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## **E-LEARNING IN HIGHER PROFESSIONAL MEDICAL EDUCATION: WHAT DO STUDENTS THINK ABOUT IT?**

Petrova L.E., Kuzmin K.V., Kulikov S.N.

The trend in the development of modern medicine is the use of telecommunications and electronic (computer) technologies. The aim of the study was to investigate the views of the higher medical school students on the prevalence and acceptability of different methods of pedagogical influence and control of educational activities of using traditional and computer technologies. According to the methodological principles of quantitative sociology in order to obtain standardized and comparable assessments, ensuring anonymity of the responses, the authors conducted a survey involving students of the pediatric and general medicine faculties of the Ural State Medical Academy, USMA (n = 625) in October 2012.

The authors found that students actively accepted new educational technologies, preferring to use a differentiated approach to learning and problem-solving tasks, demonstrating the high level of testing as an effective tool for monitoring training activities. At the same time to obtain more objective data it is necessary to know teachers' motivation, and barriers between new and "old" technologies.

**Keywords:** medical school students, control of educational activities, E-learning.

### **Introduction**

The process of perfecting the system of professional medical training includes an analysis of the use of traditional and new educational technologies in perception of all these changes by students who are future doctors.

Medical university education cannot ignore the current situation in the Russian healthcare system which includes the quantitative and qualitative shortage, patients' dissatisfaction with the medical service, imbalances in the distribution of personnel within the healthcare system, etc. It is natural to assume that the university educational environment can positively influence the situation albeit with a time lag. It is necessary to change the form of training, the amount of knowledge for medical students, the informational technologies.

Improvement of educational technologies in higher medical schools will contribute to the goals of the current healthcare reform in Russia, the main aims of which are to ensure the healthcare system by qualified medical personnel, and to provide patients with effective and quality health and preventive care.

Modernization of the healthcare system runs parallel with the modernization of education, including the higher professional medical education. The combination of these two processes leads to study the effects of the reforms, to continuously monitor the adoption and effectiveness of innovations, including technologies. The new institutional environment of activities of teachers and students includes the federal state educational standards (FSES), for which the training is not just acquiring knowledge, but also the development of new ways to prepare for professional careers and also with efficient informational educational technologies.

### **Theoretical framework**

Knowledge multiply, that is a significant trend of informatization of modern medicine. The modern doctor is able to assist the patient only with computer and Internet technologies. Medical students must demonstrate a certain level of computer culture at the stage of professional education. Computer medicine develops actively, namely the use of the Internet and global networking technologies in medicine and healthcare. There are great opportunities of Internet in addressing the challenges facing the protection of human health.

American researcher H. Sass allocates two technological trends in modern medical care; they are E-medicine and E-health [5]. Nowadays the Russian Health is in the process of development of telemedicine, which is the use of telecommunications and electronic information (computer) technologies to provide medical care and health services. Effectiveness of the use of telemedicine for doctors and patients is discussed actively [1, 2]. Although for the Russian education and health care, this problem is not axiomatic.

These and other facts make an assessment of new and traditional educational technologies in higher medical education Russia relevant [4].

Willingness and competence to use modern educational technology is a personnel problem of higher medical school. This competence should be present in the work of any teacher. In reality, there is often organizational and ethical dilemma: who is better - an experienced teacher with the traditional approach to teaching or young uses modern information environment? Problems of pedagogical support for professional medical education are not often the subject of debate [3]. In this regard, it is the urgent issue - who, if not the current teachers should cultivate modern educational technologies.

Thus, the use of various educational technologies in professional education of a future doctor should be seen as indicators: 1) efficiency in forming of professional competencies, and 2) the increment of economic and cultural capital by students (P. Bourdieu), and 3) the potential of modernity and quality of medical services in the temporary perspective, and 4) the functional advanced development of the national higher professional medical school.

### **Statement of the problem**

The use of new educational technologies as a process includes the need for feedback. This is a study of students' opinions about prevalence, acceptability, preferences in various methods of pedagogical influence and control of the educational activity. Management of the university and faculty should take into

account consumers assess the quality of education and learning technologies. This does not mean, however, that student evaluations should be taken as a "guide to action." It is known that students have a tendency to minimize the educational efforts, focus on the instrumentality formed training, studying for differentiation of the competencies in e-learning and distance learning technologies, and e-learning resources. Only objective, reliable information can be a source of planning and development, e-learning and distance learning technologies, interactive learning technology, and electronic educational resources. The results of sociological research are the options to obtain data for planning and examination of the effectiveness of new educational technologies.

