

M-organization of Learning: Potential of Utilization in Russian Higher Schools

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Abstract: *The aim of the research was to point out main trends of m-learning spreading around the world and to analyze perspectives of educational m-services implementation in Russian Higher Schools. The core part of the paper is the description of a show-case "Mobile Student" which took place in Moscow State University. The most valuable scientific output of the research is the analysis of data which were obtained thanks to the student satisfaction survey. To carry out that survey the special questionnaire was created and several hypotheses were suggested. Having a great empiric base a common strategy of m-services project implementation was composed and two types of factors which were hindering or helping us to gain high level of student satisfaction were found out. Our recommendations have some extrapolation limitations but CEE countries may use earned experience due to the commonality in ways of development and similar level of technologies.*

Keywords: mobile services, m-learning, m-society, organization of learning process, innovations in formal educational institutes.

1. The review of mobile learning conception today

1.1. Worldwide overview

The idea of mobile learning has been improving in the world for last 10 years. However, its development is not homogeneous. There are three regions with different trends of m-learning comprehension. In the United States the GDP, purchasing power of citizens and standards of life are high, all kinds of technologies are quite easy to get both from physical and financial points of view. These distinctive features of the country made the concept of mobile learning not very popular because electronic equipment is wide spread and the possibilities of e-services obviously are much higher.

The second area includes African countries and is characterized with alternation of densely and poorly populated "civilization islands" in endless deserts. The remote education for students from mountains, bogs and other categories of hard to reach places is an urgent topic. The control under knowledge mastering and scientific guiding in field researches of African students are done with mobile tools. High level of poverty causes such difficulties as low level of technology penetration (even for the mobile network), not complete efficiency of using mobile tools (when students are learning via public devices they are afraid of breaking them) and the lack of electricity creates problems with recharging cell phones.

Finally, the third group consists in European countries. The existence of many co-operation levels in European Union, the differentiation of programs from region to region (Western, Central, Eastern, South-Eastern, Northern) provides incentives for utilization of large variety of education models (both electronic and mobile). The mobile learning isn't understood as less developed form of e-learning but as additional one, which has higher speed of information delivery, possibilities to get the feedback and level of addressing.

The last all-world tendency is commercialization of mobile learning. For modern operators who provide some value added services, mobile learning is considered to be one of the promising directions. But it needs to put some efforts for researches and for working up the market share.

In these conditions mobile operators started formulating recommendations on how to develop a reasonable content in m-services taking into account intrinsic limitations of mobile devices such as screen space, CPU power, battery duration, and Internet bandwidth. For example, managers of R&D department of Turkcell Company (a leading Turkish operator) consider that in order to enable as large audience as possible, the text and images should be the main tools for the preparation of m-learning content. Besides, screens should not be over-crowded: the best decision is one idea per screen (Calikus, 2010).

1.2. Overview of mobile services in Russian Federation

Position of Russian Federation in this triangle is ambiguous. The low level of using highly developed models of cell phones set some limits to the proving learners with more complicated educational content. However, mobile broadband admission is accessible only for 10 percent of mobile network users worldwide (Mforum.ru, 2010). So, Russia is not along in its ordinary phones prevalence.

There are no materials about mobile learning written in Russian that's why there is at least a language barrier to have an access to the theory.

Some projects in the field of mobile learning were carried out (mobile dictionary, mobile diary in school) but they were made chaotically and spontaneously, without the aim of creation a common educational space. The new projects don't use the experience of the former ones. When the project is being implemented the authors usually don't realize how crucial it is to share the information, to make a strong marketing campaign, to inspire people by example and to shape the idea of mobile learning and mobile services. In a word, implementers are technically-oriented, choosing a misleading priority of successful drawing out a user-friendly interface and convenient application instead building long-term partner relations with users for providing them with services they need in suitable form.

