Learning Management System as an Effective Means of E-Learning

Maria Sergeyevna Lyashenko and Natalja Hidarovna Frolova

The National Research University The Higher School of Economics, Nizhny Novgorod, Nizhny Novgorod, Russia

Abstract: E-learning is a complex process of creating an educational space for people to share knowledge and acquire skills via new informational technologies. The purpose of this paper is to present the results of the research in the field of e-learning based on Learning Management System. It has become particularly acute in the era of information society when evolution, advancement and the results of information communication technologies integration continue to spread at a record pace. The paper proposes the idea that Learning Management System can be an effective tool of e-learning collaboration that increases ICT competence of all the parties involved. The description of the Learning Management System program, project outcomes are presented in the paper.

Key words: E-learning • LMS project • Russian informatization stages • ICT • Forms of e-learning

INTRODUCTION

The notion of E-learning appeared and became popular in the end of the 20th century. E-learning is defined as the third learning system that uses various electronic techniques as its primary medium for learning [1]. According to taxonomy of terms related to blended learning [2] there are four forms of e-learning (web-enhanced, blended learning, hybrid learning and fully on line one). It implies that educational information is transferred by means of information communication technologies (ICT) at keeping the balance of on-line and off-line education. E learning is widely used all over the world.

In Russia the process of integration of ICT was slowed down. Though in 1960 the first groups of students graduated from the institutes with qualifications "programmer" the technical supply of educational institutions left much to be designed. The situation began to change for the better only in the beginning of XXI century.

In 1980s there was the introduction of a science “Informatics” (textbook by A.P. Yershov) in the curricular in all secondary schools [3]; the start up of the publishing of Russian periodic methodical journal " Science and Education" ( INFO); the launch of mass production of domestic PC "Electronics"; the competitive approach to the choice of textbooks on the subject " Fundamentals of Computer Science "; computer-supported information technology tools; the creation of the first council for PhD theses on the theory and methods of teaching science with ITC. In 1990s there was the start up of the "Pilot Project" with an IBM for schools and children with disabilities; differentiation of the forms of software for ITC and content of the disciplines; the first edition of the journal "Educational Informatics" was published; adoption of regional educational standards for schools "Computer Science and Engineering " and integration of regional programs of informatization of all levels in the education with the participation of regional education centers; the organization of II International Congress of UNESCO's "Education and Science" with technology and telecommunications basis in educational programs; the introduction of new sanitary rules and regulations for video display terminal to work ergonomically; integration of information technology in the educational process; creation of a new basic plan of Russian educational system with context switching of disciplines of computer science in "Mathematics", as well as in the section " Information Technology " and "Technology." In the beginning of 2000 the analysis of statistics of computerization of Russian schools (at average) was

Corresponding Author: Lyashenko, The National Research University The Higher School of Economics, Nizhny Novgorod, st. Bolshaya Pecherskaya, 25/12, 603000, Nizhny Novgorod, Russia.
accomplished. It said that only about 70% of the total population and 40% of all secondary schools have a computer lab and computer park enlisted only 25% units of IBM compatible and 1% of Macintosh. The beginning of an active application of ICT to education started along with the national project "Computerization of rural schools – 2001."

The last step can be regarded as the beginning of a wide range of inputs on the introduction of new information technologies in education. To develop it further Russian Ministry of Education prepared a federal target program "Development of common educational electronic environment, for 2001-2005 years" [4].

Active implementation of ICT into education has lead to creation of new structures in educational process as new forms require infrastructure, competent specialists. Educational institutions must be provided with modern hardware and software. It is necessary to create infrastructure that can ensure the access to information resources and maintenance of equipment. Technical support and consultation are of vital importance at the initial stages of developing and integrating ICT into educational process.

