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УДК: 378.09

THE USE OF LMS MOODLE AS AN ADMINISTRATION INSTRUMENT OF DISTANCE LEARNING OF FUTURE MARITIME SPECIALISTS

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Abstract. The paper examines the role of Learning Management Systems (LMS) during distance learning. The demands to distance learning of future maritime specialists are described in the article. The importance of personalized users' access to learning management system of higher educational institution is highlighted. The article also shows the ways of solving the problem of single source to all educational materials. LMS MOODLE is described as tool which provides different educational instruments. The importance to have different random questions on e-courses while credits and exams is also shown in the paper. LMS MOODLE of Kherson State Maritime Academy is shown as an administrative tool which can meet the requirement to LMS mentioned above. Different methods were used while research – theoretical, empirical and statistical one. The research confirms positive impact of LMS as distance learning technology on future maritime specialists' training. The perspectives of future research are in the study of virtual and augmented realities as additional tools of LMS in training of future maritime specialists.

Keywords: Learning Management System, Distance Learning, Digital Competency, Higher Educational Establishments, MOODLE.

The formation and rapid development of the information society with a clear transition to innovative models of development in all spheres of society is one of the necessary aspects nowadays. There is a need to create sufficient conditions for effective management of educational and cognitive activities of its participants. Because of COVID 2019 pandemic most of educational establishments over the world changed traditional learning into distance one. The problem of distance learning management arose.

Despite the fact that much of the information is available on the Internet, in particular, on the official website of the educational institution, different social networks etc. single online platform is needed. The evolution of the most popular free messengers (FaceBook, Twitter, LinkedIn, Academy, Telegram, WhatsApp, Viber etc) has led to the fact that now they can send both text, audio and video messages, so their popularity is growing every day. But they can't give access only to personalized users, can't provide single source to visit e-courses, exams and credits, don't have educational tools and instrument. Mentioned above messengers can't give possibility to determine the start and end time of access, task execution time. The objectivity of criteria for checking the results of tasks with the active use of automated methods for assessing knowledge should be presented. Same as variability of formation of

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control tasks with use of algorithms of a random questions. So, the problem of learning management system for educational establishment arose.

To choose the most appropriate LMS for higher maritime institution research of many scientists was studied. The use of LMS was investigated by Nor Azura Adzharuddin [1], Cavus N. [2], Sibusisiwe D., Elsje S. [3], Wang Q., Woo H., Quek C., Yang Y., Liu M. [4], García-Peñalvo F., Alier Forment M. [5], Schoonenboom J. [6], Sherman M. [7] etc. Nor Azura Adzharuddin provided several insights of the LMS phenomenon. He concluded that the LMS is an important instrument for higher educational institution cadets as not they can keep updated with their coursework, but get instant notifications pertaining to their everyday tasks [1]. Scientist Cavus N. says that careful evaluation is required in selecting the most appropriate LMS for use, and this is a general problem in web-based education. To solve this problem he proposes automate the evaluation process using computer-aided techniques. He carried out his research with 88 voluntary higher education instructors to test the effectiveness of the developed system [2]. Sibusisiwe D. and Elsje S. in their research devoted to the Sakai LMS tried to understand the reasons for some lecturers to be dissatisfied with the e-learning platform experience despite their benefits. Their study informed the education practitioners on the importance of training and the need for refresher training workshops for value-added use of LMSs [3]. Wang Q., Woo H., Quek C., Yang Y. and Liu M. investigated Facebook group as LMS in two courses for putting up announcements, sharing resources, organizing weekly Teacherials and conducting online discussions at a teacher education institute in Singapore and found certain limitations [4]. García-Peñalvo F. and Alier Forment M. say that LS provides set of tools that support and permit the management. They also highlight that not only higher educational establishments, but also large companies should have LMS in their eLearning initiatives [5]. Schoonenboom J. rose a question regarding whether an instructor's LMS intention level can best be explained by the combination of a specific tool, a specific instructional task, and a specific user interface [6]. Sherman M. explores LMS MOODLE as a tool to teach "Maritime English" in higher educational establishment. The scientist lists the advantages of MOODLE and says that the electronic course in LMS MOODLE has an educational potential as an effective means for forming the foreign language competency of specialists in the maritime industry. Though he doesn't describe any management tools of the system in his research [7]. One of the most problematic issues nowadays is an authorized access of cadets to LMS of higher educational establishment. We agree that world-wide globalization process should promote free access to information resources, but personal account is needed for cadets [8]. Teachers should know certain time of different assignments enter and ending, total time needed for success. Most of tasks are limited in time to make e-tasks look like class

