
PHILOSOPHICAL AND METHODOLOGICAL ASPECTS OF THE DISTANCE LEARNING IN LMS MOODLE STRUCTURE

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Abstract. *There are considered the theoretical bases of development of the distance learning system in the open Learning Management System MOODLE environment for the department of computer technologies in the control and automation systems of the Ivano-Frankivsk national technical university of oil and gas (IFNTUOG) within the framework of branch of UNESCO department "New information technologies in education for all" on the base of the International research and educational center of information technologies and systems of National Science Academy and Ministry of Education and Science of Ukraine.*

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ACM Classification Keywords: *H.1.1 Systems and Information Theory: Value of information.*

Introduction

The XXI century will go down in history of mankind as age of rapid development of modern information and communication technologies and their wide introduction in the system of higher and special technical education. Information becomes the most claimed and scarce product in the world market.

Modern trends of world community development are evidence of the considerable exceeding of demand on high-quality educational services above their supply. Possibilities of access to the different information sources are practically unlimited today, including school education system, specialized secondary educational institutions, institutes of higher education, various extension courses, institutes of postgraduate education. Furthermore, a new possibility of self-education appeared, when a man can at own discretion get access to the specialized information sources in the World Wide Web, becomes the listener of the remote courses and schools, getting the chances of the personal contact with professionals; this is usually called additional education.

Institutes of higher education can considerably extend the circle of potential listeners due to engaging in educational system social groups of people with physical limitations and persons which want to increase the standard of education and professional qualification without leaving direct work. Introduction of distance learning methods allows teachers with great experience and seniority to provide access for unlimited amount of learning subjects to the source of their professional knowledge. Thus, both sides of educational process are winning. A teacher finds himself necessary and important in wide educational circles. Students can get educational services at any convenient time not depending on auditorium studies, and in ideal case they transform acquired educational bases into professional knowledge.

Prospects of development of the controlled from distance learning in technical education

It is not a secret that the amount of private institutes of higher education and students which get paid education in Ukraine increases every year. Increase in student audience already prevents a teacher from providing the proper level of educational services without introduction of modern computer technologies and methods of the distance learning.

Besides it should be remembered that superficial and thoughtless attitude toward the problems of the distance learning (DL) generated several myths which can not be considered inoffensive, since they cause considerable harm to the processes of progressive dynamic development and introduction of DL methods into the real educational process [1].

1. It is necessary to understand DL as a process and connection with new technologies in education. It is incorrectly and wrong to consider DL, in the large sense of the concept, as the final result of education, since there are several important supposition for that.

It was repeatedly accentuated on forums and conferences that correspondence education is a prototype for DL. However it should be remembered that an external student must visit the planned educational sessions and practical trainings, taking part in communication with teachers and students while listening lectures, executing practical tasks, passing tests and examinations.

DL is in essence more democratic. It was considered at creating its bases, that a student can choose a course or system of courses in the DL system at own discretion, and not to bind them to the acquiring of concrete specialty. It is necessary not to forget about those specialties, including technical, which are impossible to master using distance learning methods.

At the department of computer technologies in the control and automation systems of the Ivano-Frankivsk national university of oil and gas (IFNTUOG) students acquire the specialty "system engineering", which supposes a direct contact with a laboratory equipment, real technological objects and maintenance engineer staff in the process of learning. The acquiring of high-quality education using distance learning methods for such specialists appears absolutely unreal.

Thus it is possible to talk about introduction of distance learning methods for the students of technical specialties only as organization of self-learning activity of learning subjects in the well developed educational-supervisory environment.

2. The myth that well developed information and communication technologies are main in DL, also does not stand up to criticism.

Some of DL initiators consider as main the forming of high-quality educational content, placing of it in repositories and providing free access to the created information sources.

Quality of the created content is provided by using of multimedia technologies (3D and Flash-animations, sound accompaniment of educational material). In some American and European universities video conferences and interactive digital television are used, when the lectures are translated in Internet, and students can put the questions during lesson.

For creation of electronic educational resources the specialized Learning Systems are created today, both commercial (Lersus by DelfiSoft company) and open source environment (eLearning XHTML Editor, developed in the New Zealand technological university). These tools simplify creation of electronic textbooks and other educational resources considerably, due to the built-in European standards and numerous models of didactics. They allow organizing the import of the developed content into the learning control systems, such as MOODLE and Ilias. But without application of modern philosophical, pedagogical and methodological approaches in organization of educational process it is impossible to provide high quality of teaching in any, even most advanced, software environment.

3. Managers and administrators of educational institutions err, when they consider a basic problem of DL the creation of modern material and technical basis, such as purchase and installing of computer technique and modern telecommunication equipment. It is only an important and necessary instrument in achieving primary objectives.