In the era information society people have to be quicker to absorb new technologies and better adapt to ever changing conditions. That is why there arises the necessity to equip the learners with computer skills and ICT competences to succeed in every day and professional lives. According to the European 2020 strategy education and training system needs “to be modernized to face up the current and future challenges, bearing in mind the increasing importance and disrupting impact of technology on learning” [5].

In the given research the implementation of e learning, LMS in particular, to teaching practices in the university is described. This system helps produce, manage and integrate knowledge in higher institutions. Besides LMS can be used to develop a variety of educational products (for example, virtual library of tests, interactive vocabulary practice programs, grammar activators, language laboratories etc) to support the needs of particular groups of students. LMS allows conducting training sessions for different learners and helps update key skills and competences.

While working under this project fourth generation evaluation principles were used. In the process of e-learning all age groups teach and learn from one another. It is evaluation of a peer learning that takes place. Being the tutors for the colleagues and evaluators, the authors of this article collected and interpreted data. Grade book from e front platform counted results of the learners of LMS project automatically and additional marks were given from the point of view of progress in technical expertise and interrelations in the multiage group. In the assessing learning activities the amount of cooperation, findings and personal discoveries of all the participants were analyzed. Besides the authors used observation and interviewing in the process of arranging the LMS projects. Qualitative approach with thorough analysis allowed to get the final results and compare them with the initial ones [6].

Having analyzed the questionnaires given at the beginning of the course and after it the authors came to the conclusion that in general the feedback is positive and the majority of participants liked it immensely. They found it fruitful from the point of view of ICT enhancing and applying new skills in teaching. 80% of the respondents underwent the LMS sessions with pleasure and did not mind spending much time on creating tasks for the students with ITC assistance.

It seems to be useful to provide the results of the feedback of the participants. Data were gathered by the authors of the article in the forms of observation, conducting surveys and private conversations. It is surprising to see how grown up people are thrilled and motivated by new e-learning tools. “LMS creates a world of endless learning” said Michael. Others are neutral. “In my opinion IT is not really a problem; none of artificial intelligence can conquer the human mind.” That was Anna’s view. But some people think that there two sides of the medal. Boris said: “There are some controversial points like expenses of implementing IT, dependency on it.” The role of the human is still predominant according to Anastasia. “I can’t help comparing co-existence of people and their instruments in our world with easily destructible harmony that is able either to bless our destiny or to destroy its creators.” The whole group was moved emotionally and worked hard to succeed in passing the test and was awarded a certificate of accomplishing the course.

**Forms of E-Learning:** In the era of information society teachers and learners are faced with the challenges that e-learning brings. E-learning is considered to be the third learning system that makes use of various electronic technologies, forms and components as its primary means of learning and teaching [1]. Both educators and learners have to choose from the variety of forms when being in a new educational environment. E-learning involves various technologies (TV, the internet, computers, software
products for education etc), various components (e-books and dictionaries, e-libraries etc), various formats (e-learning courses and program, virtual learning centers, online program, virtual universities). Many higher education institutions, firms and corporations have incorporated virtual learning environments into their traditional teaching and training mechanisms.

Various information communication technologies are used in the educational process in the National Research University Higher School of Economics (HSE). There could be mentioned videoconferences, webinars, presentations, blogs, forums, interactive dictionaries, visual thesaurus, concordance systems, web-sites, LMS system etc. Working with 1, 2, 3 year students management faculty and teaching the English language as the second one the authors of the paper make use of the variety of ICT to reach the educational goals and motivate students to improve their language skills. For example, interactive flashcards [7] are very useful for vocabulary practice. Using this technology students can improve spelling and pronunciation. The tool gives the teacher the opportunity either to create his own sets or to use ready made cards related to the topic. It is easy to add or remove the words, train them using on line tests, listen to the pronunciation of the words given in the set. Besides interactive flashcard can be combined with the elements of game-based learning as, for example, as it is done in www.quizlet.com.

