Changing Direction: Mobile Technology in Russian Higher Education

Daniyar Sapargaliyev

International Academy of Business,
227, Rozybakiyev Street, Almaty, Kazakhstan
dsapargalieff@gmail.com

Abstract. The purpose of this study was to investigate the examples of using mobile technology in higher education in Russia. We have identified the main barriers in development of mobile learning in the region. Also we offered possible solutions to improve the situation in the future. We analyzed more than 30 Russian-language sources about the development of mobile learning in Russia. We found that many Russian universities are implementing projects on the use of mobile devices in education. Nevertheless there are still a number of problems that hinder the further development of mobile learning. Today Russian education community is divided. Some teachers are actively using mobile devices in the classroom, but many educators are in skepticism about mobile learning. We have determined the apparent contradiction between how active students are using mobile technology in everyday life and the inability of teachers to exploit this potential for educational purposes.

Keywords: mobile learning, mobile technology, higher education, ICT, Russia.

1   Introduction

Today many Russian educational experts are discussing the need for the use of mobile technology for improving the quality of education. The process of implementation mobile learning was started about five or six years ago, but the tangible results of the use mobile technology in higher education could not be detected. The main reason of this situation is a low technological readiness of universities to use modern technologies in higher education. Many of mobile learning projects were not implemented on a larger scale.

According to the report of Bilbao-Osorio *et al.* (2013) Russian Federation has 54 rank out of 144 countries on networked readiness index. Mobile network coverage in Russia is totally 95%, the index of mobile phone subscriptions is one of the highest in the world (179.3%), but the index of individuals using Internet is only 49%. These results show that Russia is ready to use mobile technology in system of education, but there are some difficulties in realisation of mobile learning initiatives and projects.

One of the most challenging technological problems is still the high cost of mobile Internet and its low penetration in province. According to The Wall Street Journal (2013) Russia has a lot of rural areas that are in the "digital gap". Russian government plans to deliver next-generation mobile phone services such as LTE to rural areas in the next five years.

However, the efforts of government are still not enough to reverse the situation. Today it is necessary to reconsider new approaches in higher education. However, over the past three years, we can observe changes in direction of the use mobile technology in higher education system. More and more Russian scientists and teachers are trying to improve the quality of education by using new technologies in learning. Mobile learning is becoming popular and widespread in Russian universities. In this article we have tried to analyse how universities use mobile technology to improve education in Russia.

2   Organisational Structures and Language Learning

Over the past three years mobile assisted language learning (MALL) is the main direction in development of mobile learning in Russia. However, there are some attempts of Russian scientists to describe and create organisational structure for mobile learning at the universities. In this section we considered some successful examples in implementation of mobile assisted language learning and the use of mobile technology for organisation of learning process.

2.1   Organisation of Mobile Learning

The majority of Russian researchers point out importance of integration mobile learning with online courses for access to virtual learning environment. For example, Ogneva and Mayorova (2012) argue that mobile learning provides a lot of opportunities for online learning in Russia. One of them is the use of smartphones on Moodle courses. Other Russian researcher Novenko (2012) created the "mobile interactive complex" and showed the directions of its use in the educational process. Gnitetskaya *et al.* (2012) have defined the aspects of structuring educational material for mobile learning. These aspects are based on a new model of "intrasubject" links created for mobile devices.

Some researchers identify the importance of the use different types of mobile devices in organisation of mobile learning. For example, Ruban, Kabanov and Korovkina (2012) reported on their research about organisation of learning activities with the use Tablet PCs. Another researcher Yesenina (2011) considers that the use of portable game consoles can improve the educational process at university. The author has analysed the ways of the technical capabilities of game consoles in teaching students with disabilities.

Russian scientists are paying special attention on development of mobile applications that help to organise mobile learning in higher schools. For example, Aytchanov *et al.* (2012) presented the method of studying programming language C++ with the use of mobile technology at universities. The authors developed special mobile application that was based on principles of micro learning. Other group of scientists, Ismoilov *et al.* (2013) has identified the main approaches to development of mobile applications for learning. The authors created application for mobile learning system that is using for learning students of petrochemical courses. Kareev and Kurochkina (2012) examined the prospects for the use mobile devices in Russian

tourist education. The authors described the advantages of mobile application "Audio Guide: Moscow" that was developed for outdoor learning. Some Russian researchers describe the use of advanced technology on mobile devices of students. For example, Stupin *et al.* (2012) examined the opportunities and prospects of the use Augmented Reality (AR) technology in Russian education. The authors identified technological and pedagogical problems that can be solved by applying AR technology and main characteristics of AR-supported applications in education.

