it opened the door for the development of the idea of “mobile learning” (Demir & Akpınar, 2016).

Due to the development of mobile device technology and the accessibility of information at all times and in all places, the concept of “mobile learning” has become more and more popular in recent years. Therefore, 'mobile learning' is becoming increasingly widespread today. This prevalence is increasing day by day as these technologies allow people of all ages, cultures, skill levels, and experiences to benefit from mobile environments easily. Many tasks, including work, education, and communication, can now be done via mobile devices (Şenel et al., 2019). With rapidly advancing technology, the habits of people using technology have also changed over time. One of these habits that improves people's lives and is crucial to our existence is the use of mobile technology (Karaoğlan Yılmaz et al., 2018).

Technology has had a significant impact on society in the twenty-first century, and as a result, many fields, including education, have transformed. E-learning systems are now commonly employed in both traditional and online learning contexts as a result of these advancements in informatics. The ability to develop lessons that blend resources from the real and digital worlds, in place of conventional teaching methods, has been made available since the introduction of mobile devices into educational applications following the usage of computers. Mobile learning (M-learning) tools have assumed a central role in this area (Bozkurt, 2015: 66). Mobile technologies are among the most commonly used information and communication technologies because of their simplicity, usability, and customizability. A lot of educational and instructional activities make use of mobile technology (Kavaklı & Yakın, 2019).

Due to the emphasis on learning methodologies that encourage interaction with the learning environment and foster active user engagement, mobile learning has gained prominence as a multidisciplinary field in recent times. Contributing factors include the constructivist learning approach, the shift from computer-assisted instruction to virtual learning environments, advancements in mobile technology, improvements in memory and processing capabilities, as well as enhancements in wireless internet, GPRS, Bluetooth, and 3G technologies. Many universities worldwide have embraced mobile learning applications to bolster communication with students, streamline administrative tasks, offer learning materials, and deliver entire courses leveraging mobile technology (Keskin, 2010). Consequently, learning and teaching methodologies are changing as a result of the quick development of information and communication technologies. Electronic resources have supplanted traditional printed materials. Given the widespread use of smartphones, tablets, mobile devices, and high-speed internet, mobile device learning has become imperative. Alongside shifts in reading and learning methods, novel concepts and skills such as 'mobile reading' and 'mobile learning' have emerged. Consequently, mobile devices have become indispensable tools for swift access to information, staying abreast of the latest developments, and enabling continuous learning (Güneş et al., 2015).

Unquestionably, education systems are perpetually influenced by technological advancements. With the use of computers and educational systems, internet access to information has changed, bringing about concepts like 'mobile learning.' “Mobile learning” is now a recognized interdisciplinary field in the context of 'teacher training and development' in what is known as the “technology age” today as a result of these technological advancements (Uygun & Sönmez, 2019). Mobile learning, which enables the development of new learning environments through instructional and educational tools, is now inevitable. Mobile learning refers to an instructional method where

learning takes place using a mobile device anytime, anywhere (Aydın & Özdamar, 2020). Due to the advancement of information and communication technologies, learning settings have experienced tremendous change. The use of mobile devices in the educational process is one of these modifications. The physical limitations in learning environments are eliminated by mobile technologies.

Additionally, using mobile devices, students can take part in instructional activities whenever and wherever they choose (Kılınç, 2015). Therefore, even though mobile learning is a new tool for the area of education, it is projected that research on mobile learning will continue to grow as technology develops in the upcoming years, leading to alternative venues for teaching and learning that are more successful (Kavaklı & Yakın, 2019). Older technologies that did not offer freedom in terms of time and location have been replaced by mobile technologies and, consequently, mobile learning environments. To create successful learning environments that suit learners' needs in terms of their perspectives on mobile learning before entering mobile learning environments, it is crucial to ascertain the attitudes of learners toward mobile learning environments. Therefore, it is essential to first uncover learners' attitudes toward these technologies in a way that spans all interests, beliefs, and actions to make mobile learning activities effective and efficient (Elçiçek & Bahçeci, 2015).

Mobile devices have enabled students to continue their education anytime, anywhere, compared to traditional learning techniques. Research in the field has shown that mobile learning offers a more flexible, open, and effective learning option compared to traditional methods. In this regard, educators must integrate mobile devices into their lesson plans and enrich their students' learning. Aspiring teachers must adopt a favorable mindset toward mobile learning as part of the education system's adaptation to this technological development. The significance of mobile learning is expected to continue growing in the future of education. To improve their pupils' learning prospects, teachers must therefore utilize mobile learning technology properly (Baran, 2014). Mobile learning, often known as M-learning, has become a significant instructional technology in higher education. M-learning, which makes use of the internet and other technological breakthroughs, allows students to communicate and share ideas while also assisting them in their academic work. The acceptability of M-learning by students and teachers, however, is vital for the implementation of M-learning systems. Their attitudes toward technology are a major deciding factor in whether students and teachers are ready to embrace M-learning. These mindsets will help in evaluating the benefits and drawbacks of M-learning and strengthening the technological base (Al-Emran et al., 2016).

In the current "technology age," it is regarded to be of paramount relevance to look into how pre-service teachers in language education and teaching programs feel about mobile learning when it comes to "teacher training and development." It has been noted that there have been numerous research published in the literature on "attitudes toward mobile learning." Some of these studies include Khaddage and Knezek (2013), Elçiçek and Bahçeci (2015), Al-Emran and Shaalan (2015), Dashti and Aldashti (2015), Sırakaya and Alsancak Sırakaya (2017), Baek et al. (2017), Çelik and Karayaman (2018), Demir and Akpınar (2018), Yurdagül and Öz (2018), Al-Emran et al. (2019), Karakuyu and Uyar (2019), Akkaya et al. (2021), Chen et al. (2021), Turan et al. (2022), Yılmaz et al. (2022), Yılmaz and Çakır (2022), Büyükkalkan and Semiz (2023), Pham and Truong (2023), and Yalçınkaya and Yücel (2023).