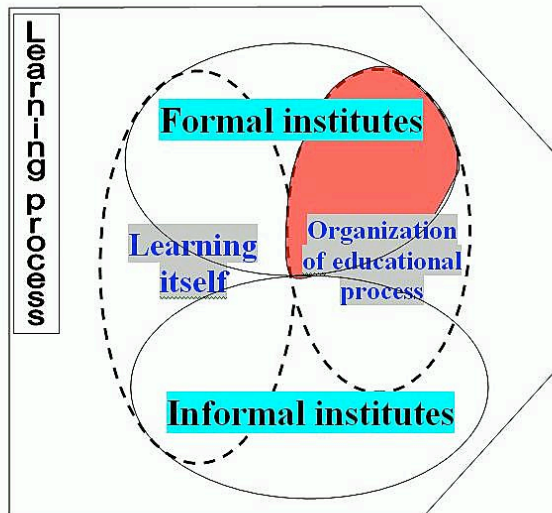
On the other hand, mobile devices are quite wide spread in the country and the popularity of mobile communications has an ongoing growth. According to the 2006-year report of All-Russian Centre of Public Opinion Examination (VTSIOM), the mobile network is used by two thirds of Russians. Certainly, among well-to-do men and capital cities (Moscow and St. Petersburg) dwellers the percentage of mobile network users is higher (75 and 87 percent, respectively) than among low-income groups and rural population (53 percent in both cases). These last mentioned categories of people should also be embraced in m-services G2C communication including M-learning sphere. Especially considering that 86 percent of 18-24 year-old youth use mobile devices in regular basis regardless its place of living and social status.

2. Educational mobile services

2.1. The need for m-services in formal educational institutions

Learning process takes place both in formal and informal institutions and contains two crucial parts: learning itself (the process of transmitting the learning content) and organization of learning process (conducting the communication among all parties of learning process and preparation of the suppliers and consumers of learning for their interaction). Look details in Figure 1.

Figure 1. Learning process structure



Source: Author

* The red area is the “Mobile student” project niche

As Vygotsky told, the more channels of perception we use in learning process – the higher the quality of education is and the more effective efforts of students become. In order to use all channels of perception m-services start executing text, game, video and audio. Nowadays mobile learning is streaming to be used in informal educational institutions (chess club, soccer team, dance school, etc.) and in informal atmosphere (cafes, trains, at home). That’s why we can underline that the majority of current Western European mobile learning projects focus on the marginalized youth, trying to “interrupt” it from entertainment and foster receiving knowledge process.

Mobile services can be used both within the education process, and for improving relations among administration, academics, students and their parents (Katz, 2006; Kolb, 2008).

Our research focuses on possibilities of mobile services implementation in formal institutions such as Russian Higher Schools. The more efficient the communication between students and professors is – the better learning results are and the higher motivation is. If the learners have an opportunity to save efforts for searching the information and for the organization of educational process their academic results will raise significantly.

The gap in relationships between educational process parties is very dangerous for the educational system itself. It gives space for misunderstood and kills enthusiasm. The productive cooperation between students and professors may be build only when trust is implied. To have an effective communication educational process parties should make the atmosphere in formal institutions more informal. The best way to do it without breaking the subordination system is to use informal channel of communication. Mobile devices may help to create partner interaction and to start speaking one language – language of common aims and interests.

2.2. Traditional communication process in Russian Higher Schools

In the majority of Russian Higher Schools until now communication process was the following: all the information about the education process is collected and centralized in the special unit – curriculum department. Staff of the department either called all students or put a written announcement on the special stand. Another important communication channel was to contact to class monitors (student leaders) who then are responsible for disseminating information among their colleagues. Of course this process was rather long and rather costly (e.g. the class leader had regularly to send 20-30 SMS or make the same number of calls after receiving an announcement from curriculum department) (Solodov, 2010).

The other problems of such traditional communication is that the primary message may accumulate unnecessary information (sometimes even assume contrary character). To find the link which broke the

communication chain is a difficult, time-consuming and risky process because the responsibilities are diluted. So, this channel is not a reliable one.

2.3. Possibilities of using m-services in organization of learning process in Russian Higher Schools

New process organization allows reducing the time and money spending for information dissemination. Also an important advantage that we can ascertain is the raise of corporate culture and identity due to the regular information directly from the Dean and his deputies.