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ones. Presence of accounts allows to create personalized intelligent interface. Cadet has only those e-courses on his account which he has in curriculum. Example of account entrance of LMS MOODLE is shown in Fig. 1.



Fig. 1 - Entrance page of LMS MOODLE with the demand to enter personalized account

It is impossible to use LMS without automatical reports it provides. That is the place where teacher can easily find scope of information he searches about separate cadet or groups. The aim of reports is to check different issues (Competency breakdown, Logs, Live logs, Activity report, Course participation, Activity completion, Statistics). Competency breakdown report is connected with competency framework of the course. All competencies of higher maritime educational institution are added there by administrator of web site from IMO Model Courses and International convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) [9]. After adding competencies to the course teacher can link them to course activities and check whether they were formed or not by the end of module or course [10-12]. Competency breakdown part shows e-course list of competencies and information about them on each user of course. Example of report on Competency breakdown is shown in Fig.2, with the information from e-course of Maritime English for future ship engineers – Abridged programme.

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check the actions performed by teacher, cadet or user with a role other than teacher or cadet. Different from Logs is Live Logs Report. It shows live updates on particular time of event, user's full name, event context/name/description etc).

These logs are useful for teacher and manager to check activities of groups or separate cadets. Activity report represents e-course structure with full list of course's activities, number of their views by certain amount of users and last access time details.

The example of Activity report of "Maritime English" course for future ship engineers is shown in Fig. 3. LMS also helps to check course participation.

You can filter it by types of activities on e-course. If you have chosen the activity needed it can also be sorted out by time of access, role of user and his actions there (view or post). With the help of this type of report you can easily check cadets who have never visited certain course activities (see Fig.4).

The screenshot shows an activity report for a user named Yurzhenko A. The report is filtered to show activities from 2014-01-01 to 2014-01-31. The activities are listed in a table with columns for activity name, views, and last access time. The activities are grouped into two topics: 'Topic 1: Basics of Electricity' and 'Topic 2: Electrical Circuit and Circuit Components'.

Activity	Views	Last access
Course Intro	1	2014-01-01 10:00:00
Course Intro	1	2014-01-01 10:00:00
Topic 1: Basics of Electricity		
1.1. Introduction to Electricity	1	2014-01-01 10:00:00
1.2. Ohm's Law	1	2014-01-01 10:00:00
1.3. Power and Energy	1	2014-01-01 10:00:00
1.4. AC and DC	1	2014-01-01 10:00:00
1.5. Safety with Electricity	1	2014-01-01 10:00:00
Topic 2: Electrical Circuit and Circuit Components		
2.1. Series and Parallel Circuits	1	2014-01-01 10:00:00

Fig. 3 - Activity Report of LMS MOODLE "Maritime English"

One more type of report checks whether course activities were done by cadets or not. Graphical representation of LMS MOODLE report is shown in Fig. 5 where Teacher can filter it by group or alphabetic order (first name and second name). Report also represents cadet's ID, email address (all users have automatically created mail boxes on Zimbra KSMA messenger), name of