4. In our view, the most negative factor in DL development is many teachers', psychologists' and sociologists' uncertainty of possibility of the effective use of DL methods in the system of higher, and especially technical education.

From this point of view, as main aspect in DL must be considered the reasonable combination of high qualification of developers of educational and methodical materials for distance learning, careful organization, combining and distributing of educational material on the internal and DL modules, providing of operative feedback between a teacher and student, engaging of students in a collective creative process. Such a distance learning system must be provided with the objective system of evaluation and diagnosing of knowledge, which allows a teacher to choose the individual trajectory of teaching for every listener.

Teaching by computer technologies gives a valuable effect only when students under the direction of teacher are engaged in active comprehension and fixing of educational material. The unknown philosopher of antiquity said: "Knowledge only then is knowledge, when it is acquired by efforts of thought, instead of memory, to become a value" [2].

Philosophy and methodology of the control system by teaching MOODLE

At the department of computer technologies in the control and automation systems (IFNTUOG) within the framework of working plan of branch of UNESCO department "New information technologies in education for all" on the base of Institute of management and economy "Galichina Academy" is executed a distance learning system development project for the students of specialty "system engineering".

Taking into account the indicated approaches, as a base was chosen the program for on-line classroom creation - MOODLE. MOODLE is abbreviation for Module Object-Oriented Distance Learning Environment, which is most useful to the programmers, teachers and theorists. MOODLE is distributed free of charge as Free Open Source Software. Everybody can copy, use and change a source code at own discretion, not changing a primary license and giving own developments for sharing. The development of this project was begun by Martin Dougiamas (1969, Australia) in 1999, which manages this project till now.

LMS MOODLE can be installed on any computer, which supports PHP programming language and SQL databases (for example, MYSQL). MOODLE is used now not only in universities but also in colleges, schools, noncommercial organizations, firms. The amount of people in the whole world, which assist development of MOODLE, grows every day [3].

A project and subsequent development of the MOODLE system is built on the special philosophy of teaching, mode of thought, which shortly can be named "social structural pedagogics" [4].

This theory is based on four basic concepts:

1. A constructivism is a process of the active ranging of new knowledge as far as interacting with outward things.

If new information acquired by learning subject appears viable, it is able to form new knowledge, on conditions that it is successfully used in wide surroundings. That, knowledge can not be simply imparted by reading or listening the information, a process of interpretation is the necessary condition of effective studies.

2. A constructionism - efficiency of studies considerably increases when creating certain artefacts (linguistic and Internet messages, short annotations or abstracts) and imparting knowledge to other learning subjects.

A student can read an information source once or twice, but already tomorrow will remember nothing. Looking after a student audience, a teacher marks more high level of knowledge at those students, which summarize lectures, apply for consultations or participate in the discussions of the points at issue in student audience.

3. Social constructionism levitates two first concepts to the level of social group, the members of which in a collaboration create the results of joint activity, which have a common value. Students are dipped into the continuous process of studies at creation of joint projects. In On-line course, projects created in a group help to determine on the whole, how every student works in a group.

4. The linked and independent conduct is conception which enables deep research of individual conduct motivation in the process of learning.

An independent conduct is aspiration to remain objective and to base on facts, inclination to protect the own reasoning, using logic for finding weak points of opponent.

The linked conduct is more emotional approach which allows subjectivity. A man aims to listen and put questions for understanding other point of view.

The constructed conduct is the use of independent and linked conduct and ability of choosing one of them as proper in a current situation.

The balanced correlation of the linked conduct in a student collective is a mighty stimulus for learning; it not only unites people but also contributes to appearance of more deep reflections and revision of existent views.

Transformation of approaches to introduction of DL methods and algorithms into higher technical education on the basis of social constructivism helps a teacher to give the mind on quality of knowledge which he must pass to the students, instead of on a publication and estimation of information which they must learn according to his point of view. A teacher mastering bases of this theory obtains the deep understanding that every participant of course can be simultaneously a teacher and a student, generator and user of knowledge.

A teacher stops to be the simple source of knowledge, grows into a role model for an audience. In the process of teaching the course he supports a permanent feed-back with students at individual level, working with them on an adaptive trajectory, based on the personal necessities and current knowledge level of student. In that case a teacher is named the moderator of teaching process, he directs the students of group on the whole to achieving educational aims.