Among Russians as among some other nations two delusions: first, that the information is a costless resource, and second, that if there are no direct citizens' expends – there are no expends in general, are rather widespread and strong. To break the first statement we need to remind that we are living in postindustrial society, society standing on the information stage of development when information and knowledge are the most valuable resources. And its cost rises in direct proportion to the level of its reliability. And to split into pieces the second assumption we need to say that even when the immediate consumer of the service doesn't pay money for it, it doesn't mean that this service is free of charge for the state. Information which was received free of charge is paid from governmental taxes. And citizens should highly evaluate this information and treat it carefully because the expenditures are covered with citizens' own income. Money which was directed to collecting and providing information may also go to social needs (pensions, scholarships and grants). The cost of the service may be shown in different items: in time of employees, their satisfaction of work, the harmfulness for the environment and others. For example, when somebody uses such a method of passing the information as telephoning it is very expensive because it is very time-losing and provides a lot of negative emotions in a person who is ringing the clients. Mobile services have a reasonable cost and high speed; they engage dealing parties in direct interaction and provide both of them with innovation approach to the problem.

3. The “Mobile Student” project

3.1. The idea of the project

The project was created two years ago but the delivery itself started in March 2009 at the School of Public Administration (hereinafter referred to as SPA), Moscow State University.

The focus of “Mobile student” is not learning process, but administrative relations as they are more dynamic and can be changed within shorter time. The main aim of the project was to develop several mobile services for higher education institutions. The goals of the project were the following:

- (1) to approve and test different information services;
- (2) to assess students and academics readiness to use mobile phone for official communication and to identify their preferences of services;
- (3) to identify factors that enable implementation of such services in public institutions.

Target audience of the services consists of the BA and MA students of SPA (approximately 1000 person); users of the system include administrative staff and selected academics.

The content of messages may be divided into two parts: organization of educational process (several targeted messages from academics concerning classes cancellation, changes of room and changes in schedule, etc.) and non-learning activities (greetings from the Dean on the occasion of Manager's day - the holiday of SPA; New Year and entering the University congratulations; announcements of workshops and meetings with outstanding researches, politicians and civil servants).

Technical part of the service was outsourced to a service-provider - the private company specialized in SMS-services for business, which developed web-interface for the service.

The question of m-services cost is one of the most complicated. Who should pay for installing that new system of student-professor-administration communication? The answer we want to advice is that the expenditures should be shared by faculty and students. The criterion of costs determination for each party is

easy – just identify who benefits from the certain service more (whose indirect losses are higher: losses for time, transport, Internet connection, anxiety, etc. all together).

At the first stages of functioning “M-Student” is a totally subsidized project: all the expenditures for information delivery are covered by SPA. But interactive and transactional m-services may be included in so-called VAS (value added services) which are not free of charge because the benefit you get is obvious and not raises doubts. So, after testing mobile channel of communication with information services provided on voluntary basis, other types of services should be launched. This measure may help to find a balance between services paid by faculty and ones paid by students. The idea is that m-services implementation is a low-cost decision how to renovate communication system in formal educational institutions. The roots of low-cost status lies in fact that if the m-services policy is right, the faculty will minimize its expenditures or even reduce them to zero because the students ordering charged interactive and transactional services will cover expenses for all services.

3.2. Step-by-step history and main results of three-semester of day-to-day running

The first stage of the project was launched in the February, 2009. First, the students were informed about new form of services and were suggested to subscribe for getting educational services via cell phone on the voluntary basis. A student wishing to participate in the project had to write his/her cell phone number and to confirm it with a signature as consent for receiving the information.