Google wiki sites can be used to solve a variety of teaching problems and tasks [8, 9]. They are created to support a particular discipline. Such a technology provides the teacher and students with the opportunity to download and upload the information, to get an easy access to the materials, do projects. The sites could be a virtual platform for e-learning within the university structure. Besides this tool allows the teacher to combine different ICT: forums, blogs, media stores. For example, it could be used to store students’ papers or presentations [10]. Presentations in power point are considered to be an inseparable part of teaching practices nowadays. This technology is widely used in HSE as a means of project work for students. As for teaching this technology enables teachers to explain grammar material using visual aids.

Another advantage of using ICT in teaching English is the opportunity of working with tests. Interactive tests for working with grammar (www.easytestmaker.com) offer teachers an opportunity to generate as many tests as needed and to tailor them to individual group needs. You can also add clues if you wish. The interactive format of the tasks increases the motivation of students as it offers non traditional approach to revising the material. Learning management system (LMS) is widely used in teaching practices in HSE.

Feedback and guidance are given through the system of forums and blogs. It enables to use a variety of e-forms from texts with hyper links, interactive glossaries, on line tests, presentations, projects. Teachers can create a variety of products from virtual libraries and language laboratories to simple testing in LMS. LMS is believed to offer a flexible pattern of interaction. The advantage of such flexibility allows to face any external and internal challenges (age factor, cultural diversity, psychological reluctance etc).

**LMS as an E-Learning Platform:** In our research we mainly describe the implementation of LMS (learning management system) to teaching practices for different age groups in the university. LMS system is focused on the organization of interaction between teachers and students and is appropriate for both full-time studies as well as the organization of part time or distance e-learning courses.

Learning management system has been developed and implemented in the National Research University the Higher School of Economics (HSE) in Nizhny Novgorod since 2010. The main aim of the system is to raise the level and the quality of methodical, didactic, information support of educational process for all the participants: students, teachers and managers of different faculties.

It is supposed to develop the environment till 2020 with the help of electronic devices and internet for distant learning and creating new educational technologies. One of the tasks and aims of LMS, as it is stated in the conception of LMS development in HSE [11], is to improve digital skills of teachers, form and raise the culture of communication with the help of information communication technologies (ICT). The implementation of LMS is based on three key elements: consulting, help desk and technical support. Consulting is educating and training teachers of the university and involves interaction of all layers of the university structure (administration, faculties and departments.)

This system helps produce, manage and integrate knowledge in higher school. LMS allows to use such on-line functions as information about discipline and its contents, educational materials which can be copied from another discipline, projects, tests, glossary, schedule, reports, cards for memorizing, e-grade book of the students. Feedback is carried out through messages, FAQ and forums. The system allows to use YouTube and Wiki.
Besides LMS can be used to develop a variety of educational products (for example, virtual library of tests, interactive vocabulary practice programs, grammar activators, language laboratories etc) to support the needs of particular groups. As far as test master of the LMS is concerned it has a row of advantages comparing to traditional types of checking the results of learning. Form of testing may be different (multiple choice, fill gaps, substitution, etc.). To avoid guessing or transferring of keys (answers) from group to group “Test Wizard LMS” allows you to use a random selection of numbers of control questions. LMS allows downloading of the ready made tests and the system gives grades for the students automatically that saves the time of the teacher.

Thus conducting training sessions via LMS platform allows to improve language skills and competences of the students. LMS requires updating ICT competence of the teachers to be able share knowledge and experience with the students.

**LMS Training Program for Teachers and Educators:**
In National Research University Higher School of Economics LMS is used as a virtual platform for e-learning and an effective instrument for human development and increased social involvement. LMS addresses the following strategic goals of Education and training strategy 2020 [5] such as: lifelong learning; improved quality of e-learning; equity and social cohesion; creativity, innovation, critical.

