

## Mobile learning as a new technology in education

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### Abstract

The article discusses mobile technologies as a new direction in education. The specific features of mobile learning in different variants of interaction of subjects of the educational process in the "teacher-student" system are revealed. The article examines the set of pedagogical conditions that determine the need for the development of mobile learning as one of the leading technologies of the knowledge management system in modern education. The possibilities of effective use of mobile learning in the conditions of technical equipment and psychological readiness of the subjects of the modern educational process are analyzed. Attention is drawn to such factors as the growth of uncertainty and the complexity of information flows in the competitive environment of the developing "digital universe", which requires the rapid mastery of numerous forms of interaction.

**Keywords:** Mobile learning, mobile technologies, information, communication, technology.

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## **Introduction**

Currently, mobile learning has turned from a new technology in education into a technology that is universally recognized and common throughout the world. As computers and the Internet have become necessary educational tools, technologies have become more portable, accessible, efficient and easy to use, this opens up wide opportunities for increasing participation and access to ICTs, in particular on the Internet. UNESCO declares: "Mobile learning involves the use of mobile technologies or independently, or in combination with other information and communication technologies, in order to study at any time and in any place. Learning can unfold in various forms: people can use mobile devices to access educational resources; communicate with other people; or create content, both inside and outside classrooms (Standartinform, 2007). Mobile learning also encompasses efforts to support broad educational goals, such as effective administration of school systems and improved communication between schools and families.

## **Research Model**

What is mobile learning? Over the past decade, mobile technologies have changed the approach to learning, made it more comfortable and faster. UNESCO in the "Recommendations on Policy in the field of mobile learning" cites the following advantages of mobile devices; mobile devices are small in size and always accompany a person, mobile devices can be connected to the network almost anywhere in the world and mobile devices allow multiple users to work together on the network (Uzunboylu, 2016). The use of mobile technologies in education began due to the increase in the use of mobile technologies. The attitude of students, teachers and parents to mobile learning and their opinion on the feasibility of using mobile learning should be obtained in order to provide mobile-enabled learning in schools. The purpose of this study is to develop a scale of the attitude of private college students to the convenience of using mobile learning. This study was conducted with the participation of 150 students. First, the students wrote an essay on the problem, conducted a literary search, prepared statements and submitted an expert opinion. The latest version of the data collection tool was provided to 150 students, and the necessary analysis was carried out. Based on the results obtained, the scale was solved two-dimensional. In addition, the results showed that the reliability and validity of the scale are high. Recommendations for future research were also given.

## **Data collection process**

In the society in which we live, it has recently become apparent that technology and technological products have become part of our lives (Balci, 2013; Sert & Boynuegri, 2017). The frequent use and preference of mobile devices by users, as well as the growing number of users, make mobile devices an inevitable part of our lives (Cakir & Demir, 2014; Uzunboylu and Tugun, 2016). Smartphones, which are easy to carry, create the basis for simultaneous access to information, sound recording, photo, video recording, data storage and the use of smartphones for educational purposes (Hwang and Chang, 2011; Hyman, Moser and Segala, 2014).

Due to the continuous development of technology and the changing needs of people almost every day, the technologies used in education are constantly changing (Efilti & Coklar, 2013; Uzunboylu and Tugun, 2016). The area in which distance education has recently been used is mobile education (Uygarer, Uzunboylu & Ozdamli, 2016).

To date, mobile phones are the most accessible technology for students and students, providing great opportunities. It is not surprising that students themselves have been using it for a long time to facilitate the learning process – mobile devices provide an opportunity to find an answer on the Internet or from a friend using various instant messaging systems. Among the advantages we note the following: there is no binding to the location of the educational institution, the equipment and software are available at a low price and can be used everywhere.

The advantages of mobile learning are: Ability to learn on the go; Unaccompanied children and hard-to-reach schools; Enabling personalized learning; Students can interact with each other and with the teacher; teachers can send text by email, cut, copy and paste, transfer devices within the group, work with each other using the infrared functions of a PDA or a wireless network, for example, Bluetooth. Mobile devices can be used anywhere, at any time, including at home, on the train, in hotels - this is invaluable for on-the-job training; New technical devices, such as mobile phones, gadgets, gaming devices, attract students - young people who may have lost interest in education. The following advantages of m-learning are also highlighted: M-learning through a mobile device makes learning truly individual; Students have the opportunity to choose the content of learning taking into account their interests, as a result of which m-learning is student-oriented; Increasing the motivation of trainees (Golitsyna I.N.2014).