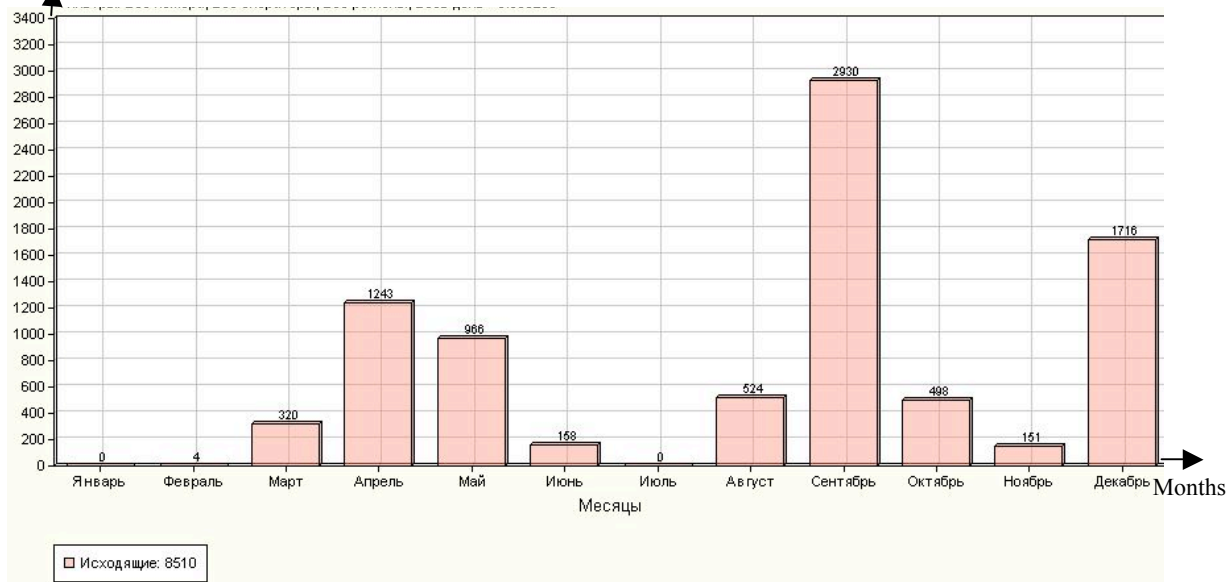
The first and the only service till now is the information delivery. It may be divided into general (to all students) and group (after sorting with a certain criterion – to students with high academic indices, to student scientific society members, to students with payment debts, etc.) distributions of information.

During 10 months of performing (March – December 2009) 8510 SMS with official information were sent to students (Figure 2).

2009/2010 educational year started with a record: September became a SMS-sent leader in the first calendar year of “M-Student” project existence.

Figure 2. SMS traffic of “Mobile Student” project per 2009

Amount of SMS which were sent to students from administration and professors



Source: E-vostok Company

In May 2010 the student satisfaction survey was conducted (see details in Section 4).

But it doesn't mean that previously the feedback wasn't collected. While monitoring the public opinion about m-services implementation it was learnt that administrators and academics who used the service were positive in general, but expressed suspicion about the cost of the service for them (it is free) and students distraction from the class (it happened several times that students received the same SMS during the lecture and they started discussions about it).

In fall semester an interactive service – Mobile timetable – will start working. This service allows students to get their personal timetable for the day in response to the SMS on the short number.

The further development of the “Mobile Student” project is seen in implementing such services as direct questions to the lecturers, m-voting, m-competitions and m-chatting (based on academic issues – discussing the scientific problems and news). To make the consumer satisfaction level higher we will set up a motivation system with bonuses, opportunity to make the access to the information deeper in proportion you use m-services and special “M-students” communities.

3.3. Changes in m-services comprehension

Although official feedback from the users of the project was not collected until May, it was already evident that the reaction to mobile services isn't stable and universal. At the beginning of project implementation students referred to that innovative tool of communication very warmly: they expressed their satisfaction with School's dynamism and readiness to use new technologies for informing them. The participation rate of students (about 90% signed for receiving the information through cell phone) shows the readiness to use the new service. The major concerns that were expressed refer to the cost of the service (it is free, the interactive service will cost 0.03\$) and the privacy (e.g. avoiding spam or advertizing messages).

On the other hand, many students wrote down some useful suggestion about m-services' future. The key advice is to offer more space for students' creativity and to make the subject of m-services wider, to make it not only an organizational tool but also the mechanism of correcting the very learning process.

But then in the second semester of project's work started previous emotions were replaced by indifference and even irritability towards receiving the messages. We tend to explain it with the absence of new services. The project stopped being unusual and went to the routine part of life. Moreover, during the second semester many of weaknesses of the project came to the surface.

Our attempts to find natural laws of student comprehension fluctuation led us to the conclusion that there are factors-incentives and factors-spoilers which have strong influence on m-services usage efficiency.

The first category of factors comprises “mobile culture” of the youth, high level of mobile tools penetration, interest to the information process and willing to make all the procedures easier and accessible from any place.