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Ministries of Education not only in Ukraine, but all over the world [13-16]. LMS provides great variety of reports needed not only to cadet himself, but also to a Teacher and university administration. This system doesn't work without authorized access which eliminates security risks. It has elements to provide feedback. LMS provides communication between cadet and Teacher in asynchronous and synchronous modes with the help of Forums, Chats, Questionnaires, messages etc. Great number of random questions in questions bank enable cadets to cheat. All management tools and instruments of LMS MOODLE described above make it possible to change traditional face-to-face learning into distance one without limitation of effectiveness. Our recommendations in LMS MOODLE use are the following: compulsory authorized access (including access to e-courses on platform); reports use [17-19]; Competency Framework across all the activities of e-courses; Gradebook setting according to Teacher's needs; Calendar setting according to important events; huge Bank of questions for different control activities to create random questions of various level; compulsory feedback. The difference of LMS MOODLE use comparing non-maritime training is the following: use of competencies in Competency Framework according to international maritime convention STCW [9] and IMO Model courses; the use of Badges according to seafarers' epaulets; gradebook settling according to training program of seafarers (shipboard practice); maritime content of e-courses [20].

The perspectives of our future research are in the study of virtual and augmented realities as additional tools of LMS in training of future maritime specialists.

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ИСПОЛЬЗОВАНИЕ LMS MOODLE В КАЧЕСТВЕ АДМИНИСТРАТИВНОГО ИНСТРУМЕНТА ДИСТАНЦИОННОГО ОБУЧЕНИЯ БУДУЩИХ МОРСКИХ СПЕЦИАЛИСТОВ

К.т.н. Волошинов С., Д. П.А. Вольская О., Попова Х., Юрженко А.

Аннотация. В статье исследуется роль систем управления обучением (LMS) во время дистанционного обучения. В статье изложены требования к дистанционному обучению будущих морских специалистов. Подчеркивается важность персонализированного доступа пользователей к системе управления обучением вуза. В статье также показаны способы решения проблемы единого источника для всех учебных материалов. LMS MOODLE описывается как инструмент, который предоставляет различные образовательные инструменты. В документе также показано, как важно задавать разные случайные вопросы на электронных курсах во время зачетов и экзаменов. LMS MOODLE Херсонской государственной морской академии показан как административный инструмент, отвечающий требованиям к LMS, упомянутым выше. При проведении исследования использовались разные методы - теоретический, эмпирический и статистический. Исследование подтверждает положительное влияние LMS как технологии дистанционного обучения на подготовку будущих морских специалистов. Перспективы будущих исследований заключаются в изучении виртуальной и дополненной реальности как дополнительных инструментов LMS в обучении будущих морских специалистов.

Ключевые слова: система управления обучением, дистанционное обучение, цифровая компетенция, высшие учебные заведения, MOODLE.

ВИКОРИСТАННЯ LMS MOODLE ЯК ІНСТРУМЕНТУ УПРАВЛІННЯ ДИСТАНЦІЙНИМ НАВЧАННЯМ МАЙБУТНІХ МОРСЬКИХ ФАХІВЦІВ

К.т.н. Волошинов С., Вольська О., Попова Г., Юрженко А.

Анотація. У статті розглядається роль систем управління навчанням під час дистанційного навчання. Описано вимоги до дистанційного навчання майбутніх морських фахівців. Підкреслюється важливість доступу персоналізованих користувачів до системи управління вищого навчального закладу. У статті також показані шляхи вирішення проблеми єдиного джерела до всіх навчальних матеріалів. LMS MOODLE описується як інструмент, що забезпечує різні навчальні інструменти (зошит, тестування, завдання, календар тощо). Також важливо мати різні випадкові запитання на електронних курсах, заліках та іспитах. LMS MOODLE Херсонської державної морської академії показаний як адміністративний інструмент, який може відповідати вимогам до LMS, згаданих вище. Під час досліджень використовувались різні методи - теоретичний, емпіричний та статистичний. Дослідження підтверджує позитивний вплив LMS як технології дистанційного навчання на підготовку майбутніх морських фахівців. Перспективи майбутніх досліджень полягають у вивченні віртуальних та доповнених реальностей як додаткових інструментів LMS.

Ключові слова: система управління навчанням, дистанційне навчання, цифрова компетентність, вищі навчальні заклади, MOODLE.