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TEACHING OF THE COURSE «ANALYTICAL CHEMISTRY» USING TOOLS OF THE MOODLE IN BOGOMOLETS NATIONAL MEDICAL UNIVERSITY

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Introduction

The role of e-learning has grown in importance over the past decade. This can be explained by development of the technological advancements and learning management systems. Nowadays e-learning is used in different areas of life [1, 2].

Chemistry is so important to the other fields of science such as biology, physics, medicine, engineering, pharmacy and material science. The paper focuses on the analyzing of effectiveness of the educational process in Bogomolets National Medical University in pandemic times based on Learning Management Systems (LMS) such as Moodle, combining with other information technology.

Methodology

Beginning from 12 March 2020 the online form and blended form of education were adopted in Bogomolets National Medical University due to the COVID-19 pandemic 2020. Bogomolets National Medical University has implemented the platform LIKAR_NMU on the basis of Learning Management Systems Moodle for distance education for the period of quarantine.

Pharmaceutical students of the second year (both full-time and part-time forms of education) take a mandatory course in Analytical Chemistry at the Bogomolets National Medical University during the third and fourth semesters of education. Total

number of students are 488 (93 students of full-time education and 395 students of part-time education).

The using portal LIKAR_NMU allows creating a well-structured teacher-student interaction. Figure 1 demonstrates organizing of course in Analytical Chemistry at the Bogomolets National Medical University at the portal. Each practical lesson (according to the schedule) is occurred like videoconference using Zoom, which gives the opportunity to communicate in real time.

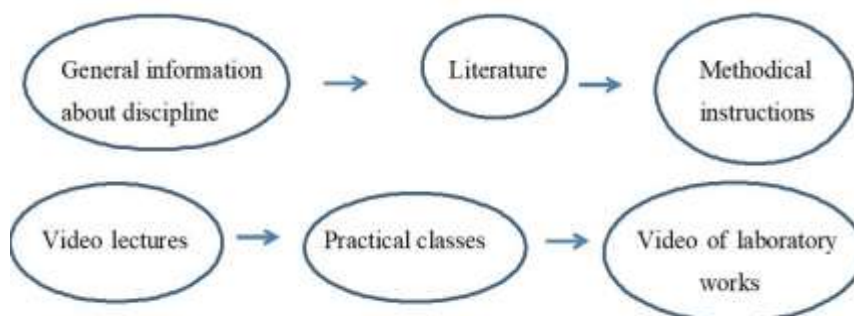


Figure 1. The main blocks of structure of discipline at the platform LIKAR_NMU

Results and Discussion

A qualitative research was realized by interviewing students about benefits and drawbacks of online learning, which was proposed. 71.1% of students had estimated the course like effective in obtaining necessary skills and knowledge with good organizational structure.

The aim of the present study was also to compare effectiveness of pre-recorded lectures and live Zoom lectures. Survey question was asked the respondents how effective the two forms of lectures were to learn the concepts for discipline «Analytical Chemistry». 45.2% of the full-time education students preferred pre-recorded video lecture, 47.3% of the full-time education students live Zoom lectures and 7.5% stated «neutral». Another trend was observed among part-time students. So, 80.1% of these students preferred pre-recorded video lectures and only 8.7% of these students preferred live Zoom lectures; the rest of the students did not express any opinion. These results can be explained by the special learning conditions for different types student`s education. In addition, both live and video lectures were assessed separately on a 5-point scale (5 = «very good», 1 = «very poor») according to the following criteria: ability to concentrate, intelligibility of content, degree of interest aroused, lecture overall. Then, the responses were averaged to get the mean. Table 1 illustrates that pre-recorded video lectures and live Zoom lectures are equally effective.

Table 1.

Mean values (%) of criteria of pre-recorded video lectures and live Zoom lectures

Type of lecture	Ability to concentrate	Intelligibility of content	Degree of interest aroused	Lecture overall
Live Zoom lecture	3.0	3.3	3.3	3.1
Pre-recorded video lecture	3.4	3.1	3.4	3.2

Social networks are also used in educational process as an additional element of a course «Analytical Chemistry». Between a lot of resources what can be used for communication with the students outside the class we can outline the messengers Viber, Telegram and WhatsApp. It was proposed to students choose any messenger for educational purposes. Among our students the Telegram software is the most popular and widespread software. A total of 41 different messenger groups (according to the student's wishes) were created for students of the second year of study of the pharmaceutical faculty.

Survey question was asked the students about effectiveness of the social networks in solving their problems. The results were ranked as follows: strong effectiveness (29%), moderate effectiveness (38%), low effectiveness (33%).

Above-stated results about effectiveness of information technology in teaching of the course «Analytical Chemistry» in Bogomolets National Medical University correlate with student's activity in the course on the LIKAR_NMU portal: 56% of students gained the results ranging from 80% to 100%; 30% of students performed the tests at 70–80% efficiency; 14% of students performed the tests at less than 70%.

Conclusions

The findings allow drawing some conclusions. The platform LIKAR_NMU on the basis of LMS Moodle together with video conferencing, pre-recorded video lectures and social software, are recommended as an effective online learning tool. Platform LIKAR_NMU is applicable to provide students with effective training to master a future profession and necessary skills.

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