The second category of factors includes orientation to the lazy, not to the active and outstanding students – under it we mean that implemented services make the students' life simpler but do not make it richer with possibilities to co-operate with professors and administration. Students have got the mechanism to minimize live interaction, even to avoid it. The accent should be moved to the creating additional channels of communication instead the replacement of traditional ones. Another drawback is forgetting about motivation of using m-services. At first it will be interesting to try m-services but then they will become a usual part of daily routine. If services are not used they won't develop. So, we need to maintain the motivation of students to utilize them. Methods of motivating are quite well-known. Good decision is to create special communities of m-services users with special chats and additional available mobile content. The statistics of m-services users may help administration to find active and talented students who are keen on learning and try to get as much knowledge as possible.

4. The results of the student satisfaction survey

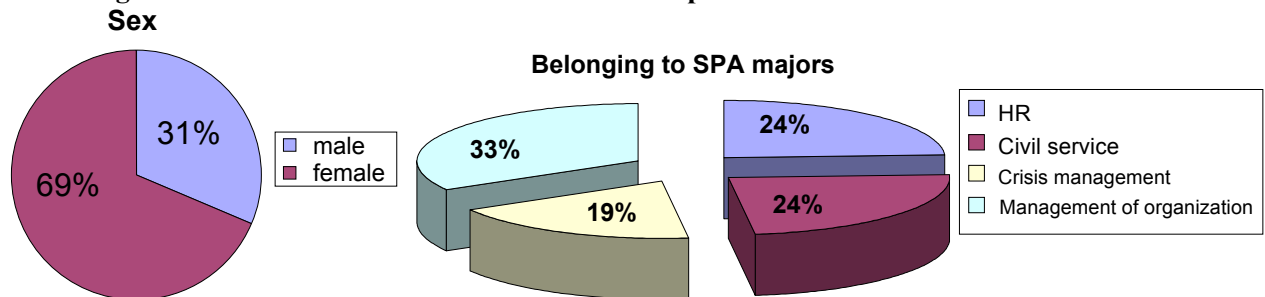
The aim of the survey was to research the level of SPA student satisfaction in m-services and reveal new potentially needed services. The goals were:

- to determine how valuable the information delivery is for students,
- what content is seen as more useful and attractive,
- what m-services drawbacks/inconveniences and wishes/advantages are marked out by users,
- what pecuniary costs they could spend on the inquired information receipt.

To conduct a survey the special questionnaire was composed. It was divided into five parts depending on the issue each covers: 1) The concept of Mobile Learning; 2) Interest in existence of “M-Student” project; 3) Mechanism of m-services providing; 4) Innovations in “M-Student”; 5) The appraisal of m-services characteristics.

The sample equals 286 SPA students what allows to extrapolate the conclusions for all 1000 of “M-Student” project users. The sample was gender and study group balanced:

Figure 3. The statistic characteristics of the sample.

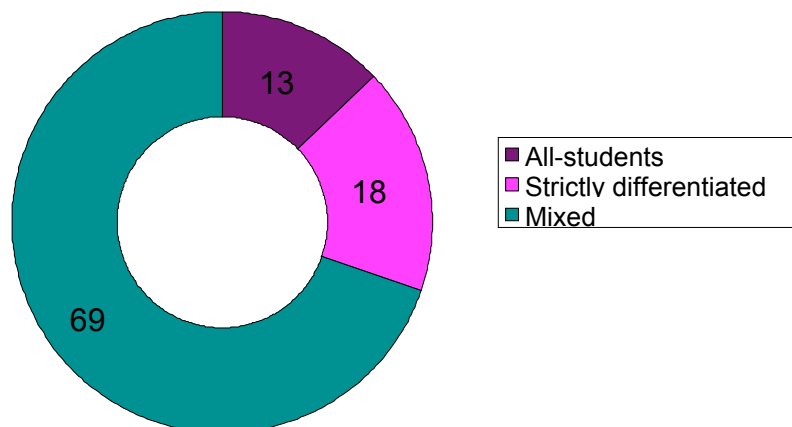


Source: Author

During the time of survey analysing we rejected some of our primary hypotheses and put forward secondary ones. Among verified hypotheses we'd like to mention that:

1. There is a link between the knowledge of M-Learning concept and belief in the perspectives of its development in Russia.
2. Time and periods of services provision are the main factors of students' satisfaction.
3. All-student, general delivery is not effective (look details in Figure 3).