### **Methods**

In October 2012 the USMA Department of Social Work organized the classroom student survey of two departments, pediatrics and health care, of the 1, 3 and 5 courses ( $n = 625$ ). The questionnaire included questions regarding the perception of students of various aspects of the use of modern and traditional educational technologies. The presented data represent only this university, but the results can be interpreted in a broader context, taking into account the completeness of information on training courses and medical specialties, large sample size, and the typical learning contingent.

In the study, the authors relied on the methodological principles of quantitative sociology, access to standardized and comparable estimates. Classroom questioning is the most viable option for collecting data on the discussed issues. This method is economical, and acceptable in terms of cultural practices. It provides anonymity, providing analytical opportunities. Semi questions were used in order to compensate the holistic orientation in the draft strategy, so the answers were given mostly by the students with a high degree of reflexivity and with need to articulate their position. Open-ended responses were analyzed specifically.

Attainability of the sample can be attributed to the limitations of the methodology and techniques. We interviewed only those students who were present in the audience (from 90 to 57% of lists of students). Obviously, it was a systematic shift toward more disciplined, highly motivated students.

### **Discussion**

Medical students were asked: "In what form do you prefer to be certified (to pass tests, exams) on different training cycles – professional; human, social and economic; and of mathematics and natural sciences?" Four options were proposed for the evaluation: the rating system of learning achievements; demonstration of medical knowledge and skills in solving situational problems; computer testing; and the traditional form of interviewing with the examiner (see Table 1.)

In a series of professional disciplines vast majority of students preferred to solve practical or situational problems as a form of certification (92% of the respondents), a computer testing - 51% of students, traditional exams - 46%, and the rating system - 46% of respondents. In a series of humanitarian and socio-economic disciplines preferences of students were distributed in such a way: interview with the examiner (87% of respondents), computer testing (64%), the rating system (55%), and solving practical problems (38%). For the cycle of mathematics and natural sciences there were computer testing (65%), the rating system (53%), interviewing (34%) and situational problems (33%).

Table 1

**The proportion of students who prefer the following form of control activities,  
 % of respondents**

Control activities	Cycles of educational disciplines		
	Professional	Humanitarian and socio-economic	Mathematics and Natural Sciences
The rating system, accumulation of academic achievements	46	55	53
Demonstration of medical knowledge and skills in solving situational problems	92	38	33
Computer testing	51	64	65
The traditional form, interview with the examiner	46	87	34

Thus, medical students prefer to demonstrate educational achievements in the cycles of professional disciplines by using situational tasks, and in the humanities cycle - with the traditional interview form, and in science courses - with the help of computer testing. In general, these preferences reflect the requirements of modern professional education (skills, competencies). It should be noted that such subjects as chemistry, biology, anatomy, topographic anatomy and operative surgery, histology, normal physiology, pathological anatomy, pathological physiology refer to the mathematical and scientific cycle but not to professional cycle.

In general, the majority of respondents would prefer a computer test, followed by an interview and situational problems, and the last is the rating system or the accumulation of academic achievements.

In our opinion, the reason for low assessment of the rating system is from the need for the student to demonstrate consistency in training (attendance, assignments

on time, etc.), and not a "project approach" to it (to pass exams). Resistance to the rating system is observed in the environment of the faculty, but for other reasons (the typical resistance to innovation, the need for solutions to technical problems, the habit of traditional forms of assessment. Following the rating system tables a teacher cannot see the student to judge his professional future, feel the continuity and community.

To assess the current situation in educational technologies, students were asked: "Please describe how often your teachers use the following technologies: often, rarely, never." Educational technology options were proposed to assess: the use of the Internet for learning control, lectures, lessons in the traditional manner, the use of electronic presentations in the classroom, the use of educational portals of the medical academy (do.teleclinica.ru, tandem e-learning). Respondents also had the opportunity to indicate their own answers.

