Students' Attitudes Towards Mobile Learning

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Abstract—The aim of this research is to reveal the attitudes of engineering faculty students towards mobile learning. The study group of the research consisted of 80 students studying at various universities in Kazakhstan and voluntarily agreeing to participate in the research. The research was created in a qualitative design. In this study, a semi-structured interview form developed by the researchers was used in order not to determine the mobile learning attitudes of the students. Students' attitudes towards mobile learning were evaluated based on the content analysis method. The result of the research reveals that the vast majority of students use mobile learning applications frequently. When students were asked about the advantages of mobile learning applications, they stated that it increases motivation, facilitates learning and is useful. The disadvantages of mobile learning were categorized by students as information pollution, need for mobile support and high cost. In order to eliminate the disadvantages of mobile learning applications; Uninterrupted internet and wireless data transportation support can be provided to meet the mobile support needs in universities.

Keywords—mobile learning, mobile learning applications, student opinions

1 Introduction

In line with the developments based on technology, new concepts and approaches have emerged in almost all fields of education, especially distance education, and these concepts have become synonymous with the learning process. Mobile learning is one of these concepts, and especially in the last 10 years, with the development and spread of the internet, it has started to be used widely and effectively in learning and teaching processes, especially in distance education. The widespread use of the concept of mobile learning in such a rapid and short period of time has made the use of this concept more frequent in internet-supported teaching processes and mobile learning has become a frequently studied area.

1.1 Theoretical and conceptual framework

The rapid developments in today's computer and internet technology increase the usage areas of these technologies and the ways of access to these areas. Especially the developments in communication technologies reveal the importance of information and systems that provide access to information [1].

Mobile learning is defined as learning that makes it possible for the user to access the educational content by communicating with others through mobile technologies, without time and place constraints, and which increases productivity and performance by providing instant feedback to their needs [2]. Learning via mobile devices allows students to collaborate inside and outside of school and share ideas among each other [3].

It is possible to express mobile learning as the use of handheld devices for learning [4]. Rau et al. [5], on the other hand, define mobile learning as a form of learning in which e-learning content can be accessed and communicated at the same time, independent of time and place, which emerges as a joint result of distance education and e-learning fields.

Mobile vehicles; In the century we live in, it is a set of systems that are expanding day by day, making important contributions to the development of the global communication network thanks to web services, and integrated with many advanced new generation technologies [6]. It is seen that the devices that can be used most to perform mobile learning processes are listed as follows; laptop computers, tablet computers, wearable computers, pocket computers, netbooks, cell phones, smart cell phones, personal digital assistant, portable mp3 player, ipad, ipod touch, portable gaming gadgets, usb sticks, handheld devices [7].

The use of mobile learning devices in education also makes the learning process more effective. In the mobile learning process, the space-related limitation is eliminated by the inclusion of mobile learning in education, and it gives freedom to the person in learning. Mobile tools and applications that provide the opportunity to learn independently of time and place are on the way to become an indispensable learning material of our lives. In addition, thanks to mobile applications, students are given the opportunity to learn by having fun with online games, and experience is gained by presenting reality with simulations and animations. Mobile learning using wireless mobile technological tools allows everyone to access learning materials and information whenever and wherever they want. Students have the opportunity to practice and practice what they watch or what happens in real life through simulators. In real-life integration, this can be done easily and smoothly with practicality [8]. With mobile learning, it becomes possible for students to interact with each other by using additional tools such as wireless short messaging, mobile internet access and voice communication. Wireless technology can enable students to access information without limitation of time and place. Students can move in physical or virtual environments with their mobile devices. Mobile technologies can provide the ability to access, understand and store a variety of learning materials from anywhere at any time. In addition, well-executed mobile education can help reduce cognitive load for students [9].

1.2 Related research

In their study to examine the effectiveness of mobile learning, Heflin, Shewmaker and Nguyen [10] examined student participation, critical thinking level and student attitudes towards collaborative learning in collaborative learning environments with and without mobile technology using a quasi-experimental research design. The results of the study showed that; While mobile technologies are useful tools for collaborative learning, any use of technology for learning carries the risk of distracting students and not participating in learning activities.

In another study, Martin and Ertzberger [11] examined the effects of mobile-based learning and computer-based learning on the achievement and attitudes of university students. In the study, it was determined that the success of the students in the computer-based learning group was higher than the students in the mobile learning group. However, when examined in terms of attitude, it was observed that the attitude values of the students in the learning environment provided with mobile devices were at a higher level than the students using the computer-based learning environment.

According to Bharati's [12] study, it is argued that since mobile learning is more focused on individual work, students with high motivation who are aware of their own working styles should be preferred in the measurement of attitude towards m-Learning.