M-learning technology (mobile learning) is closely related to e-learning and distance learning technologies

The use of the advantages of mobile learning creates additional opportunities for interaction for all participants in the educational process, allows teachers to apply various forms of educational activities in the classroom, organize students' independent work more effectively, which contributes to the development of professional competencies of today's specialists (Afzalova A.N., Golitsyna I.N., 2012).

Mobile education involves the emergence of a whole range of new teaching and learning methods based on the belief that interaction in a traditional classroom is often not as effective as we would like. Mobile learning can be called "disruptive" and "paradigm-shifting", especially when its focus shifts to learning outside of a traditional school or to overcoming the perceived shortcomings of existing curricula and methods for evaluating their effectiveness. Mobile education connects learning more closely with life and work, and this type of activity ceases to be associated exclusively with a school, university or other stationary institution. This leads to friction between the traditional education system, focused on curriculum and individual achievements, and mobile learning, which is built around the interests of students and their needs in various situations and circumstances. Mobile learning eliminates the need to create special computer classes and gives teachers complete freedom to provide students with online applications as needed. In the conditions of practical training – for example, cooking or car maintenance - a student can manipulate a mobile device with one hand to get information, and with the other continue to do the main work or practice a skill. Mobile learning is often "light in content", and is more often used to provide students with access to audio materials, text messaging, participation in surveys, text chats, conducting and reviewing notes.

Due to the unusual presentation of information in a multimedia format, the "mobile learning" technology increases the interest of students in the educational process. With mobility comes diversity, as in a mobile learning environment, students are faced with a dynamic and often unexpected set of data, domains and communication participants.

### Where mobile learning is used

The technical and functional capabilities of mobile learning can be applied:

- to study new material (access to electronic textbooks and playback of audio and video files expand the possibilities of the educational process, especially for teaching language subjects and creative specialties);
- for testing, writing and self-control of knowledge;
- for organizing joint or project work (messengers, online team boards, cloud storage, as well as webinars in the course system allow you to quickly and efficiently exchange information).

Implementation of certain training methods in the mobileThe training is due to the fact that teachers are faced with the task ofobtaining and assimilating not only new "technological" knowledge and formingprofessional skills and skills of students on their basis,but also to develop their creative, creative and communicative qualities, whileforming professionaland creative potential of students.

It is such important qualities as self-organization,tolerance, independence, professional and informational competencethat develop in the process of mobile learning. Integrationthese methods affect, among other things, the growth of the professionaltraining of the teacher himself, which is expressed both in the quantitativeand qualitative ratioof the author's developments of teachers presented for mobile training(Bekturganova M. K., Shin, E. E. ,2017).Thanks to the useof various pedagogical technologies in the process of mobile educationof students, teachers can ensure the achievement ofeducational, psychological, pedagogical and didactic goals,i.e. new methods and principles of mobile learning contribute to the-the improvement of the educational process, which is reflected in theinnovative methods and forms of presentation of the material. Teachers in themobile learning system of students should create conditionsfor the assimilation and consolidation of the acquired knowledge, skills and abilities intheir subject.

The application of this technology entails a change of traditional forms of learning, where, for example, the workshop Stano the e-forum discussion and the process of communication in the system "teacher-student" – mobile forum or the chat, lectures and practical classes (as a mandatory component of the formation of the Pro- professional competence) acquire online.

Another way to use mobile phones for teaching is to use specialized electronic textbooks and courses adapted for viewing and performing on students' mobile phones. Students are invited to download Java applications to their phone containing, for example, tests in certain subjects, as well as information (electronic textbooks, lecture texts) necessary for their successful implementation. Modern technologies make it quite easy to design and programmatically implement such electronic manuals. The ability to place diagrams, drawings and formulas makes writing electronic training courses for mobile phones universal and applicable to absolutely any subject being studied. It is also possible to implement training programs in the game shell, using the capabilities of the graphics of phones, but the implementation of such applications is a rather complex and time-consuming process. As a result, writing electronic textbooks and subject testing programs for mobile phones seems to be a more promising direction. There are a huge number of special applications for mobile phones, such as calculators of varying degrees of complexity (simple, scientific), office programs for mobile

phones, applications containing various tests with answers (for example, for psychologists), etc.

Purpose of the study

The purpose of this study is to content analysis review of the mobile learning.