In our study, we also looked at the various organisational structures of mobile learning at Russian universities. For example, Afzalova (2012) describes the experience of students' independent work in courses based on mobile technology. These courses were presented as small blocks for comfortable using on mobile devices. The results of experience showed that the use of mobile devices allowed students to create learning environment for independent work and productive interaction between all participants of the educational process. Moreover, Merkulov (2012) identified new structure for mobile learning in higher education. This structure consists of four functional levels: (1) applications for mobile learning; (2) Infrastructure for mobile learners; (3) mobile protocol and (4) mobile network. The author argued that knowledge management and learning community are two main issues in mobile learning. New mobile learning structure is described by Travkin (2013), who examines the definition and general characteristics of "mobile campus". This campus consists of combination of formal and informal social channels in learning activities. The author argues that the most important element of mobile campus is intelligent algorithms. The author examines the connection of mobile campus with academic community, personal learning network and electronic profile of each learner.

2.2   Mobile Assisted Language Learning

The study of foreign languages is the main direction in the use of mobile devices in Russian universities. Many teachers are actively implementing mobile devices into the learning process. For example, Gerasimenko, Kovalchuk and Mokhova (2013) studied the use of mobile technology in learning a foreign language at universities in Russia. The authors argue that mobile learning becomes an integral part in the process of learning a foreign language and makes this process informative, personalised, comfortable and flexible. Also, the authors estimated that mobile learning can not replace the traditional system of language learning, but can be used as additional and convenient form of learning. For example, the students of Moscow State University of Economics, Statistics and Informatics constantly listen to BBC (The British Broadcasting Corporation) podcasts and use language learning resources on their mobile phones.

Other Russian researcher Avramenko (2012) carried out a study in which he examined the methods of using mobile applications in the classroom. The author described the experience of integration audiocast and videocast in teaching of foreign languages. The author concluded that the use of mobile applications helps to activate and improve speaking skills of students. Also Livskaya (2013) analysed the feasibility of using mobile technology in the process of foreign language learning. The author

investigated the criteria of effectiveness mobile learning in improving speaking skills of students. A study carried out by Sidorenko and Shiptenko (2013) in Russian higher schools described some specific ways of using mobile phones for support and enhance students' motivation in learning a foreign language. The authors argued that the use of mobile phones makes learning more interesting and varied for students.

Titova and Avramenko (2013) analysed the difficulties and advantages of mobile learning as a means of modernising formal teaching. The authors conducted the student survey at Faculty of Foreign Languages of the Moscow State University. The results of survey demonstrated psychological and technical readiness of students to the use mobile devices in the classroom. Despite a number of potential problems of using mobiles in education (such as high cost of calls, messages and Internet connection) many Russian researchers considered these devices as new teaching tools.

3   Problems and Features

The introduction of new types of learning is often accompanied by a variety of problems in Russian higher education. The main problem is low technological readiness level of teachers to use mobile technology in the classroom. Also, implementation of mobile learning in higher education depends on technical and psychological willingness. In this section, we try to identify main problems in the use of mobile devices at Russian universities and psychological readiness of students to mobile learning.

3.1   Psychological Aspects in Using Mobile Devices

The psychological readiness of students to use mobile devices in learning is one of the main directions in research works of Russian scientists. For example, Golitsyna and Polovnikova (2011) pointed out that despite the widespread of mobile phones among students, mobile learning practices poorly distributed in Russia. The authors analysed technological and psychological readiness of students to use mobile technology. The authors argued that most of students consider mobiles as new possibilities for learning.

Another research team Romanovskaya, Nikitina and Chitayeva (2012) showed the results of comparative analysis of ECAR (Educause Center for Analysis and Research) survey. The survey data demonstrated the students' willingness to use mobile devices for learning. Molokanova (2012) presented the results student survey conducted at Moscow State Regional University. This survey determines students' readiness for the use of mobile technology in the learning process. The findings showed the interest of students to create educational content for mobile devices.

In addition, some Russian scholars proposed to study Psychology course on mobile devices. Kiseleva, Miroshnik and Latun (2011) looked at successful mobile learning project to create training programs on psychology, conflict resolution, cultural and creative pedagogy. These programs known as "hobby courses" helped students to gain new knowledge on selected topics for their professional growth.