Table 2

**Frequency of the use of the educational technology in assessment by medical students, % of respondents**

Educational technologies	Often	Rarely	Never
Use of the Internet in education and control of knowledge	17	44	39
Use of educational portals	10	48	42
Use of electronic presentations in the classroom	2	24	74
Lectures and seminars in the traditional form	3	14	83

As we see from Table. 2, surveyed students indicated that most teachers use a variety of the Internet - for learning and knowledge control. Educational portals specially created for the medical academy had the second designated frequency, and the traditional form of training with electronic presentations had the last ranking place.

26 respondents (4%) indicated that teachers used textbooks and research papers (10 responses), videos, training, situational problems, models, mannequins (3 responses of each option), the objectivity of knowledge, classes, practice, abstracts, reports (2 responses).

Obviously, medical students understand educational technology more widely than it was requested in the questionnaire. For this reason researchers develop tools to provide more complete and accurate answers. Another set of studies concerns the measurement the level of awareness and attitudes to testing, including, for the accreditation of educational programs.

Students were given the questions: "Do you know something about the kind of testing students in the procedure of the state accreditation?", "Do you agree to test your knowledge of the past academic subjects with the help of the tests on website?" And the question, "Did you participate in computer testing of your residual knowledge? "

36% of the surveyed students said that they knew about such testing for state accreditation and they gave a meaningful response. Their answers were "checking knowledge" (68%), "authorized by the State for educational activities" (20%), "conformity to the student as an object of study" (8%), "verification of the quality of education in the USMA" (16%). Thus, less than half of the students indicated competence in this matter; most of them understood the true purpose of testing as a part of the accreditation of educational programs.

Most of the students (71%) participated in the computer testing of residual knowledge. 82% of respondents indicated a willingness to test themselves on the website of the medical academy.

16% of students were not willing to be tested. What were their motives? The main reason was the answer "no time" (22 responses, 30% of the "dissidents", 4% of the sample), "significant lack of desire" (12 responses, 16% of the "dissidents", 2% of the sample).

There was a group of students who did not agree to test their knowledge from the basic reasons: "Test can not accurately determine the knowledge," "Test is biased assessment"? And one response was "Tests are evil!" The group of principled opponents of tests included 11 people (15% of the "dissidents" and 2% in the sample).

Some of the students, who did not agree to test their knowledge, pointed to technical reasons, such as the lack of access to the Internet, poor computer skills, the help of teachers, awkward testing interface on the site (only 12 responses).

So, testing knowledge of medical students on the site of the medical academy has a real prospect, supported by the majority of students. Here, however, it should be noted that not only students but teachers must be prepared for testing and not only accept, but to be able to do it. But it is another, albeit important, problem.

## **Conclusion**

The results obtained in our study data suggest several conclusions and outline the prospects for further study.

Medical students can actively adopt new educational technologies. They are well versed in the specifics of the different disciplines cycles and able to get adequately plan for an assessment. For planning purposes, and to improve the quality of the educational process it is important that future doctors (majority of respondents) provide teachers with a great selection of preferred options for testing their knowledge. A wide range of options for the certification can contribute to a differentiated approach to learning, which positively affect the quality.

In the logic of the "requirements / reality," the surveyed students or future doctors were willing to test their knowledge in a practical way of situational problems. This can be described as taking a competent model into professional education.

Testing became widespread as a tool to monitor students' learning activity. Most students demonstrated a high level of development of the test culture and

positive about the prospects of testing. But keep in mind (especially in applications) there is a small group of students who are not ready for testing, including for reasons of principle.

Options for continuing the studies are related to the importance of the "other side" of the interaction on the old and new educational technologies, it is the faculty staff. For organizational work it is necessary to know the motivation of teachers, the barriers between new and "old", traditional education technologies, and detailed characterization and differentiation of students and teachers.

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## **DATA ABOUT THE AUTHORS**

**Petrova Larisa Evgenevna**, PhD in Sociology

*Ural State Pedagogical University*

*pr. Kosmonavtov, 26, Ekaterinburg, 620017, Russia*

*docentpetrova@gmail.com*

**Kuzmin Konstantin Viktorovich**, Ph.D. in History

*Ural State Medical Academy*

*ul. Repina, 3, Ekaterinburg, 620017, Russia*

*kuzmin@usma.ru*

**Kulikov Sergey Nikolaevich**, PhD (Medical Science)

*Ural State Medical Academy*

*ul. Repina, 3, Ekaterinburg, 620017, Russia*

*kkorablik@gmail.com*