Students now have the option to continue their education whenever and wherever they want thanks to the growing acceptance of mobile devices. Mobile learning is a more adaptable, open, and efficient learning choice than conventional learning methods, according to field research. To enhance students' learning, educators must incorporate mobile devices into their lesson plans. The mindset that aspiring instructors adopt toward mobile learning is crucial to the educational system's response to this technological development. Future educational trends suggest that mobile learning will continue to be significant. To improve their students' learning prospects, teachers must successfully utilize mobile learning technology.

Research Problem

The main problem statement of this research is as follows: "What are the attitudes of Turkish language and literature and Turkish teacher candidates towards mobile learning? Based on this basic problem statement, sub-problems were created as follows:

- Do Turkish language and literature and Turkish teacher candidates' attitudes towards mobile learning show a significant difference in terms of gender?
- Do Turkish language and literature and Turkish teacher candidates' attitudes towards mobile learning show a significant difference in terms of age?
- Do Turkish language and literature and Turkish teacher candidates' attitudes towards mobile learning differ significantly in terms of having/not having a personal computer or tablet?
- Do Turkish language and literature and Turkish teacher candidates' attitudes towards mobile learning show a significant difference in terms of grade level?
- Do Turkish language and literature and Turkish teacher candidates' attitudes towards mobile learning show a significant difference in terms of income level?
- Do Turkish language and literature and Turkish teacher candidates' attitudes towards mobile learning differ significantly in terms of taking or not taking information technologies courses?

Purpose of Research

This study's main goal is to investigate the attitudes of Turkish language and literature, and Turkish teacher candidates, toward mobile learning across various variables. In this regard, the impact of factors such as gender, department, grade level, ownership of a personal tablet or computer, income level, social media usage, and enrollment in an informatics course on the attitudes of teacher candidates will be examined. The study aims to contribute to the body of knowledge on educational practices, identify potential contributions of mobile learning to educational processes, develop effective teaching strategies in this area, and provide a more thorough understanding of the use of mobile technology in education.

Method

Research Model

The 'general screening model', one of the descriptive screening models, was used in this study to assess the Turkish

language and literature as well as Turkish teacher candidates' views regarding mobile learning. A survey study enables working with a sample in this universe to define the tendencies, attitudes, or opinions of a research population quantitatively or numerically (Creswell, 2017; cited as. Fowler, 2008). According to the general screening model, in a universe with many different elements, scanning is done on the whole universe, a collection of samples, or samples taken from it to form an overall opinion about the universe (Karasar, 2009). In this research, with the general screening model, Turkish language and literature, and Turkish teacher candidates; Their attitudes towards mobile learning were examined whether they showed a significant difference in terms of some variables such as gender, age, major, grade level, personal tablet, computer ownership or not, income level, social media usage status, whether or not they took an informatics course.

Study Group

274 teacher candidates who were majoring in Turkish language and literature and Turkish language education at a university in the eastern part of Turkey made up the study group for this research. Of these, 209 of the participants were females and 65 were males. Table 1 provides descriptive information on the participants, who are aspiring teacher candidates of Turkish language and literature in addition to Turkish.

Table 1. Descriptive Characteristics of Prospective Turkish Language and Literature as well as Turkish Language Teachers (N=274)

Variable	**Options**	**n**	**%**
Gender	Female	209	76.3
	Male	65	23.7
Age	18-20	69	25.2
	21-25	177	64.6
	26-30	16	5.8
	31 age +	12	4.4
Type of high school graduated	Vocational and Technical Anatolian High School	30	10.9
	Anatolian High School	143	52.2
	Social Sciences High School	10	3.6
	Science High School	5	1.8
	Imam Hatip High School	59	21.5
	Multi-Program Anatolian High School	7	2.6
	Open Education High School	5	1.8
	Other	15	5.5
Department/major of study at university	Department of Turkish Language and Literature Education	124	45.3
	Department of Turkish Education	150	54.7
Grade	1st grade	66	24.1
	2nd grade	35	12.8

Variable	Options	n	%
	3rd grade	68	24.8
	4th grade	105	38.3
Ownership of a personal computer, or tablet:	Yes	179	65.3
	No	95	34.7
Ownership of a personal smartphone:	Yes	273	99.6
	No	1	.4
Usage of social media:	Yes	260	94.9
	No	14	5.1
Social media platforms used	I don't use social media	7	2.6
	Instagram	113	41.2
	Youtube	12	4.4
	Facebook	1	0.4
	Twitter	23	8.4
	Tiktok	2	0.7
	WhatsApp	26	9.5
	I use more than one	90	32.8
Purpose of using the Internet	Entertainment	61	22.3
	Spending free time	47	17.2
	Shopping	2	.7
	Listening/watching video/music etc. applications	64	23.4
	Access to information	74	27.0
	news sites	14	5.1
	Other	12	4.4
Daily time spent on social media	1 hour	22	8.0
	2 hour	124	45.3
	3 hour	94	34.3
	3 hour +	34	12.4
Taking Instructional Technologies or Information Technologies courses at the undergraduate level	Yes	227	82.8
	No	47	17.2
Income level of the family	8500 TL	134	48.9
	8500-15000 TL	92	33.6
	15000-25000 TL	33	12.0
	25000 -50000 TL	12	4.4
	50000 TL +	3	1.1

The prospective Turkish language and literature, as well as Turkish language teachers, consist of 76.3% females

and 23.7% males. In terms of age distribution, 25.2% are between 18-20 years old, 64.6% are between 21-25 years old, 5.8% are between 26-30 years old, and 4.4% are 31 years and older. Regarding educational background, 52.2% are graduates of Anatolian High Schools, 21.5% are graduates of Imam Hatip High Schools 0.9% are graduates of Vocational and Technical Anatolian High Schools. In terms of their academic pursuits, 45.3% are enrolled in the Department of Turkish Language and Literature Education, while 54.7% are enrolled in the Department of Turkish Education.