Creator of MOODLE project Martin Dougiamas as early as 1999 wrote in the article "Reading and writing in Internet-learning" [5]: "The reading and writing of text can be taken for granted as an educational tool on the Internet. It is ubiquitous as a means of communication, but there are different ways it can be applied to promote learning, and it can be difficult for a teacher to focus on what sort of thinking they are trying to stimulate in their students." This article concentrated on the practical application of educational theories of reading and writing, particularly in science education, in order to help the practitioner using the Internet for education. The author asserted that the experimental technology MOODLE was constructed to implement modern pedagogical theories in On-line classrooms, and as soon as technical and software realization of project will be complete, basic attention will be concentrated on realization of new pedagogical and philosophical ideas in education.

The distance in LMS MOODLE

A course is built on the basis of social structural pedagogics which is basis of LMS Moodle and the most strong side of project i. M. Doudzhyamosa.

The method of creation of DK is presented on Fig. 1. A teacher is the moderator of course and executes a role function in a student collective.

Basic functions of teacher: development of card of conceptions (plan) of course, organization of independent work of students, their discussions, and joint projects. A teacher carries responsibility for creation of effective scale of evaluation of results of activity of teaching subjects, support of operative feedback with a student

audience and transforming of maintenance of DK, in accordance with the current results of teaching process. Students must in time execute all tasks of teacher. Teaching results are in direct dependence on their executiveness, efficiency of work and creative initiative.

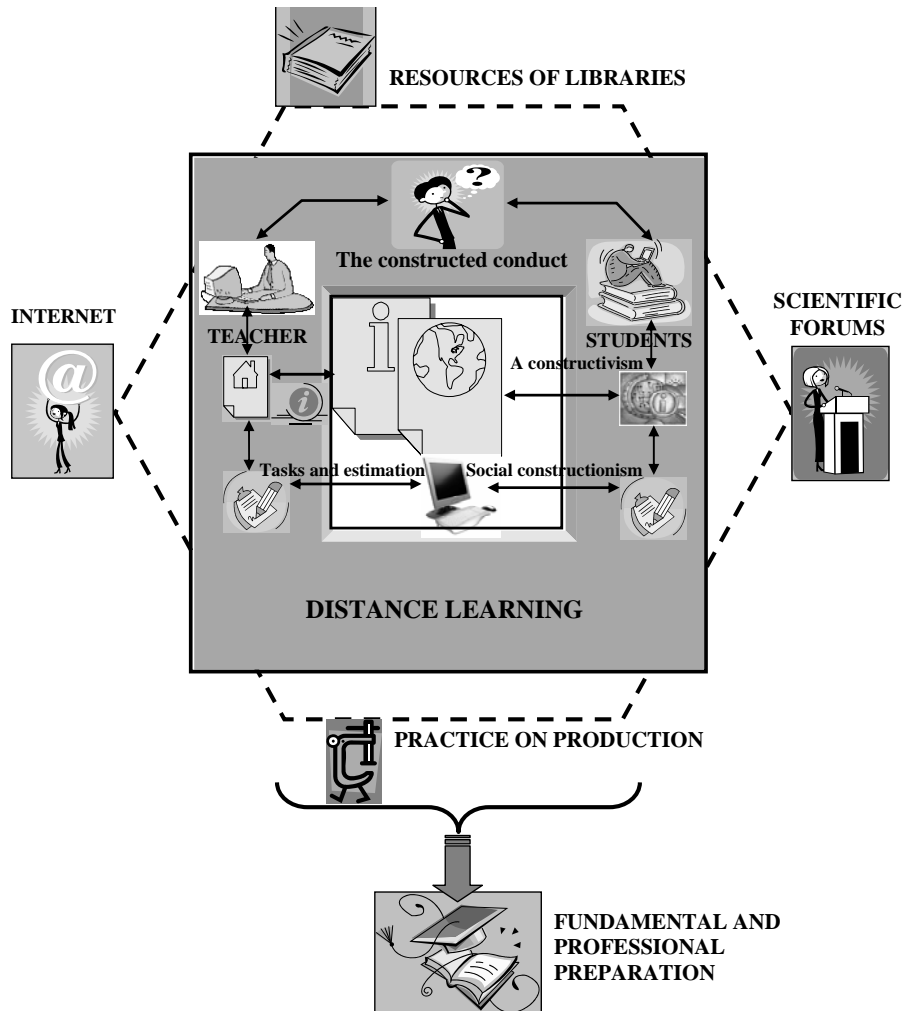


Fig. 1. The DK structure in the MOODLE environment

Conclusion

In conclusion it should be noted that a MOODLE project is not imposing such type of educational process organization, the system can be used also as DL system in the traditional sense - for creation and storage of electronic educational materials, distributing tasks of different types between students, evaluation of results of their self-learning, development of test tasks, monitoring of learning process. But the best qualities and value of this project are in implementation of modern methods of pedagogical support and organization of educational process.

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