Figure 4. Statistic answer to the question #1 “What form of message delivery should be used?” in the questionnaire.



Source: Author

Another useful piece of information is the hierarchy of students' priorities of content broadening of the "M-student" project. That hierarchy is an interesting scientific output both in possible educational m-service package capacity and in sequence of service implementation capacity.

1 place –

- 1.1. Mobile schedule *¹ (interactive delivery about the personal timetable for the day in response to the student' SMS on the short number).
- 1.2. Requests to the curriculum department*: applying for information/certificates, extracts from the orders, monthly tickets, etc.

2 place – Thematic information delivery*: announcements about job placement, internship/student exchange possibilities; conferences and workshops (Russian and foreign), new library arrivals on specific topic.

3 place – Mobile library*: information about the date of book return, book ordering, etc.

4 place – Express translation of words or phrases from English/French/German to Russian and vice versa*.

5 place –

- 5.1. A question for a professor before the lecture (asking for explanation of complicated topics; asking for focusing any particular part of a new theme, etc.)
- 5.2. Feedback (to professors and faculty administration):
 - Complaints (of learning process organization, of level of service, etc.)
 - Suggestions (about learning process organization, department work optimization, arranging the events, for student organizations' purposes, etc.)

6 place –

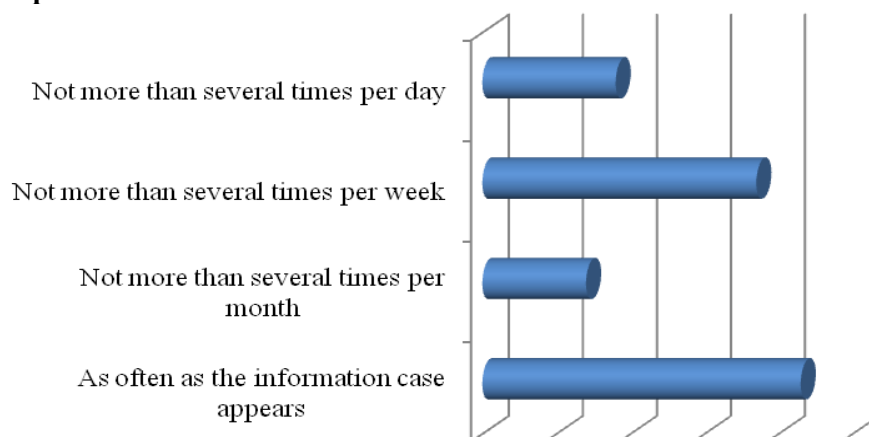
- 6.1. SMS-conference (with experts, the Dean, academics);
- 6.2. Extraordinary delivery in emergency cases (evacuation plans, directions on behavior, etc.)

7 place – Reminding to pay for the dormitory; requests for working hours of different services* (passport office, medical service, cafeteria, laundry, reading room, swimming pool, etc.); calls for several services when necessary (medical emergency service, electricians, sanitary engineers, security workers, etc.)

8 place – Questionnaires/voting (as a sign of student satisfaction; in scientific purposes: if for personal, not faculty's purpose - *).

Speaking about the principles which should lay in the m-services delivery, the first three places are occupied with such students' priorities as possibility to receive information 1) in time (look details in Figure 4), 2) directly from administration and professors and 3) regardless their location.

Figure 5. Statistic answer to the question #3 "How often should students receive the information services?" in the questionnaire.