As for the distribution of years in their respective programs, 24.1% are in their first year, 12.8% in their second year, 24.8% in their third year, and 38.3% in their fourth year. In terms of technology ownership, 65.3% have their computer/tablet, and 99.6% have their smartphone. Additionally, 94.9% use social media, with 41.2% using Instagram, 9.5% using WhatsApp, 8.4% using Twitter, and 4.4% using YouTube. It was observed that 32.8% use multiple social media platforms. Regarding internet usage purposes, 27% use it for acquiring information, 23.4% for watching/listening to videos/music, 22.3% for entertainment, 17.2% for leisure activities, 5.1% for news and information, and 0.7% for online shopping.

In terms of daily social media usage, 8% spend 1 hour, 45.3% spend 2 hours, 34.3% spend 3 hours, and 12.4% spend 3 hours or more. Regarding their academic background, 82.8% have taken courses in Instructional Technologies or Information Technologies during their undergraduate studies. In terms of family income, 48.9% have a monthly income of 8500 TL, 33.6% have an income between 8500-15000 TL, 12% have an income between 15000-25000 TL, and 4.4% have an income of 25000 TL or higher.

Data of Collection

The data for the study were gathered using a form that was made using Google Docs. The purpose of the study, confidentiality of personal information, and the researcher's e-mail address are stated in the initial section of the form for those who want to learn more about the findings of the study. The instruction section also states that participation in the study is voluntary, there is no obligation to participate, the study will not be used to evaluate the participants, and individuals are free to participate or not participate in the study.

In the second section, the participant's personal information and demographic information were added. The scale elements were included in the final section. The participants were given access to the form's web address and extension after it had been completed. The "Mobile Learning Attitude Scale" was created by Knezek and Khaddage (2013) and translated into Turkish by Çam et al. (2019) for use in this study. After getting consent from the scale's original writers, the process of adjusting the scale to Turkish got underway. Four academics with fluency in multiple languages first translated the scale's English version into Turkish.

After translation, two linguists reviewed it, and any necessary modifications were made by their recommendations. The scale was then evaluated for Turkish by two Turkish language specialists and five academicians with expertise in the scale's subject matter. The necessary modifications were performed after considering expert comments, and the scale's final version was produced. Twenty bilingual instructors evaluated

the scale's final and original iteration. Confirmatory factor analysis (CFA) was used to corroborate this structure and exploratory factor analysis (EFA) was used to validate the Turkish version of the scale. Cronbach Alpha coefficients were also used to determine the scale's internal consistency dependability. These analyses led to the conclusion that the scale was culturally appropriate for Turkish and a valid method for gauging attitudes toward mobile learning.

Data Analysis

Six separate statistical analyses were performed on the study's data using the SPSS for Windows 22.00 statistical package. Frequency, percentage, t-test for independent groups, Mann Whitney U test, one-way analysis of variance (ANOVA), and Kruskal Wallis H test are some of these studies. These analyses made it possible to thoroughly study the data and evaluate the research's findings from a wider angle.

Research Ethics

In conducting this study, the guidelines outlined in the "Higher Education Institutions Scientific Research and Publication Ethics Directive" (YÖK, 2023) were adhered to. No behavior or action that would be against scientific research and publication ethics has been taken after considering the activities listed under the heading "Actions Contrary to Scientific Research and Publication Ethics" in the directive. This study's writing process was thoroughly guided by ethical and scientific considerations. Ethical permission for the study was obtained with the decision of Atatürk University Social and Humanities Ethics Committee Educational Sciences Unit Ethics Committee dated 11.04.2023 and numbered 05/07.

Results

The arithmetic means and standard deviation of the Mobile Learning Attitude Scale scores attained by Turkish Language and Literature and Turkish Teacher Candidate candidates are shown in Table 2.

Table 2. Arithmetic Mean and Standard Deviation of the Scores Obtained by Teacher Candidates from the Mobile Learning Attitude Scale

	$\overline{X}$	SD
Mobile Learning Attitude Scale	26.31	4.12

The arithmetic mean of the Mobile Learning Attitude Scale for Turkish Language and Literature and Turkish teacher candidates was found to be 26.31±4.12. The highest possible score that can be obtained from the scale is 35, and it is observed that Turkish Language and Literature and Turkish teacher candidates strongly agree with the statements in the Mobile Learning Attitude Scale. The comparison of the Mobile Learning Attitude Scale scores of Turkish Language and Literature and Turkish teacher candidates according to their demographic characteristics is given in Table 3.

Table 3. Comparison of Mobile Learning Attitude Scale Scores According to Demographic Characteristics of Teacher Candidates

Variable	**Options**	**N**	$\overline{X}$	**SD**	**Test**	**p**
Gender	Female	209	26.42	4.02	t=.825	.410
	Male	65	25.94	4.42		
Age	18-20	69	25.39	4.95	KW=10.609	.014
	21-25	177	26.48	3.79		
	26-30	16	26.44	3.41		
	31 +	12	28.83	3.30		
Field/Major at University	Department of Turkish Language and Literature Education	124	26.27	4.11	t=.148	.883
	Department of Turkish Education	150	26.34	4.14		
Type of High School Graduated	Vocational and Technical Anatolian High School	30	25.10	5.31	KW=3.333	.504
	Anatolian High School	143	26.71	3.81		
	Social Sciences High School	10	25.80	2.39		
	Science High School	5	25.40	2.88		
	Imam Hatip High School	59	26.32	4.05		
	Multi-Program Anatolian High School	7	26.43	5.59		
	Open Education High School	5	25.60	2.88		
Grade	1st grade	66	26.29	3.46	F=.432	.730
	2nd grade	35	26.69	3.21		
	3rd grade	68	26.62	4.71		
	4th grade	105	25.99	4.38		
Ownership of Personal Computer or Tablet	Yes	179	26.57	4.21	t=1.455	.147
	No	95	25.81	3.91		
Usage of Social Media	Yes	260	26.31	4.14	U=1.682	.631
	No	14	26.21	3.81		
Purpose of Internet Use	Entertainment	61	25.59	5.42	KW=8.260	.220
	Leisure Time Activities	47	25.60	4.20		
	Shopping	2	25.50	.71		
	Listening to Videos/Music Apps	64	26.22	3.43		
	Accessing Information	74	27.46	3.62		
	News Websites	14	26.07	2.24		
	Other	12	26.50	3.53		
Time Spent on Social Media Daily	1 hour	22	24.77	5.30	KW=3.856	.277
	2 hour	124	26.19	4.08		
	3 hour	94	26.74	3.58		