Also, a number of Russian scientists considered in their work the psychological aspects of teaching and student-centered approach in mobile learning. For example, Doronina (2012) pointed out that mobile technology contributes the formation of professionally oriented teacher who knows how to establish effective relationships with students. Yanenko (2012) analyses psychological conditions for integration of distance learning technologies and mobile devices in teaching. Trefilova and Kamalov (2013) proposed to use mobile technology for student-centered learning. The authors argue that the main difference of mobile technology is that students have free access to educational resources and educator controls the execution of tasks by using mobile device.

3.2   Problems of Using Mobiles at Russian Universities

The implementation mobile learning in Russia is faced with several problems. These problems are mainly due to different standards of education with new approaches of informal learning. For example, Gurevich (2012) considers the prospects of using mobile technology for development of Russian professional education. The author argues that mobile learning in Russia slowed by number of problems associated with non-systematic approach in implementation.

Svirsky (2012) looks at the social and educational problems in imperfection of mobile learning that remain relevant for many Russian researches. The author argues that study of mobile learning possibilities allows developing appropriate methodology for mobile learning in Russia.

Titova (2012) underlines the importance of conditions for successful integration of mobile platforms in teaching foreign languages and discusses about negative aspects of mobile learning. The author suggests that negative aspects of mobile learning contain administrative, organizational and methodological problems. Firstly, there is difficult to convince both teachers and administrators that mobile learning helps to optimize educational process. Mobile phones are usually prohibited in schools and universities for using in the classroom and mobile devices can be used as electronic cribs. Secondly, the teachers have not (as opposed to students) appropriate level of ICT competence, which would allow them to introduce mobile technologies, use mobile educational applications and provide interactive support of learning process. Thirdly, mobile resources are not developed for different specialties, but there is a great variety of mobile applications, grammar tests and games for English language learning. Fourthly, many teachers say that the lack of well-developed methodological mobile learning framework slows the use of mobile devices in the classroom.

4   Conclusion

Today the system of higher education in Russia is becoming an integral part of world education. However, global changes in Russian higher education require new forms of learning and teaching. Over the past ten years mobile learning has become one of the cutting-edge areas in the development of higher education in Europe, North America,

Asia and Africa. However, the countries of the former Soviet Union are not sufficiently involved in the process of implementation mobile learning. Russia is one of the leaders in the region that implemented pilot mobile learning projects. On the other hand, mobile learning in Russia is facing a number of problems that can be solved only at the system approach.

The rapid development of mobile Internet in recent years can dramatically change the direction of the use ICT in Russian higher education. Some universities have started to use mobile technology in educational process and have replaced desktop technology in the classroom.

Nevertheless some attempts of Russian researchers to find own organisational structures and frameworks for mobile learning based only on own empirical studies, without regard to big experience of foreign countries and universities. The same approach can be observed in organisation of mobile language learning. As a rule, teachers and students use mobile devices for study English language, although mobile technology could also be used for learning the endangered languages of national minorities of Russia.

In our opinion, in Russian studies of mobile learning, too much attention is paid to psychological aspects of using mobile devices. It would be important to pay attention to sociological, economical and political aspects of the use mobile technology in higher education.   We think that Russian system of higher education is overly bureaucratic and often deprived of proper funding for innovation and new forms of learning and teaching.   We hope that in this decade, we can observe the strengthening of mobile learning in improving the quality of Russian higher education.

References

1. Afzalova, A.N.: The use of mobile technologies for self-study of students (2012), `http://ifets.ieee.org/russian/depository/v15_i4/html/9.html`
2. Avramenko, A.P.: Podcasts and videocasts of mobile format for teaching of foreign languages (2012), `http://istina.imec.msu.ru/media/publications/articles/797/34b/2654711/Avramenko_Anna_statya.doc`
3. Aytchanov, B.H., Zhaparov, M.K., Satybalbiyev, A.B., Murzabayev, A.E.: Mobile learning in the programming language C++ by microlearning. The Problems of Computer Science 2, 88–92 (2012)
4. Bilbao-Osorio, B., Dutta, S., Lanvin, B.: The Global Information Technology Report 2013. Growth and Jobs in a Hyperconnected World (2013)
5. Doronina, N.A.: Mobile educational technologies and teaching methods in the training of future teachers with social and pedagogical interaction. Modern Problems of Science and Education 6, 372–372 (2012)
6. Gerasimenko, T., Kovalchuk, S., Mokhova, O.: Possibilities and prospects of using mobile learning for studying a foreign language. Bulletin of Moscow State Regional University 1, 61–64 (2013)
7. Gnitetskaya, T.N., Gnitetskiy, P.V., Ivanova, E.B., Afremov, L.L., Ustinov, A.Y., Karnauhova, E.V.: Mobile physics learning on the base of intradisciplinary connections' information model. The World of Science, Culture and Education 2, 6–7 (2012)

