First results of using the digital educational resources of the e-learning system in the Kazakhstan schools

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Abstract. This article describes the first results of the national project on introduction of e-learning system in the schools of the Republic of Kazakhstan. This project is being implemented in the Republic since 2011, over these years more than five and a half thousands of digital educational resources have been developed and posted in the electronic library of the e-learning system. The authors provide the automated survey data of teachers and students, who have used the digital resources in the educational process.

Keywords: e-learning, digital educational resources influence, educational process, school, personality development

Introduction

Kazakhstan is a young republic that is located in the very heart Asia. It ranks 9th in the world by area, population – 16.76 million people, population density is 6.1 person per 1 sq. m. [1]. Kazakhstan gained independence after the collapse of the Soviet Union a little over 20 years ago and since then seeks into the future with the confident steps, set itself the ambitious goals to take a worthy place among the developed countries.

What country it will become tomorrow, depends largely on the quality of education. The guiding principles of education in the XXI century proclaimed by the UNESCO are "Education for All" and "Life Long Learning (LLL)" [2]; they ensure the education of citizens of the world with the planetary thinking, who can perceive and realize the most progressive ideas and knowledge in the World. According to the Western researchers, the education shall provide a systematic, constantly supported educational process, which essence is to transfer the knowledge, skills, attitudes, values, feelings, including: the mastery of basic skills and fundamental processes by students (reading, writing, speaking, accounting); the intellectual development (development of thinking, problem-solving skills and abilities to the self-opinion and decision-making); the preparation for the career choices and further education; the positive self-self-construction and interpersonal skills formation; the creative abilities development; the emotional and physical development, the civil and moral education [3].

A platform for the preparation of such graduates within the school today is a new paradigm of teaching, based on the wide application of information and communication technologies (ICT) [4-6 and others]. According to the UNESCO the leading role in the modernization of national educational systems has the electronic learning (e-

Learning) [7]. The State Education Development Programme of the Republic of Kazakhstan for 2011-2020 has also identified the educational system orientation to the mass introduction of e-Learning in order to enhance the capacity of human resources. By 2015, the e-Learning is planned to introduce in 40% of schools in the Republic, and in 2020 - in 90% of schools [8].

The e-Learning implementation Project has a complex character: schools and colleges are equipped with the modern computer equipment, the broadband Internet access, was developed the e-learning platform, which allows schools to keep the electronic records, to automate the document workflow and the statistical reporting exchange [9]. But in our opinion the main system component is a digital educational content. In 2011-2012 years 5537 resources on the history of Kazakhstan, Kazakh language, Physics, Chemistry, Mathematics, Algebra, and Geometry were developed for of National e-Learning System. The primary developer of this digital content was the National Center of Informatization with the participation of such companies: SIVECO Romania, Young Digital Planet (Poland), Whizz Education Limited (the United Kingdom) and others. Those resources are located in the electronic library of the e-Learning System (https://e.edu.kz) and are available for the educational organizations, connected to the Project. The purpose of our study was to determine how the use of digital educational resources (the DER) has affected the educational process in those schools.

Methods

We have developed a special automated questionnaire (www.lms.nci.kz/anketa), which questions have been aimed at identifying the degree of use the DER in the real educational process, obstacles to that, teachers and pupils' attitudes to the

DER, as well the DER's didactic capabilities and their influence on the real educational process. Presently 1159 educational organizations of Almaty and Astana, Almaty, East Kazakhstan, Zhambyl, Mangistau and Pavlodar regions of the Republic of Kazakhstan are joined the Project. 3112 teachers of mathematics of primary and high schools Chemistry and Physics, as well 22183 pupils of 1-11 classes of 120 schools participated in the online survey (data as of November 2013).

Main body

In our understanding, the digital educational resources are the didactic materials for the specific topic of a theme of one lesson in accordance with the calendar educational and thematic planning. Each digital resource shall include the elements of multimedia explanations, interactive exercises and test questions to ensure the support for all major stages of the lesson: familiarity with the new educational material, its quick check and control over the degree of its mastering [10]. The teacher's task is to enter the DER in the direction of his lesson, to determine the time and place of one or another component of DER at a particular lesson depending on the specific didactic problems, preparedness of the class and the individual features and needs of pupils.

The obtained results showed that the vast majority of teachers, who responded to the questionnaire − 2804 (90.1%), use the DER at their lessons. Moreover at every lesson 13% of teachers use the DER; quite often – 23.1%; as needed – 37.6%. Thus, more than 70% of teachers surveyed quite regularly include the digital educational resources in the educational p ocess, what confirms the high degree of teachers needs in the contemporary teaching aids and the DER's relevance.