Variable	Options	N	$\overline{X}$	SD	Test	p
	3 hour and +	34	26.53	4.68		
Taking Instructional Technologies or Information Technologies Courses at Undergraduate Level	Yes	227	26.31	4.35	t=.016	.987
	No	47	26.30	2.74		
Family Income Level	8500 TL	134	25.98	4.10	KW=3.064	.547
	8500-15000 TL	92	26.83	3.59		
	15000-25000 TL	33	26.73	5.28		
	25000 -50000 TL	12	24.75	4.77		
	50000 TL and +	3	26.67	1.16		

At a significance threshold of p>0.05, the t-values for the gender-specific Mobile Learning Attitude Scale scores of teacher candidates were determined to be non-significant. This result suggests that there is no statistically significant difference in the scores on the Mobile Learning Attitude Scale between the study participants who are male and female teacher candidates for Turkish and Turkish Language and Literature. The Kruskal Wallis H test result regarding the Mobile Learning Attitude Scale scores of the teacher candidates according to their ages was found to be significant at the p<0.05 significance level. This finding shows that there is a difference between the Turkish and Turkish Language and Literature teacher candidates who participated in the research in terms of Mobile Learning Attitude Scale scores according to their ages. A Post Hoc test was applied to understand which age teachers caused the difference. As a result of the Post Hoc test, teacher candidates aged 31 and over had higher Mobile Learning Attitude Scale scores than teacher candidates aged 18-20, and the differences between them were found to be significant at the p<0.05 significance level.

The t-values for the Mobile Learning Attitude Scale scores according to the field/major of the institution where teacher candidates are enrolled were determined to be non-significant at a significance threshold of p<0.05. These findings imply that there is no statistically significant difference in the Mobile Learning Attitude Scale scores according to the university field or degree. The Kruskal Wallis test for the Mobile Learning Attitude Scale scores according to the type of high school from which teacher applicants graduated produced an insignificant KW value at a significance threshold of p>0.05. These findings imply that there is no statistically significant difference between teacher applicants' Mobile Learning Attitude Scale scores based on the type of high school they attended. The results of the ANOVA analysis for the scores of the Mobile Learning Attitude Scale according to the grade the teacher candidates were studying in revealed that the F value was insignificant at the p>0.05 significance level.

The t-values for the Mobile Learning Attitude Scale results according to whether teacher applicants own a personal computer, tablet, or smartphone were found to be not statistically significant at a significance level of p>0.05. This finding reveals that the scores on the Mobile Learning Attitude Scale are unaffected by owning a personal computer, tablet, or smartphone. The U values for the Mobile Learning Attitude Scale scores according to whether

teacher candidates utilize social media applications were found to be not statistically significant at a significance level of $p>0.05$. This finding demonstrates that the use of social media applications has no significant impact on the scores on the Mobile Learning Attitude Scale.

The Kruskal Wallis H test for the Mobile Learning Attitude Scale scores according to the purpose of internet use produced KW values that are insignificant at a significance level of $p>0.05$. These findings imply that there are no discernible differences in the Mobile Learning Attitude Scale scores depending on the purpose of internet use among Turkish and Turkish Language and Literature teacher candidates. The Kruskal Wallis H test for the Mobile Learning Attitude Scale scores connected to the daily time spent on social media produced an insignificant KW value at a significance level of $p>0.05$. This finding demonstrates that there is no statistically significant correlation between the Mobile Learning Attitude Scale scores of teacher candidates and their daily social media activity.

The t-value for the Mobile Learning Attitude Scale scores according to whether teacher candidates had taken Instructional Technologies or Information Technologies courses at the undergraduate level was found to be non-significant at a significance level of $p>0.05$. This finding implies that whether or not teacher candidates have taken these courses as undergraduates has no significant impact on the findings of the Mobile Learning Attitude Scale. The Kruskal Wallis H test for the Mobile Learning Attitude Scale scores according to the household income level yielded an insignificant KW value at a significance threshold of $p>0.05$. This finding implies that, regardless of their family's income level, teacher candidates who took part in the study did not demonstrate any statistically significant differences in their scores on the Mobile Learning Attitude Scale.

Discussion and Conclusion

When the demographics of the research participants Turkish and Turkish language and literature teacher candidates are investigated, it turns out that females make up 76.3% of the group, while men make up only 23.7%. When the participants' ages are considered, the bulk of them 64.6% are between the ages of 21 and 25. According to the type of high school graduates, Anatolian High School graduates have the highest rate at 52.2%. In terms of the university majors they pursued, 54.7% of the participants are enrolled in the Turkish Education Department, while 45.3% are enrolled in the Turkish Language and Literature Education Department. 38.3% of the participants are in the 4th grade, according to the distribution of participants by grade level.