### Data analysis

Table №1

№	Year	The documents
3	2019	<u>19</u>
4	2018	<u>13</u>
7	2015	<u>9</u>
8	2014	<u>8</u>
1	2021	<u>7</u>
6	2016	<u>7</u>
5	2017	<u>6</u>
9	2013	<u>5</u>
10	2012	<u>3</u>
2	2020	<u>2</u>

Table No. 1 shows the result of the published articles. In 2019, 19 articles were published and in 2020, only two articles were published. Why is there such a difference? Since it takes 3 months to write one article. Perhaps, during the quarantine, interest in the publication of articles decreased. At that moment, people's thoughts were in their lives, not in science, people were panicking about what would happen tomorrow. But in 2021, everything again became the same as before, people got used to pandemics, panic decreased, this quarantine became the norm. Everything perked up. Therefore, we think that more articles will be published in 2021 than in 2020.

Table №2

№	Author	The documents
1	<u>Fuad, M.</u>	<u>4</u>
2	<u>Akbar, M.</u>	<u>3</u>
3	<u>Zubov, L.</u>	<u>3</u>
4	<u>Achuthan, K.</u>	<u>2</u>
5	<u>Adam, D.</u>	<u>2</u>
6	<u>Cabral, D.</u>	<u>2</u>
7	<u>Correia, N.</u>	<u>2</u>
8	<u>Diwakar, S.</u>	<u>2</u>
9	<u>Hwang, G.J.</u>	<u>2</u>
10	<u>Iahad, N.A.</u>	<u>2</u>

Table 2 shows the result of the authors who wrote on the topic of mobile learning. Fuad M. Alkoot it seems that this author has more interest in mobile learning, so he had one article in the

International Journal of Information and Education in 2019 and two more articles came out a little later. The aim of this author is to improve the result of mobile learning in higher and secondary educational institutions.

Table №3

№	Knowledge industry	n
1	ComputerScience	<u>74</u>
2	SocialSciences	<u>55</u>
3	Engineering	<u>22</u>
4	Mathematics	<u>7</u>
5	ArtsandHumanities	<u>2</u>
6	Business, ManagementandAccounting	<u>2</u>
7	DecisionSciences	<u>2</u>
8	Energy	<u>2</u>
9	EnvironmentalScience	<u>2</u>
10	PhysicsandAstronomy	<u>2</u>

When we look at Table No. 3, it can be seen that there are quite a lot of studies in the field of "computer science" (n=74), social sciences (n=55) and engineering (22) related to mobile learning. Based on the analysis of the table, it can be concluded that pedagogy is not interested in this training. We believe that for better education of students and schoolchildren it is necessary to deepen this knowledge.

### Results and Discussion

Analysis of domestic and foreign pedagogical studies devoted to the definition of the concept of "mobile learning" shows that today there are different approaches to its definition and there are a significant number of relevant definitions.

Analyzing the concept of "mobile learning" presented on authoritative foreign Internet portals, (DuhnichYu., Mobile Learning) gives a number of definitions of this concept:

- mobile learning is any activity that allows people to be more productive in such processes as the consumption and creation of information, as well as any interaction with it, using a compact digital device that a person uses regularly. Such a device should provide reliable communication and fit in a pocket (Elearningguild <http://www.elearningguild.com>)

- mobile learning is any educational activity in which mainly or exclusively portable devices are used - phones, smartphones, tablets, sometimes laptops and the like, but not ordinary desktop computers (IADIS internationalconferencemobilelearning)

- mobile learning is any learning that takes place in such conditions when a student is outside of a fixed, Information Technology in education 99 predefined location, or such training in which a

person uses the learning opportunities and advantages of mobile technologies(mobilelearn, <http://www.mobilelearn.org>).

- mobile learning is the use of common technologies, including wireless networks and mobile networks, to facilitate, support, enrich learning and provide greater educational coverage (molenet <http://www.mlearning.org/case-studies/molenet>);

Summing up the analysis, taking into account the identified general and essential features, it is possible to formulate a collective definition of the concept of "mobile learning" – this is a purposeful process of active and interactive interaction between students and teachers through didactic information and communication technology, which has the specified possibilities of implementing methods and forms of learning, as well as the special nature of presenting the content of learning in the form of educational content, ensuring, regardless of the location and time of the implementation of educational activities, the achievement of educational goals and planned learning outcomes. Mobile didactic information and communication technology – these are information processes and methods of working with educational content carried out with the use of computer technology and telecommunications, ensuring the organization of students' activities to acquire knowledge, skills, skills and competencies, gain experience in activities, develop abilities, gain experience in applying knowledge in everyday life and the formation of students' motivation to receive education throughout their lives, regardless of the location and time of the students' educational activities (Avanesov V.S. ,1988. pp. 139-154).

