Experience Implementing E-Learning Environment at School

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Abstract: This article describes the necessity of the use of modern Informational and Communicational Technologies (ICT) in education. For schools need urgent problem is the creation of information and communication environment, which should meet the needs of the information society and enhance the level of information and communication training pupil. Learning Content Management System (LCMS) MOODLE will allow all the participants of the educational process to get necessary data and any device. Pupils will have the ability to get homework, look through educational materials and do the homework. Parents will be aware of their child's marks; they will be able to go through the school's timetable. Teachers will manage educational content.

Keywords: E-learning, ICT; content management system; MOODLE; Technical Lyceum; educational environment.

1. Introduction

Despite a number of social and economic problems, Ukraine sets the informatization of education as one of the priority for development till 2020 [1].

The modern state of informatization of education is characterized by widely spread innovative technologies for distance education, assets for distributed and virtual education and learning, also development of the informational-communicational network services, filling the educational environment quality resource that help enrich the abilities of learning.

The increasing of availability and high quality of learning is very necessary nowadays, so that the education in Ukraine can grow and develop. The modern level of information and communication technology development allows reorganize the process of learning and increases its efficiency. The information progress of modern society is growing and developing rapidly, but the educational modernization, unfortunately, doesn’t always keep pace with the innovations.

2. Formatting Theoretical Foundations

E-learning Environment

The usage of modern ICT in the educational field in harmony with the methodical achievements of the past gives the ability to generate knowledge in secondary schools, which underlie in many day professions [2]. The implementation of modern ICT in the educational system allows a connection between learning content and the daily life. Results of learning have practical significance and importance is used for learning new training courses and subjects [3].

When dealing with information and communication technology the pupil doesn’t get the same feelings, emotions, knowledge as when communicating with real people through displays of real life, everything that has an influence on raising and developing of one’s personality [2]. But the most important people that take a part in educating must be only the student and teacher. Not the software, not the ways of communication, but the skills of the teacher lead to results in the process of learning by students. Zhaldak says that the problem of informatizing the learning process isn’t easy, but a hard pedagogical problem [2].


The issue of implementation of ICT s in school is associated with the names such as A.P. Ershov, M.I. Zhaldak, A.A. Kuznetsova, V.S. Ledneva, V.M. Monakhova, N.V. Morse, Yu.C. Ramskiy and others.

The research of the issue of implementing cloud system into the education is linked and associated with the names such as V.Yu. Bykov, V.G. Gritsenko, M.I. Zhaldak, S.G. Litvinova, V.S. Mikhailovich, S.A. Semerikov, O.M. Spirin, M.P. Shishkina and others.

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The problem of the usage of educational management system such as MOODLE in universities was considered by many authors, V.A. Belenko, S.M. Berezenskiy, A.V. Bilozubov, V.M. Kukharenko O.V. Mamatov, D.M. Nikolaev,
important to analyze the modern state of informatization of education in Ukraine and determine its perspectives in educational usages.

The learning process in the XXI century happens thanks to the enriched informative environment. The teacher must be fluently speak about opportunities of modern web technologies and be a leader in informative society [4]. And that’s why schools actively use web-oriented computer systems for learning in the global network – Internet, which helps improve the qualities of educational services [5].

The environment we live in learn in work in helps the most in developing a personality, and so, another issue for schools is creating an informative environment for pupils, that also meets the needs of an informative environment the modern scientific level, technological level, and also help increasing the level of informative and communicative training of the students [6].

Litvinova S. determines the learning environment as an "artificially built system, the components of which are necessary for achieving goals in the process of learning" [7].

Bykov V.Y. describes the learning environment as a "surrounding area for a students, in which the main aspects of the educational process are implemented, and are supposed to be completed and also to predict the possibility of an adequate development of the environment, the limitation of its creation, its safe usage" [8].

Bringing the "One student - one computer" project to life helps understand the concept of "electronic environment". Such learning environment allows each student to receive information in the time and temp, they’re comfortable with and in which they can effectively receive information while working with computer. They have an opportunity to study from home [9].

3. The electronic learning environment using LCMS MOODLE in Technical lyceum

Technical Lyceum in Kyiv is an educational institution, which accepted pupils, who finished 6, 7, 9th grades and are interested in taking classes, which are based on mathematics and physics.

In 2015-2016 there are 505 pupils that study in the lyceum in 18 groups: three 7th grades, four 8th, three 9th grades, four groups of 10th and four of the 11th grades. Students get general knowledge, and also pre-professional knowledge in such educational fields as:

• Programming and computer systems;
• Engineering mechanics;
• Biochemical and chemical technology.

Students get advanced knowledge in math, physics, chemistry, computer science and engineering. Such an organization of education allows this arrangement allows modernize and enrich the education system, considering the interests inclinations, abilities, opportunities of every student, implement student-centered learning, and create the most optimal conditions for professional self-determination of students.

Besides that, in the process of education one of the major problems of modern secondary school in Ukraine is being solved the formation and development of the personality based on individual characteristics of students, their educational needs and abilities, inclinations, interests, based on a choice of the future profession.

Analyzing the professional activity of people of different profession, we can observe how it is to prepare qualified specialists in the field of computer science and ICT [10].

Here, in the Technical Lyceum in Kyiv, all classrooms contain modern computers and connection to the Internet that allows teachers to use then in the educational process every year.

A survey among teachers, who believe that using systems that control the learning content are necessary in such cases as:

• usage in the classroom in the computer lab;
• for pupils, absents due to illness;
• for independent work;
• to work with pupils who need to repeat material;
• to work with gifted children and preparation them for competitions;
• extracurricular work.