Crompton and Burke [13] reported in their study that mobile device ownership has exploded with the increase of adults with multiple mobile devices, and mobile device users are between the ages of 18-29, which is the typical age of university participants. Key findings have focused most of the studies on the impact of mobile learning on student achievement.

In this period, which is called the mobile age, mobile technologies have affected almost every field as well as the field of education. This has enabled mobile learning to be seen as a new model of today [14]. Hamidi and Chavoshi [15] examined the level of adoption of mobile learning in universities in their study. Mobile learning as an e-learning model means acquiring knowledge, skills and attitudes using mobile technologies. Study, "What is the impact of mobile phone use in education?" With his research, he examines mobile learning approaches and theories in education. The study aimed to evaluate the basic factors necessary for the adoption and implementation of the educational information system created by the students. As a result of the study, it was emphasized that mobile learning is a promising educational technology for development in educational environments and usage culture.

When we look at the scale developments in the field, it is seen that Hung, Chou, Chen, and Own [16] developed a five-dimensional measurement tool for university students. These dimensions are: self-directed learning, motivation for learning, computer/internet self-efficacy, learner control, and online communication self-efficacy. When the data obtained were analyzed, students' readiness levels, computer/internet self-efficacy, motivation for learning, online communication self-efficacy were found to be high. Another scale development study was conducted by Uzunboylu and Özdamlı [17]. According to the results of this study, teachers displayed a perception towards m-learning above the intermediate level. Demir and Akpınar [18] developed

an attitude scale towards mobile learning. The sub-dimensions in the scale are satisfaction, impact on learning, motivation and usefulness.

1.3 Purpose of the research

The purpose of this research; To reveal the attitudes of engineering faculty students towards mobile learning. Depending on the purpose of the research, answers to the following questions are sought.

1. What is the frequency of students using mobile learning applications?
2. What are the students' views on the advantages of mobile learning applications?
3. What are the students' views on the disadvantages of mobile learning applications?

2 Method and materials

In this section, there are information about the research method designed in accordance with the purpose of the research, the study group of the research, the data collection tool, the data collection process and the evaluation of the data.

2.1 Research method

The research was created in a qualitative design. In qualitative research methods, events and phenomena are observed in their natural environment. In this context, the qualitative researcher, who believes that reality is more than one and socially structured, conducts his research by examining people in the natural environment where they occur while researching social events. Since qualitative research methods are sensitive to understanding and recognizing the natural environment in which the research is carried out, and explaining its effects on the results, it provides the opportunity to present educational facts in a multidimensional way. With these aspects, it adds richness to educational research [19]. In this study, it is aimed to reveal the attitudes of engineering faculty students towards mobile learning. Depending on the structure of the research, it was deemed appropriate to collect the data in a qualitative design.

2.2 Participants

The study group of the research consisted of 80 students studying at the engineering faculty of various universities in Kazakhstan and voluntarily agreeing to participate in the research. The study group of the research was selected by convenient sampling from purposive sampling types. This type of sampling is frequently preferred because it enables the selection of the most suitable sample to which semi-structured interview forms or questionnaires to be applied to students can be applied [20]. Demographic characteristics of the study group of the research are given in Table 1.

Table 1. Demographic characteristics of students

Class	Gender		Sum
	Female	***Male***	
1. Class	7	12	19
2. Class	11	16	27
3. Class	14	5	19
4. Class	2	13	15
Sum	34	46	80

In Table 1, the gender and class distributions of the students participating in the research are given. 19 of the students participating in the research are 1st grade, 27 of them are 2nd grade, 19 of them are 3rd grade and 15 of them are 4th grade. In addition, 34 of the students are female and 46 are male. It is possible to say that the majority of the students participating in the research are male students.

2.3 Data collection tools

In this study, a semi-structured interview form was used in order not to determine the mobile learning attitudes of the students. Before the semi-structured interview form was created, a literature review was conducted. After the literature review, the questions prepared to be used in the semi-structured interview form were presented to the opinion of 3 faculty members. In line with the feedback obtained from the expert opinions, the form was given its final shape. The semi-structured interview form applied to the study group of the research is given in Table 2.

Table 2. Semi-structured interview form

Demographic Information				
Your gender:	Female: ( )		Male ( )	
Class:	1.Class ( )	2.Class ( )	3.Class ( )	4.Class ( )
Mobile Learning Related Questions				
How often do you use mobile learning applications?				
Always	Often	Sometimes	Rarely	
What are your views on the advantages of mobile learning applications?				
What are your views on the disadvantages of mobile learning applications?				

In the semi-structured interview form developed by the researchers to be used in the research, there are two questions to determine the demographic characteristics of the students who make up the study group. In the section where questions about mobile learning are included, there is one closed-ended question about the frequency of students' use of mobile learning applications and two open-ended questions about the advantages and disadvantages of mobile learning.