Mobile education in Kazakhstan attracts close attention of pedagogical science and practice today. The use of mobile learning in the preparation of students in educational institutions should be based on pedagogically sound approaches and teaching methods, for which an analysis is carried out, including foreign studies on the problem of mobile learning. There is a significant amount of work in the field of computerization and the use of information and communication technologies in the educational process.

The tablet computer is considered to be the most promising mobile device that can be used in teaching practice. Despite the fact that tablets appeared in our experience not even 10 years ago, they already have a serious impact on the educational process, thanks to these tablets, phones, we managed to get out of a difficult situation when the whole world switched to distance learning during the pandemics associated with COVID-19.

Along with the advantages of using mobile learning, there are also disadvantages, these are the following:

- possible damage to vision when working with a mobile device for a long time;
- the student may be distracted by other applications that are entertaining in nature

Mobile learning also includes activities that are not directly related to the educational process, but are necessary to achieve its goals: for example(Vasiliev V.I., 2003. 584 p.).

effective management of school systems, improving interaction between educational institutions and student families, etc.

Mobile learning can be combined with other types of learning, providing interactive learning for students. However, it is necessary to note some possible drawbacks:

-the small size of the PDA screens limits the amount and type of information that can be displayed;

Limited options for saving mobile phones and K checkpoints;

-batteries should work without interruptions, as data loss may occur;

1. They may be less reliable than desktop computers;
2. It's hard to use work with graphics;
3. Rapid aging of mobile communication devices;

Decline reduced bandwidth with a large number of users.

This requires constant improvement from mobile phone manufacturers, mobile service providers, and training industry experts.

### **Conclusion**

Introduction of mobile technologies in education:

- a. allows participants of the educational process to move freely;
- b. expands the scope of the educational process beyond the walls of the educational institution;
- c. provides an opportunity for people with disabilities to study;
- d. does not require the purchase of a personal computer and a paper educational
- e. thanks to modern wireless technologies (WAP, GPRS, EDGE, Bluetooth, Wi-Fi); information in multimedia format contributes to better assimilation and memorization of the material, increasing interest in the educational process. Thus, the expediency of using these modern means of communication in teaching is obvious.

In the future, teachers and students should no longer be limited to the ability to teach and study in a specific place and time. Mobile devices and wireless technologies will become an everyday part of learning in the near future, both inside and outside of classrooms. Most modern students are technically and psychologically ready to use mobile technologies in education, and it is necessary to consider new opportunities for more effective use of the potential of mobile learning. Solving this problem requires organizational efforts on the part of education managers, research and methodological work of scientists and teachers to introduce strategies, forms and methods of mobile learning into the educational process of higher educational institutions (Vasiliev V.I., 2003. 584 p.).

So, mobile learning is a popular, developing and widely used technology. The most important thing is that whether we want it or not, mobile technologies have already penetrated the audience. Each student has at least a mobile phone with him in class, and some have tablets and laptops. Increasingly, students prefer to use electronic versions of textbooks on a pair or read reports directly from the screens of their mobile devices. It makes no sense for teachers to resist progress, it is much more logical and pleasant to use progress for their own purposes and to let students understand that their mobile gadgets can be used not only for entertainment and correspondence in social networks, but also for learning, both in the classroom and outside it.

Ultimately, mobile learning will definitely become much more cost-effective compared to traditional learning methods. All said and done, mobile learning is a phenomenon that will remain. Previously, students were excited about the prospect of owning a desktop. However, because of his immobility, people quickly abandoned him and got a laptop, which gave them the opportunity to carry their work wherever they went. However, students or even children are currently more likely to use mobile devices than carry a laptop because they find laptops too heavy and clunky compared to a smart phone, which is not overloaded compared to other devices. All you need is a device and a



charger. That's all. No cables, no wires, no extra luggage. Just as schools, colleges and universities do not supply writing supplies such as pens and notebooks, but expect you to use them and carry them with you on campus at all times, the time is not far off when you are expected to carry your own smart phone device to college so that you can use it on your journey of mobile learning in online communities.

Thus, with the use of mobile technologies, learning becomes truly flexible: mobile devices can be used anytime and anywhere. Students can keep in touch with the teacher and with each other, exchange information using messengers, social networks and e-mail, work on collective projects (Volodin A.A., 2014. 102 p.). In addition, the use of mobile technologies makes it possible to involve in the training of those students who did not manifest themselves in the traditional format.

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