M-learning, or mobile learning, presents fresh and potent opportunities for efficient teaching and learning today. Self-efficacy and attitudes regarding the usage of M-learning are two crucial variables in determining whether students will accept this technology. These elements significantly influence how much students adopt this technology (Yorganci, 2017). One of the most popular approaches to academic and educational activities in the modern day is mobile learning (Abdelwahed & Soomro, 2022). The transition from traditional instructor-centered classroom training to entirely student-centered learning settings is made possible by mobile learning technology. The interaction between gender perspectives and M-learning environments has been a contentious topic notwithstanding mobile learning (M-learning), where online resources can be accessible whenever and wherever

you are (Liaw & Huang, 2015).

According to the study's findings, there is no statistically significant gender difference in the scores of teacher candidates on the mobile learning attitude scale. In other words, the research participants who are aspiring teachers of Turkish and Turkish language and literature share comparable attitudes about mobile learning. According to the university department they attended, no statistically significant variation in ratings on the mobile learning attitude scale was found. In other words, regardless of the university department or major a prospective teacher is enrolled in, their opinions about mobile learning are identical. It was shown that the scores of teacher candidates on the mobile learning attitude scale varied statistically significantly depending on their ages. The Post Hoc test results show a substantial difference between teacher candidates aged 31 and above and teacher candidates aged 18 to 20 in terms of scores.

Depending on the grade they were studying in, there was no discernible variation in the teacher candidates' scores on the mobile learning attitude scale. In other words, there was no discernible difference in the attitudes toward mobile learning between the Turkish and Turkish Language and Literature teacher candidates who took part in the survey regardless of the grade level. According to the type of high school graduate, there is no statistically significant difference between the scores on the mobile learning attitude scale. This demonstrates that regardless of the sort of high school that teacher candidates attended, their opinions about mobile learning are identical. There was no discernible difference in terms of gender, age, class level, or department characteristics in the studies done by Elçiçek and Bahçeci (2015) on associate degree students and Sağır and Göksu (2015) on potential teachers. In this regard, it seems that the study's findings were identical. The study by Sırakaya and Alsancak Srakaya (2017) concluded that there were no differences in attitudes toward mobile learning based on gender, age, or grade level. The findings of the study by Güzel and Elkıran (2021) led to the conclusion that there were no gender or grade-level-related differences in the attitudes of teacher candidates toward mobile learning. Similar findings from the study also emerged in this regard.

In terms of owning technological equipment, 65.3% of participants own laptops or tablets, and the ownership rate of smartphones is 99.6%, which is fairly high. However, there is no statistically significant difference between the scores on the mobile learning attitude scale according to the individual's ownership status of a computer, tablet, or smartphone. In other words, there was no discernible impact of teacher candidates' use of these technological tools on their attitudes about mobile learning. Al-Emran and Shaalan (2015) claim that during the past several years, the method we study has drastically changed from traditional classrooms using printed materials to online learning using digital pages. Mobile learning (M-learning) is a recently created technology that allows E-learning to be delivered utilizing personal mobile devices without any time or space constraints. Mobile devices are becoming increasingly commonplace, and they are used in a variety of contexts, according to Baek et al. (2017), in schools, there is a lot of debate over how teachers are incorporating technology into their lessons more and more. The introduction of mobile learning in schools is significantly influenced by teachers' attitudes toward it.

According to their use of social media applications, there was no statistically significant difference between the scores on the mobile learning attitude scale. In other words, there was no discernible impact of teacher candidates'

social media usage patterns on their attitudes toward mobile learning. However, 94.9% of participants use at least one social media platform, making social media use highly widespread. Instagram has 41.2% of the social media market share. The social media application “Instagram” is the one that university students use most frequently, according to the findings of a study done by Çömlekçi and Başol (2019), and it is also the platform that university students who took part in the study preferred the most. Instagram is a platform that does not aim to provide news. According to Çömlekçi and Başol (2019), this circumstance is a sign that university students attempt to satiate their informational demands through a social media application that is truly used to enjoy free time and chat with friends rather than to get news.

27% of the participants use the internet to access information, as measured by the reason for use. 45.3% of the participants reported daily social media usage of 2 hours or more. The variations in scores on the mobile learning attitude scale based on daily social media usage are not statistically significant. This result demonstrates that prospective teachers' opinions toward mobile learning are unaffected by the amount of time they spend each day on social media. However, according to Iqbal & Bhatti (2015), M-learning is a form of instruction made available through mobile devices and mobile technologies, this type of teaching has the potential to improve both formal and informal learning.

At the undergraduate level, 82.8% of students enroll in "instructional technologies or information technologies" courses. These results demonstrate that technology access and usage patterns are extremely widespread among Turkish and Turkish language and literature teaching candidates. The undergraduate “Instructional Technologies or Information Technologies” course, however, has no statistically significant impact on the results of the mobile learning attitude scale. There is no discernible difference between teacher candidates who take this course and those who do not in terms of their attitudes toward mobile learning. The Kruskal-Wallis H test result for prospective teachers' scores on the Mobile Learning Attitude Scale based on their family's income level produced a KW value of $p>0.05$, suggesting insignificance at the significance level. This shows that regardless of their family's income level, prospective instructors' attitudes about mobile learning are not very different.

In conclusion, the study's findings show that there were no significant differences in teacher candidates' majors, gender, participation in information technology or instructional technology courses at the collegiate level, type of high school they attended, or grade levels. Furthermore, no statistically significant differences in attitudes toward mobile learning were found about factors such as technical device ownership, social media usage patterns, internet usage for specific purposes, and family income level. However, when taking into account various age groups, a significant variation in attitudes toward mobile learning appeared. In particular, teacher candidates older than 31 showed more favorable opinions regarding mobile learning. According to a study by Jaradat (2014), students had high attitudes toward mobile learning, even though their perceptions were only assessed at a medium level. The study concentrated on how college students felt about using their mobile devices for extra reading practice. Both within and outside of the classroom, mobile learning has enhanced learning results. Due to its accessibility at all times and locations, it was shown that integrating mobile learning could enhance student engagement and overall learning experiences. According to the findings of a study by Dashti and Aldashti (2015), which looked into the attitudes of English and French major students at the Faculty of Basic Education toward mobile learning, the

majority of the students (80.3%) preferred using mobile devices in the learning process and believed this approach was significant and helpful.