17.1% of teachers rarely use the DER at the lessons, and 7.6%, unfortunately, don't use them at all. The reasons preventing the use of DER, 38.3% of teachers referred to the absence of a multimedia projector (interactive whiteboard) in the classroom, 32,5 % – low speed Internet, 28,8% − absence of Internet access in the classrooms, 13,1 % − no access to the computer classrooms, 19,8% – insufficient methodological support. Several responses also pointed to the lack of experience of using the DER, lack of computer literacy, insufficient scope of materials. Consequently, the main factors that influence the non-use the DER are still the problems of technical providing. Obviously, it is required to revise the supply volume of computer equipment to schools within the project, proceeding from the fact that the workplace of each subject teacher shall be equipped with a multimedia projector or an interactive whiteboard and have the Internet access.

The teachers consider the DER as an effective learning tool. About one third of teachers (32.3%) uses at the lessons all of its components equally, 21,8% of teachers prefer to work at the lesson only with the multimedia explanations, 23,2% give preference to work with the interactive tasks only, 14,7 % – with the tests. Just 3.6% of teachers use the DER only for the organization of pupils' homework. We can see that teachers confirm possibility of using the DER at each stage of the lesson.

After the teachers used the DER at their lessons, they convinced of the wide didactic capabilities of the DER, the majority of those teachers (58.4%) note the increasing of pupils' interest to the subject. We believe that this fact is very important, because the presence of positive motives and interest in the learning are an essential condition of its success.

The teachers also believe that the use of DER provide a variety of forms and methods of work with the class (27,1%); expanded the possibilities of qualitative of material understanding (25,8%); activated the cognitive independence of pupils (24,6%); promoted the maximum visualization of the studied material by multimedia (22,4%), and the creation of favorable conditions for the problem solving of differentiation and individualization teaching (14,6%).

The teachers note that the use of DER at the lessons provided a more effective formation of skills to work with information (18,2%),– subject skills and abilities (17,8%), the abilities to make the self-monitoring and self-esteem (16,8%) and etc. The teachers also noticed that when you use the DER the ability to plan and execute according to plan the various activities, to carry out the reasoned arguments, to make the logically grounded conclusions, to express your thoughts clearly and precisely both in oral and written form using the subject terminology; the evaluative judgments of pupils, etc. are formed more efficient.

Therefore, the teachers confirm the positive influence of using the DER at ensuring the educational quality and the personal development of pupils. Moreover, many teachers note that working with the DER increases not only the motivation to learn among children, but also increase the motivation to the creative work of the teachers themselves by inspiring them with new ideas and teaching methods. Discovering the ICT potential, the teachers start developing with pupils their own presentations, slideshows, find interesting topics for the projects using the DER and other Internet resources and the like. That is, as mastering the methods of using the DER the methodical toolkit of a teacher is greatly enriched, that is also working on improving the quality of teaching.

The pupils' responses confirm the positive influence of the DER on the learning process. 20355 of pupils, which are 91.8%, confirmed that by using the DER the learning became much more interesting. More detailed coverage of the pupils' survey results requires a separate paper, as the pupils' questions and answers vary depending on their age and the subjects studied using the DER.

Among the numerous answers to the question "What did you like in the DER most of all?" we present you the most characteristic or interesting: "It's easy and quickly to make tasks," "It's interesting and fun to make tasks," "It became clear how to do sums", "No one scolds you if you do the the task wrong," "It is a joy," "Fun, fast and really exciting," "All is cool," "You can come up with your tasks as in the DER," "It is possible to remake, " "Interesting and modern," "You can play "the School" with your young sister at home," "You can work on your own," "Mom now is letting me to learn on my computer at home," "It's like at the movie house," etc.

Conclusion

In general, the answers of both teachers and pupils convinced us: we are on the right track. The electronic resources have a significant potential for the enrichment of subject information and educational school environment, for the personal development of pupils, for making the teaching process interesting and effective by maximum. The e-Learning implementation using the DER allows you to realize the didactic principles of visibility, systematicity, integrity, availability, educatory learning and etc. at a new level; provides the individualization of learning, the increase of pupils' motivation, the formation of their self-acceptance and etc.

Findings

For today's pupils the use of information and communication technologies capabilities is the norm. That is why the e-Learning today is an objective law. Namely the e-Learning can be a powerful factor in the formation of the new generation personality and a free citizen of the information society.

The e-Learning at the school is provided by the information and educational medium of the digital educational content, which implements the timely transfer of the ICT achievements into the learning process, their integration with the pedagogical technologies based on a mobile educational content, and the interactive ways of activity, and the personalized account of pupils progress.

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