8. Golitsyna, I.N., Polovnikova, N.L.: Mobile learning in modern education. School Technologies, 113–118 (2011)
9. Gurevich, R.S.: Mobile learning is a new technology for vocational education in 21st century (2012), `http://dspace.luguniv.edu.ua/jspui/bitstream/123456789/389/2/V20.pdf#page=`
10. Ismoilov, M.I., Merkulov, A.M., Ostroukh, A.V., Alexakhin, S.V.: Software development for mobile devices in the system of training and retraining of petrochemical enterprises. Automation and Remote Control of Communications in the Oil Industry 1, 77–80 (2013)
11. Kareev, N.M., Kurochkina, T.N.: M-Learning - current stage of e-Learning evolution. Computer Science and Education 6, 39–41 (2012)
12. Kiseleva, E.A., Miroshnik, E.V., Latun, A.V.: Computer intellectual support of self-learning based on mobile communication. Psychological Assistance to Vulnerable Persons Using Remote Technologies (Internet consulting and distance learning), 152–155 (2011)
13. Livskaya, E.V.: Mobile learning in foreign language: theory, methodology and practice of implementation in higher schools. Actual Problems of Humanities and Natural Sciences 1, 199–202 (2013)
14. Merkulov, A.M.: Education through mobile devices - a new paradigm of e-Learning. Young Scientist 3, 70–75 (2012)
15. Molokanova, Y.: Students' willingness and motivation to use electronic educational resources in educational process. Bulletin of the Moscow State Regional University 2, 22–28 (2012)
16. Novenko, D.V.: Mobile interactive complexes in geography learning at comprehensive school. Geography at School 3, 42–44 (2012)
17. Ogneva, E.S., Mayorova, E.S.: Mobile learning on the example of application mTouch. Mathematical and Software Systems in the Industrial and Social Spheres 2, 308–314 (2012)
18. Romanovskaya, M.B., Nikitina, I.A., Chitayeva, O.B.: Study of mobile learning opportunities. Vocational Education 4, 28–29 (2012)
19. Ruban, G.A., Kabanov, A.M., Korovkina, T.V.: Tablet PC for organising and conducting field trips in a technical university (2012), `http://sworld.com.ua/simpoz2/83.pdf`
20. Sidorenko, A.I., Shiptenko, K.V.: The role of mobile phones in learning foreign languages. In: Ukrainian Scientific-Practical Online Conference of Students and Teachers "Strategies of Language Life Long Learning", Donetsk, pp. 70–71 (2013)
21. Stupin, A.A., Stupin, I.A.: Augmented Reality in education: Opportunities and prospects. Distance and Virtual Learning 7, 75–84 (2012)
22. Svirsky, K.G.: Problems and prospects of mobile learning (2012), `http://elib.bsu.by/handle/123456789/20538`
23. Titova, S.V.: Mobile learning today: strategies and prospects. Bulletin of Moscow State University (2012), `http://titova.ffl.msu.ru/articles/Mobile-learning-today-strategies-and-perspectives.doc`
24. Titova, S.V., Avramenko, A.P.: Evolution of education in the teaching of foreign languages: from computer to smartphone. Bulletin of Moscow State University 1, 9–21 (2013)
25. Travkin, I.Y.: Mobile campus: a reflective and collective dimension of educational activities mediated by mobile technology. Economics, Statistics, Computer Science 1, 15–20 (2013)

26. Trefilova, A.V., Kamalov, R.R.: The use of mobile learning technology to form ideas about information security of students. Modern social and humanities in Russia and abroad. In: Proceedings of the Second Part-Time International Scientific Conference, Perm, pp. 97–99 (2013)
27. Urpolskaya, V.A., Isengaliyeva, G.H.: Mobile phone as a means of studying a foreign language (2012), `http://referat.znate.ru/pars_docs/ tw_refs/53/52553/52553.pdf#page=181`
28. Wall Street Journal, How Russia is bringing high-speed fiber to all its towns? (2013), `http://blogs.wsj.com/tech-europe/2013/02/26/ how-russia-is-bringing-high-speed-fiber-to-all-its-towns`
29. Yesenina, N.Y.: The use of PlayStation portable in the educational process of the Great Britain. Computer Science and Education (2011), `http://elibrary.ru/item.asp?id=16803727`