2.4 Data collection process

In this study, the attitudes of engineering faculty students towards mobile learning were evaluated based on the content analysis method. Content analysis is the gathering of similar qualitative data within the framework of various themes and concepts, making quantitative analyzes, and interpreting the analyzes in a way that readers can understand. Content analysis is one of the most frequently used methods among qualitative data analysis types, and it is a method used mainly in the analysis of written and visual data by following the deductive method. In this method, the researcher carefully develops categories related to the research topic in a way that other researchers can understand, counts, organizes and interprets the words, sentences or pictures in these categories [21]. In addition, the views of the students participating in the research were included by making one-to-one quotations.

3 Results

The data obtained in the semi-structured interview form prepared to be applied to the study group of the research are shared in this section.

In Table 3, the opinions of the engineering faculty students participating in the research on the frequency of using mobile learning applications were evaluated.

Table 3. Frequency of using mobile learning applications by students

Categories	Always		Often		Sometimes		Rarely		Never		Sum	
	F	***%***	***F***	***%***	***F***	***%***	***F***	***%***	***F***	***%***	***F***	***%***
Frequency of use	12	15	43	53,75	14	17,5	8	10	3	3,75	80	100

Table 3 shows the frequency of using mobile learning applications by the students participating in the research. 15% of the students stated that they use mobile learning applications all the time, 53.75% often, 17.5% sometimes, 10% rarely. 3.75% of the students stated that they have never used mobile learning applications. Research findings reveal that the majority of students frequently use mobile learning applications.

Table 4 shows the opinions of the engineering faculty students participating in the research on the advantages of mobile learning applications.

Table 4. Students' opinions on the advantages of mobile learning applications

Categories	Themes	F	%
Motivation	Request to access information	71	88,75
	Desire to learn information	62	77,5
	Desire to consolidate knowledge	43	53,75
Learning	Developing thinking skills	58	72,5
	Persistence in learning	51	63,75
	Being easy to remember	23	28,75
Usefulness	Ease of accessing information	47	58,75

	Accessing appropriate content	22	27,5
	Suitability for different learning methods	8	10

In Table 4, the opinions of the students participating in the research on the advantages of mobile learning applications were evaluated. Students evaluated the advantages of mobile learning in three categories. These; motivation, learning and usefulness. The students participating in the research evaluated the motivation category of mobile learning as 88.75% desire to access information, 77.5% desire to learn information and 53.75% desire to consolidate knowledge. In the learning category, 72.5% of the students described it as an advantage to gain thinking skills, 63.75% to be permanent in learning and 28.75% to be easily remembered. In the usability category, teachers evaluated the ease of accessing information by 58.75%, accessing appropriate content by 27.5%, and suitability for different learning methods by 10% as advantages.

The opinions of some students participating in the research on the disadvantages of mobile learning applications are as follows.

Learning information from the Internet is more enjoyable. It increases my desire to learn. I can easily perform mobile learning whenever I need it in any environment. (S4)

In my opinion, mobile learning provides a learning convenience suitable for different learning methods. I can easily find the information I am looking for. I can find the opportunity to open and reinforce it again and again whenever I want. (P48)

I have more opportunity to reflect on the knowledge I have gained through my own individual effort. The information I learned stays in my mind more. I have no difficulty in remembering. (P19)

I am more willing to learn. In my opinion, mobile learning applications ensure that knowledge is permanent, as it provides the opportunity to repeat it whenever I want. It also gives you the freedom to learn whenever you want. When I have easy access to information, my desire to learn also increases. (P77)

Table 5 shows the opinions of the engineering faculty students participating in the research on the disadvantages of mobile learning applications.

Table 5. Students' views on the disadvantages of mobile learning applications

Categories	Themes	F	%
Information pollution	Misinformation in content	64	80
	A pile of useless information	52	65
	Content security problem	41	51,25
Mobile support needs	Internet access problem	61	76,25
	Short battery life of mobile vehicles	50	62,5
	Wireless data access difficulties	33	41,25
Cost	Expensiveness of mobile devices	42	52,5
	Some content is paid	26	32,5
	Internet being paid	11	13,75

In Table 5, students' views on the disadvantages of mobile learning applications are evaluated. Students evaluated the disadvantages of mobile learning in three categories.

These; information pollution, need for mobile support and cost. Students in the category of information pollution; They stated that 80% of the contents were misinformed, 65% of the contents were unnecessary information stack and 51.25% of the contents were security problems. In the category of need for mobile support, they considered the internet access problem at a rate of 76.25%, the short life of the battery of mobile vehicles at a rate of 62.5%, and the difficulty of accessing wireless data at a rate of 41.25% as a disadvantage. In terms of cost, students; They described the fact that mobile devices are expensive at a rate of 52.5%, that some content is paid at a rate of 32.5%, and that the internet is paid at a rate of 13.75% as disadvantages.