The use of technology, particularly in the areas of vocabulary and grammar, is thought to help pupils learn their languages better, according to research. It has been discovered that they anticipate more mobile device use from teachers and stress the significance of their part in this. The teacher should be able to either encourage or scare the kids without using social media. Students also expected formal training to address technical challenges and optimize the use of mobile devices and online resources to be provided by the Faculty of Basic Education. According to Akkaya et al. (2021) study on the association between teacher candidates' attitudes toward mobile learning and their preparedness for mobile learning, having a positive attitude toward mobile learning enhanced overall readiness for mobile learning. Based on gender or level of education, we did not find any discernible variations in attitudes toward mobile learning, satisfaction, impact on learning, motivation, or perceived utility. However, there remained a significant discrepancy in the quality of internet connection. A study by Pham and Truong (2023) that examined students' opinions toward the use of mobile technology in higher education found that students had an overwhelmingly positive attitude toward it. Similar results were seen in that study. One particularly advantageous feature that was mentioned was how simple it was to obtain the materials and resources. This accessibility was thought to boost academic attainment by fostering greater communication between students and teachers. Additionally, it was discovered that students who used mobile learning gained a variety of abilities, such as computer literacy, critical thinking, and good note-taking.

Recommendations

In conclusion, integrating mobile devices into educational settings in higher education stands out as a vital strategy for raising the standard of instruction there general. The results of Alhajri's (2016) study, which looked at the difficulties and results of implementing mobile learning, support this opinion by showing that both students and teachers have favorable opinions of it and see it as a useful tool to improve teaching and learning following suggestions can be made in light of the research's results:

- This study's sample consists of candidates for Turkish language and literature teachers. Qualitative, quantitative, or mixed-method studies encompassing teacher candidates from other disciplines with larger sample sizes can be conducted.
- In this study, no statistically significant result emerged regarding gender-based differences in learning attitudes. However, future research could delve into the gender factor in more detail. For example, qualitative studies or quantitative analyses and mixed-method studies that focus more extensively on gender differences can be conducted to gain a deeper understanding of the relationship between gender roles, perceived gender inequality, and mobile learning attitudes.
- This study shows that there are age-related changes in learning attitudes. Future research might be planned to better understand the attitudes of students in various age groups toward mobile learning and to create educational approaches that are suitable for each age group.
- It is important to examine in more detail the effects of "instructional technologies or information technology" courses at the undergraduate level. Additionally, research is needed to evaluate how the

content and methods of these courses can help students develop their technology skills. Qualitative, quantitative, and mixed-method studies can be conducted in this direction.

References

Abdelwahed, N. A. A., & Soomro, B. A. (2022). Attitudes and intentions towards the adoption of mobile learning during COVID-19: building an exciting career through vocational education. *Education+ Training, 65*(2), 210-231.

Akkaya, S., Ciğerci, M. F. & Kapıdere, M. (2021). Investigation of the relationship between prospective teachers' attitudes towards mobile learning and their readiness for mobile learning. *International Online Journal of Education and Teaching (IOJET), 8(*4), 2949-2965.

Al-Emran, M., & Shaalan, K. (2015). Attitudes towards the use of mobile learning: a case study from the gulf region. *International Journal of Interactive Mobile Technologies (iJIM), 9*(3), pp. 75–78. https://doi.org/10.3991/ijim.v9i3.4596

Al-Emran, M., Alkhoudary, Y., Mezhuyev, V. & Al-Emran, M. (2019). *Students and Educators Attitudes towards the use of M-learning: Gender and Smartphone Ownership Differences*. International Association of Online Engineering. Retrieved July 26, 2023 from https://www.learntechlib.org/p/207191/.

Al-Emran, M., Elsherif, H. M., & Shaalan, K. (2016). Investigating attitudes towards the use of mobile learning in higher education. *Computers in Human Behavior*, *56*, 93-102.

Alhajri, R. (2016). Prospects and challenges of mobile learning implementation: A case study. *Journal of Information Technology & Software Engineering, 6*(5), 1-8.

Altuntaş, B. (2017). Y kuşağının mobil öğrenme uygulama tercihini etkileyen faktörlerin incelenmesi[Examining the factors affecting the preference of the mobile learning application of generation Y]. *İnsan ve Toplum Bilimleri Araştırmaları Dergisi- Journal of the Human and Social Science Researches, 6*(6), 89-104.

Aydın, O. & Özdamar, N.(2020). Mobil öğrenme ve Türkiye'de açıköğretim faaliyeti yapan üniversitelerin mobil öğrenme uygulamalarının incelenmesi. *Açıköğretim Uygulamaları ve Araştırmaları Dergisi (AUAd),6*(4), 113-154.

Baek, Y., Zhang, H., & Yun, S. (2017). Teachers' attitudes toward mobile learning in Korea. *Turkish Online Journal of Educational Technology, 16*(1), 154–163.

Baran, E. (2014). A review of research on mobile learning in teacher education. *Educational Technology & Society, 17*(4), 17-32.

Bozkurt, A. (2015). Mobil öğrenme: her zaman, her yerde kesintisiz öğrenme deneyimi. *Açıköğretim Uygulamaları ve Araştırmaları Dergisi(AUAd), 1*(2), 65-81

Büyükkalkan, F., & Semiz, K. (2023). Pre-service physical education teachers' acceptance of mobile learning tools and attitude levels for mobile learning. Turkish Journal of Sport and Exercise /*Türk Spor ve Egzersiz Dergisi, 25*(1), 129-136.