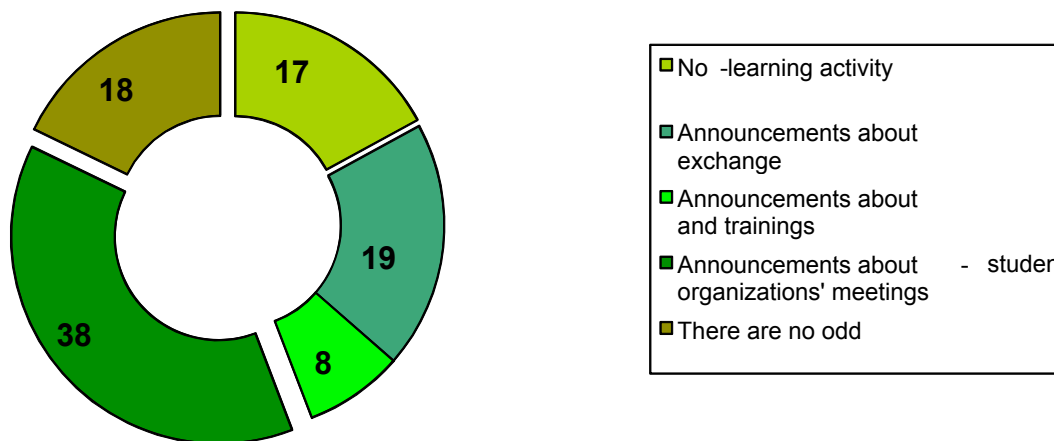
¹ Sign "*" means that these services may be charged.

Source: Author

The performed work of data receiving and processing presents not only the feedback analysis of the concrete project users but also is a representative study of m-services in Russian Higher Schools implementation success. This fact induced us to develop recommendations how to avoid mistakes in m-services implementation in formal educational institutions:

- To differentiate the information distribution services into all-student and optional* (look details in Figure 5);

Figure 6. Statistic answer to the question #2 “What kind of service is odd in all-student delivery?” in the student satisfaction questionnaire.



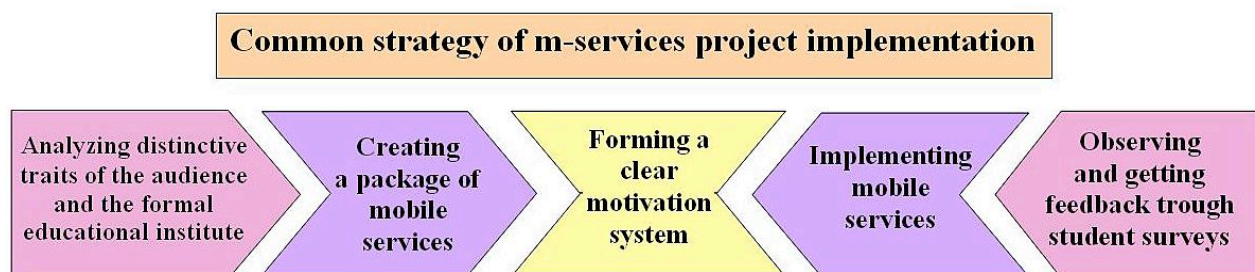
Source: Author

- To develop new services systematically through increasing their relevancy and actuality;
- To shift from easy-provided services to student-needed ones (mobile schedule; announcements about internships, exchange programs and vacancies; requests to the administration – applying for documents, meetings, etc.);
- To draw up M-services Implementation Guidelines for senders:
 - Who can send;
 - How it should be done (time, appropriate content and form, etc.);
 - What are the key principles of m-services/delivery in certain institution.

4. Conclusions

So, summarizing our supervision and remarks we tried to draw a common strategy of m-services project implementation (Figure 7). It contains 1) analyzing distinctive traits of the audience (with psychological tests and behavioral games) and the formal educational institute (focusing on traditions and most popular ways of communication); 2) creating a package of mobile services; 3) forming a clear motivation system; 4) practical implementing m-services; 5) ongoing observing and getting feedback trough student surveys.

Figure 7. Common strategy of m-services implementation



Source: Author

The paper provides the experience of mobile services in organization of learning process implementation which may be used not only in Russia but also in other countries, especially for CEE states. Certainly, there are several limitations of extrapolating the research results. They are: 1) the transformation stage of Russian society development, 2) quite high level of mobile network penetration in Russia (according to March 2010 J'son & Partners company mobile market research – it equals 148,7 % of population), 3) the crucial role of governmental channels of information and 4) the conventional character of G2C relations (low former level of innovations in this field).

The project “Mobile Student” will be developed and may enter the best practices library as a successfully tested method of ICT utilization in the field of education.

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