Therefore a special program has been launched to help the adults (university professors, assistant professors, teachers and scholars) develop and update key competences (mainly digital competence) and link education and work. The objectives of the project was to explore and develop an innovative educational product which would help create learning opportunities for all ages particularly by encouraging older teachers who are afraid or reluctant to use ICT in teaching. One of the aims was to promote motivation to acquire basic understanding of ICT benefits through the transfer of skills. The program responds to the state policy on e-inclusion and trains adult educators to use new technologies in their regular teaching practices.

The project was called “The basis of creating and implementing educational courses in the system LMS e Front”. The target group of the project listed 45 educators (aged from 25 to 60) from the Higher School of Economics in Nizhny Novgorod who participated in training sessions for the period of learning session that took place from 18.09.11 till 9.12.11. The form of education was off line (evening sessions). The course comprised the following training sessions which covered 24 hours in total: LMS is educational environment: its functions; Lesson administration: user interface, personal page of a teacher; Construction of a lesson. Structure and editing elements: theory, video, text, glossary; Tests creation: kinds of test masters in LMS, test bank using; Arranging the requirements to the lesson description: rules, requirements, timetable etc.; monitoring students’ marks: (projects, grade book, reports, frequency of visits; Forms of interaction of members of the course: aim and types of interaction: forum, chat, e mail, announcements.

In order to achieve the aim an interactive sites [12], was developed with the help of Web 2.0 technologies. The site allows the teachers from the target group carry out learning activities in an appropriate environment and get an easy access to the materials. The users of the site were given step by step instructions, related scientific articles, video fragments on the topic, requirements to pass the credit and home assignments. The project allowed increasing activity of educators to participate in competition arranged by the fund of educational innovations. The usage of a wiki site became the basis of active e-learning, in which the tutor does not reproduce ready-made knowledge but helps learners determine the trajectory (vector) of the study at an individual speed. The tutor shows the proceeding sequence and steps to follow. The individual counseling and assistance is provided to any person in need.

The aims that were achieved by means of the LMS project implementation:

- Testing of the new project “LMS in Nizhny Novgorod”. This training system proves to be responsive to individual needs and overall needs of the project as it opens more opportunities for formal and informal communication through off line, on line training sessions, web-based interaction.
- Promoting ICT to the education community. The digital competence could be acquired and updated by everyone. In this connection much attention in the course is paid to raising the level of basic ICT skills.
- Achieving the strategic goal of equity and inclusiveness in education at any level. The autonomy of each learner, the choice of tempo and time of assignments accomplishment can be varied. The program enables everyone irrespectively of the age factor, personal, physical, social or economic circumstances update and develop skills and key competences of e-learning.
Creating an individual project in LMS as the final performance report in the program. Such individual projects help evaluate the personal progress in achieving the objectives of the program. This project also serves as the basis for cooperation and collaboration within the university structure. It can be a visible outcome which is presented, exploited and reproduced on the regular basis.

DISCUSSION AND CONCLUSIONS

So the concept of E-Learning is given priority nowadays. The research conducted by the author has proven the idea that e-learning in general and LMS project as a way of it has a significant impact from the point of view of intergeneration collaboration, personal benefits, acquiring ICT skills and competence. It offers people of different ages new educational opportunities and let them be involved in life long education contributing to development of each other.

The results of LMS programs and project work have showed great potential of implementing e-learning in educational process of the higher school. Having attended all the training sessions and received assistance some participants created their own LMS based projects for every day teaching practices. The quality of this projects has been highly evaluated by the university authorities and the author was awarded a grant for developing the best innovative products in LMS in 2011 [13].

As the conclusion, it is necessary to note that LMS offers certain benefits that can improve key competences, enhance professional and personal development and foster life-long learning, interpersonal collaboration and knowledge management as a whole. In modern conditions of information society education must be more responsive to new challenges. New information communication technologies can narrow the knowledge gap between generations. Our research shows that LMS projects can become a platform for e learning collaboration in universities.

REFERENCES

8. www.sites.google.com/site/intbusinesspreinterm/.