Chen, B., Yang, T., Wang, Y., Xiao, L., Xu, C., Shen, Y., ... & Sun, Z. (2021). Nursing students' attitudes toward mobile learning: An integrative review. *International Journal of Nursing Sciences, 8*(4), 477-485.

Creswell, J. W. (2017). *Araştırma deseni: nitel, nicel ve karma yöntem yaklaşımları*.4. baskıdan çeviri. [Research design: qualitative, quantitative and mixed methods approaches.4. Translation from the edition] (Çev.

Ed: S. B. Demir). Eğiten Kitap

Çam, E., Uysal, M., Kıyıcı, M. & İşbulan, O. (2019). Mobil öğrenme tutum ölçeğinin türk kültürüne uyarlanması [Turkish culture adaptation of Mobile Learning Attitude Scale]. *International Journal of Turkish Educational Sciences, 7*(13), 114-125.

Çelik, H. C., & Karayaman, S. (2018). Investigating Attitudes of Prospective Mathematics Teachers towards the Use of Mobile Learning at a Higher Learning Institution. *Universal Journal of Educational Research, 6*(8), 1784-1794.

Çömlekçi, M. F., & Başol, O. (2019). Gençlerin sosyal medya kullanım amaçları ile sosyal medya bağımlılığı ilişkisinin incelenmesi[Analysis of relationship between youths' social media usage motives and social media addiction]. *Manisa Celal Bayar Üniversitesi Sosyal Bilimler Dergisi/ Celal Bayar University Journal of Social Sciences, 17*(4), 173-188.

Dashti, F. A., & Aldashti, A. A. (2015). EFL college students' attitudes towards mobile learning. *International Education Studies, 8*(8), 13-20.

Demir, K., & Akpınar, E. (2016). Mobil öğrenmeye yönelik tutum ölçeği geliştirme çalışması[Development of attitude scale towards mobile learning*]. Eğitim Teknolojisi Kuram ve Uygulama- Educational Technology Theory and Practice, 6(*1), 59-79.

Demir, K., & Akpinar, E. (2018). The effect of mobile learning applications on students' academic achievement and attitudes toward mobile learning. *Malaysian Online Journal of Educational Technology, 6(*2), 48-59.

Elçiçek, M., & Bahçeci, F. (2015). Meslek yüksekokulu öğrencilerinin mobil öğrenmeye yönelik tutumlarının incelenmesi[The research of the vocational school student's attitudes towards mobile learning]. *Sakarya Üniversitesi Eğitim Fakültesi Dergisi- Sakarya University Journal of Education Faculty -SUJEF,* (30), 17-33.

Gökdaş, İ., Torun, F., & Bağrıacık, A. (2014). Öğretmen adaylarının cep telefonlarını eğitsel amaçlı kullanım durumları ve mobil öğrenmeye ilişkin görüşleri[Teacher candidates' mobile phones educational use situations and opinions on mobile learning]. *Adnan Menderes Üniversitesi Eğitim Fakültesi Eğitim Bilimleri Dergisi-Adnan Menderes University Faculty of Education Journal of Educational Sciences, 5*(2), 43-61.

Güneş, F., Işık, A. D. & Çukurbaşı, B. (2015). Mobil öğrenme uygulamalarının öğretmen adaylarının tablet bilgisayar kullanma becerilerine etkisi[The effect of mobile learning applications using tablet computer skills of candidates teachers]. *Bartın Üniversitesi Eğitim Fakültesi Dergisi/Bartın University Journal of Faculty of Education,* 1-10. https://doi.org/10.14686/BUEFAD.2015USOSOzelsayi13 193

Güzel, A. & Elkıran, Y. M. (2021). Türkçe öğretmeni adaylarının internet tabanlı okuma motivasyonu ve etkileşim ile mobil öğrenme tutumları arasındaki ilişkinin incelenmesi[Examining the relationship between prospective Turkish teachers internet based reading motivation and engagement and mobile learning attitude]. *RumeliDE Dil ve Edebiyat Araştırmaları Dergisi-RumeliDE Journal of Language and Literature Studies,* (24), 324-341. DOI: 10.29000/rumelide.996583

Iqbal, S., & Bhatti, Z. A. (2015). An investigation of university student readiness towards M-learning using technology acceptance model. *International Review of Research in Open and Distributed Learning, 16*(4), 83–103. doi:https://doi.org/10.19173/irrodl.v16i4.2351

Jaradat, R. M. (2014). Students' attitudes and perceptions towards using M-learning for French language learning: a case study on Princess Nora University. *International Journal of Learning Management Systems, 2*(1), 32-44.

Kalınkara, Y. (2021). Eğitimde mobil öğrenmeye yönelik yapılan araştırmaların incelenmesi: Bir içerik analizi[Examination of research on mobile learning in education: A content analysis]. *Uluslararası Yönetim Bilişim Sistemleri ve Bilgisayar Bilimleri Dergisi- International Journal of Management Information Systems and Computer Science, 5*(1), 86-103.

Karakuyu, A. & Uyar, A. (2019). Ön lisans öğrencilerinin mobil öğrenme tutumlarının düzeyi ve bazı değişkenlerce incelenmesi[Level of associate degree students' mobile learning attitudes and investigation according to some variables]. *Route Education and Social Science Journal, 42*(3), p. 101-110.

Karaoğlan Yılmaz, F. G., Dilen, A., & Durmuş, H. (2018). Lise öğrencilerinin mobil öğrenme araçlarını kullanma öz-yeterlik düzeylerinin incelenmesi[The examination of high school students' self-efficacy levels of mobile learning tools]. *SDU International Journal of Educational Studies, 5*(1), 1-12.