The opinions of some students participating in the research on the disadvantages of mobile learning applications are as follows.

Sometimes there can be information pollution in mobile learning environments. For example, learning content can sometimes be filled with incorrect information. Also, it's always hard to find the internet. Both the internet is expensive and it is not always easy to meet the need for uninterrupted internet. (P21)

I think learning in mobile environments is quite costly. Devices such as computers and tablets are expensive. Sometimes it is necessary to purchase content on some sites. These may not be affordable either. (S10)

Some sites on the Internet are not safe. It can cause virus infection to mobile device. The battery drains quickly when researching on the phone. Sometimes it is difficult to reach the contents with wireless internet. (P46)

I believe that the heaps of unnecessary information on the Internet make mobile learning difficult. In addition, access to the Internet is not something that everyone can easily do. (P57)

4 Discussions

The results obtained from the research; reveals that engineering faculty students frequently use mobile learning applications. Students classified the advantages of mobile learning applications in the motivation category as accessing information, learning information and reinforcing information. Students; they see the features of mobile learning applications as providing thinking skills, permanence in learning and being easy to remember as advantages regarding learning. According to the students; The advantages regarding the usefulness of mobile learning are ease of access to information, access to appropriate content, and suitability for different learning methods. In the literature, it is seen that there are studies that reveal the advantages of mobile learning. In Ciampa [22] research; reveals that technology-supported learning environments increase students' ability to search for and access necessary information, and satisfy sensory and cognitive curiosity. In their study, Hsiao and Chen [23] revealed that students who receive education with mobile learning method have a higher motivation level than students who receive education with traditional learning method. Saran et al. [24] stated in their study that mobile technologies allow students to learn outside the classroom due to their ease of access and portability. In another study showing positive student attitudes towards mobile learning, Simonova and Poulova [25]; In order to determine the preferences of

the students in the teaching-learning process for mobile assisted education, they worked with 203 students studying at the Faculty of Informatics and Management at Hradec Kralove University. As a result of their work with the working group; It has been determined that students are willing for mobile learning related to education and their attitudes towards using mobile devices in learning and teaching processes are positive. Kearney and Maher [26] conducted a qualitative research on how pre-service teachers would use mobile technologies in professional learning environments. At the end of the content analysis of the data they obtained from 11 pre-service teachers using semi-structured focus group interviews and personal observation notes, they determined that they could use mobile technologies to prepare for professional learning that will continue throughout their careers. stressed the importance of incorporating technologies.

by students; Misinformation in the content, unnecessary information stack and security problems were evaluated as disadvantages of mobile learning applications regarding information pollution. Students; They stated that the disadvantages of mobile learning applications arising from the need for mobile support are internet access problems, short battery life of mobile devices and difficulty in accessing wireless data. The disadvantages related to cost are; It is classified as expensive mobile devices and paid content and internet. In the research conducted by Kıcı [27], some concerns were expressed in the use of mobile applications for educational purposes. These concerns, on the other hand, determined that using educational mobile applications is not a common enough method, the curriculum studies on the subject have not been completed, and the need for a well-equipped technical team in addition to teachers. Usluel and Mazman [28], on the other hand, emphasize the importance of technology access opportunities in technology integration. In this respect, they stated that it is natural to have mobile learning environments to affect attitudes towards mobile learning.

5 Conclusion

Research findings reveal that the majority of students frequently use mobile learning applications. When students were asked about the advantages of mobile learning applications, they stated that it increases motivation, facilitates learning and is useful. The disadvantages of mobile learning were categorized by students as information pollution, need for mobile support and high cost. The researches and the results of this research show that the use of mobile technologies for educational purposes is increasing day by day. No matter how often individuals encounter the disadvantages of mobile learning applications, their mental well-being levels are also negatively affected. Reducing the disadvantages of mobile learning will positively affect the level of mental well-being. The advantages of using mobile technologies in the learning environment reveal that it positively affects the learning activities of individuals as well as their academic development. In the age of technology we live in, it is possible to say that the effective use of mobile technologies in education has become almost a necessity.

6 Recommendations

In line with the results obtained from the research, applications should be made for students of different faculties to investigate the effect of mobile learning applications on students. In order to eliminate the disadvantages of mobile learning applications; Uninterrupted internet and wireless data transportation support can be provided to meet the mobile support needs in universities. In addition, seminars can be organized to enable students to benefit from mobile learning applications from secure sites. In addition, it is thought that enriching mobile learning opportunities in universities will increase the tendency of students to mobile learning applications.

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