Important features of the school course of computer science are that the content is based on fundamental concepts of modern science such as information model, algorithm and computer. The second important feature is that it’s interdisciplinary. The knowledge that students receive, the skills get during ICT lessons are examples from other school subjects and used in studies.

While using ICT the level of the independent work of students grows. Also there are possibilities of significant intensification of educational process, also learning activities.
During the in-depth study computer science major objectives of the course significantly expanded and supplemented, due to the need to identify and develop students’ logical abilities, preparing them to participate in competitions, contests Small Academy of Sciences, contests and scientific discussions. The role of sustainable development of students’ interest in science and related professional activities, preparation for teaching in higher education.

Teaching computer science to pupils is conducted in several directions, which are responsible for Olympiads in which pupils participate and win: office technologies, programming, web design, computer graphics and animation.

In the Technical Lyceum computer science is studies for 2 hours a week in 7-9th grades and biochemical course, 4 hours a week – in courses where computer science is the main class. In preparation for the lesson, the teachers use extra literature and teaching material, and so creating your own teaching material are extremely necessary.

Studying computer science in classes meets the programs of the Ministry of Education and Science of Ukraine, but the preparation for Olympiads requires knowledge the following software:

- programming C++, Java (Code Blocks, Eclipse);
- computer graphics (Gimp, Paint Net, Inkscape, Blender);
- computer animation (Synfig Studio, Vettorian Giotto);
- web design (HTML, CSS, Java Script).

During extracurricular work with gifted children, there is the need in teaching material that can be accessed any time. Of course, there are a lot of courses that available on the Internet but most of the time they are hard to understand for pupils’ ages from 13 to 16 years old. It’s good to keep in mind that too much data can be damaging or they can distract pupils. And then comes a need for teaching material from teachers themselves and that and are made considering the ages and psychological features of pupils.

Recently collaborative learning has been getting researchers’ attention, thanks for web services and computer programs, the usage of which gives the ability to combine the best ICT the best achievements of the traditional educational system. Education in cooperation with the support of modern ICT has a major potential which can successfully be implemented in schools.

To researching the opportunities of implementing MOODLE in Technical lyceum in November 2015 we did a survey of parents of pupils in 7th-10th grades. 100% of surveyed parents think that in the modern education knowledge of computer technology is needed. 99% of families have a computer with Internet connection and pupils use them for studying. 98% of parents think it’s necessary to use the site, which only pupils, parents and teachers have access to and which contains: learning material, magazine estimated homework, the ability to communicate and ability to control knowledge.

And so the received data confirms the ability of implementing electronic learning environment, which aims is not replace the class task system, and is complementary.

In Technical lyceum LCMS (learning content management system) MOODLE was picked as a program and it’s also successfully used in more than 200 countries and more than 40,000 organizations. This modern management system of education is aimed at creating interaction between the teachers and the pupils.

Some advantages of using MOODLE: it’s free, open code; it allows the pupils to plan out their time to get to know the needed amount of information. The system gives to pupils information in quite different formats and doesn’t require extra costs, unlike the printed publications.

When creating learning content, important places take programs such as Google - free online software: broadcasts YouTube, cloud storage Google Drive, a tool for creating presentations Google Slides. Using Google Forms can easily create surveys, questionnaires. Alternatively, Google Slides are creating presentations in .swf format by using iSpring Free, which allows you to convert Microsoft PowerPoint presentation format Flash. To create multimedia educational content curriculum of the subject should be used H5P tool that allows content creation in a format HTML5 [11].

MOODLE allows pupils to get live feedback, offers a wide range of forms of activity (forums, blogs, conversations, surveys, consultations, research, personal tasks, chats, workshops and lessons) [12].

MOODLE allows organizing popular technology “flipped learning”, where pupils have the ability to check the learning materials and later discuss the subjects in class, and the teacher helps use the knowledge on practice [13].

To extend the functionality of the system, that are not in the basic version, possibly with plugins – new units, formats courses, filters etc. You can edit the HTML code of page thanks to fragments of the Java Script code.

Another one of the advantages of using MOODLE is the ability to give test, which requires the teacher to have competences in the preparation and usage of test. Computer testing compared to traditional forms of control are sufficiently objective and reduce the influence of subjective factors on the grades during the process of checking knowledge of a particular subject [14].

Using innovative technology, on which the educational institution creates a new learning
environment, where students can access learning materials at any time and in any place will make the learning process more attractive and democratic, comfortable and encourage students to self-education and training lifelong [15].

4. Conclusions

Active usage of the Internet by pupils influences the imagination of the idea of another organization of educational process. To create conditions for communication, cooperation and collaboration a modern teacher needs a modern learning environment. Implementing learning management system MOODLE in the Technical Lyceum helps improve the quality of learning content management. The use of learning material management system helps solve a lot of educational issues such as availability of resources regardless of location, active cooperation, unlimited communication, creative cooperation.

The use of MOODLE management systems in the Technical Lyceum allow all participants of the educational process to obtain the necessary data from anywhere, any mobile device. Pupils will be able to access their e-learning space and get to know the schedule, review the material and work with it, and all that in online mode; parents - the educational process of their child, the schedule. Teachers will manage learning content. The information content of the courses will enable pupils to achieve high educational results.

Placing educational material in MOODLE system should not be limited by informative component. The most advantage goes to the function of testing knowledge and skills particular subjects.

For students who attend school regularly, this model can be complementary and very helpful for those, who do not attend school due to sickness or quarantine, it will help them continue the learning process.

Reasonable preconditions of implementing the use of educational technologies will be used in further research on the management system not only computer science class but all school subjects.

5. References