Karasar, N. (2009). *Bilimsel araştırma yöntemi(kavramlar-ilkeler-teknikler)[Scientific research method (concepts-principles-techniques)*]. 19th edition. Nobel Yayın Dağıtım

Kavaklı, A., & Yakın, İ. (2019). Mobil öğrenme: 2015-2019 çalışmalarına yönelik bir içerik analizi[Mobil Learning: A Content Analysis of Publications from 2015 - 2019]. *Karadeniz Sosyal Bilimler Dergisi-The Black Sea Journal of Social Sciences, 11*(21), 251-268.

Keskin, N. Ö. (2010). Mobil öğrenme teknolojileri ve araçları [Mobile learning technologies and tools*]. Akademik Bilişim, 10,* 490.

Keskin, N.Ö., & Kılınç, A.G.H. (2015). Mobil öğrenme uygulamalarına yönelik geliştirme platformlarının karşılaştırılması ve örnek uygulamalar. *Açıköğretim Uygulamaları ve Araştırmaları Dergisi, 1*(3), 68-90.

Khaddage, F., & Knezek, G. (2013, July). iLearn via mobile technology: A comparison of mobile learning attitudes among university students in two nations. In *2013 IEEE 13th International Conference on Advanced Learning Technologies* (pp. 256–258). IEEE.

Kılınç, H. (2015). Mobil öğrenme: Eğitim ve öğrenimin dönüşümü. *Açıköğretim Uygulamaları ve Araştırmaları Dergisi (AUAd), 1*(4), 132-138

Liaw, S. S., & Huang, H. M. (2015). How factors of personal attitudes and learning environments affect gender difference toward mobile distance learning acceptance. *International Review of Research in Open and Distance Learning, 16*(4), 104–132. https://doi.org/10.19173/irrodl.v16i4.2355

Pham, A. T., & Truong, U. T. (2023). Students' attitudes towards mobile learning: a case study in higher education in Vietnam. *International Journal of Emerging Technologies in Learning (Online), 18*(7), 62-71.

Sağır, F., & Göksu, H. (2015, Aralık). *Öğretmen adaylarının mobil eğitim uygulamalarına yönelik tutumları : K.K.T.C örneği.* VI. Eğitim Yönetimi Forumu. KKTC.

Sırakaya, M., & Alsancak Sırakaya, D. (2017). Ön lisans öğrencilerinin mobil öğrenme tutumlarının çeşitli değişkenler açısından incelenmesi[An examination of associate degree students' mobile learning attitudes according to various variables]. *Gazi Üniversitesi Gazi Eğitim Fakültesi Dergisi-Gazi University Journal of Gazi Educational Faculty (GUJGEF), 37*(3), 1085-1114.

Şenel, S., Şenel, H. C., & Günaydın, S. (2019). Herkes için mobil öğrenme: Dil öğrenme uygulamalarının evrensel

tasarım ilkelerine göre incelenmesi[Mobile learning for everyone: Investigation of language learning applications according to universal design principles]. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Özel Eğitim Dergisi- Ankara University Faculty of Educational Sciences Journal of Special Education, 20*(1), 73-92. doi: 10.21565/ozelegitimdergisi.377503

Turan, S., Yaman, M. S., Genc, H. I., Dönmez, A., Hergüner, G., & Yaman, Ç. (2022). Predictive of perceived learning: academic motivation and attitudes to mobile learning. *Turkish Online Journal of Educational Technology-TOJET, 21*(1), 106-113.

Uygun, D., & Sönmez, A. (2019). Mobil öğrenme üzerine güncel çalışmalarla ilgili bir içerik analizi. *Açıköğretim Uygulamaları ve Araştırmaları Dergisi, 5*(1), 53-69.

Yalçınkaya, T., & Yücel, S. C. (2023). Determination of nursing students' attitudes toward and readiness for mobile learning: A cross-sectional study. *Nurse Education Today, 120*, 105652, 1-6.

Yeler, M., & Ocak, G. (2021). Öğretme-öğrenme sürecine etkin katılım sağlamada mobil öğrenme yaklaşımının uygulanması: Eylem araştırması[Application of mobile learning approach for active participation in teaching-learning process: An action research]. *Mehmet Akif Ersoy Üniversitesi Eğitim Bilimleri Enstitüsü Dergisi- Mehmet Akif Ersoy University Journal of The Institute of Educational Sciences, 9*(11), 142-170.

Yılmaz, A., Üstün, A. B., & Güler, T. (2022). Ortaokul Öğrencilerinin matematik derslerinde mobil öğrenme kullanımına yönelik tutumlarının incelenmesi[Investigation of secondary school students' attitudes towards the use of mobile learning in mathematics lessons]. *International Journal of Active Learning (IJAL), 6*(2), 98-116.

Yılmaz, N., & Çakır, R. (2022). Öğretmen adaylarının dijital okuryazarlıkları ile mobil öğrenmeye yönelik tutumları[Preservice teachers' digital literacy and attitudes towards mobile learning]. *Turkish Journal of Educational Studies, 9*(2), 291-325.

Yorganci, S. (2017). Investigating students' self-efficacy and attitudes towards the use of mobile learning. *Journal of Education and Practice, 8*(6), 181-185.

YÖK/ Yükseköğretim Kurulu (2023). *Yükseköğretim Kurumları, Bilimsel Araştırma ve Yayın Etiği Yönergesi*. https://www.yok.gov.tr/Sayfalar/Kurumsal/mevzuat/bilimsel-arastirma-ve-etik-yonetmeligi.aspx (Erişim tarihi: 10.06.2023)

Yurdagül, C., & Öz, S. (2018). Attitude towards mobile learning in English language education. *Education Sciences, 8*(3), 142.

Author Information

Assoc. Prof. Dr. Abdulkadir Kırbaş
https://orcid.org/0000-0001-9846-0256
Atatürk University
Erzurum, Türkiye
Contact e-mail: *akadirkirbas@atauni.edu.tr*

Assoc. Prof. Dr. Mesut Bulut
https://orcid.org/0000-0002-0733-0964
Atatürk University
Erzurum, Türkiye