



METHOD OF ORGANIZING CLASSES USING "FLIPPED CLASSROOM" TECHNOLOGY IN HIGHER EDUCATIONAL INSTITUTIONS

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Abstract. *This article presents proposals and recommendations for the use of the "Flipped Classroom" technology in organizing classroom (lecture, practical, and laboratory) and independent learning for students in the subject "Computer Graphics and Web Design," taught as a professional subject in the training of future mathematics and computer science teachers in higher educational institutions.*

Key words: *webinar, online, "blended learning", "flipped classroom" computer graphics, visualization, creativity, quiz, independent education.*

Today, raising the process of training highly qualified personnel with independent thinking in higher educational institutions to a qualitatively new level remains one of the important issues. This can be achieved through the introduction of modern methods based on advanced educational technologies and the individualization of educational processes based on digital technologies, the development of distance learning services, the widespread introduction of webinars, online, "blended learning," "flipped classroom" technologies into practice.

The "Flipped Classroom" technology provides the opportunity to organize classes in cooperation with professors, teachers, and students. The possibility of this technology lies in the fact that the topics of the lesson are initially given to students as independent learning tasks. During the lesson, the professor-teacher and students exchange ideas to find solutions to problematic questions they do not understand. Therefore, the application of the "Flipped Classroom" technology in professional disciplines in the training of future mathematics and computer science teachers is of great importance. Therefore, within the framework of the study, methods for using

the "Flipped Classroom" technology in the effective organization of classes (lectures, practical and laboratory) and independent learning of students in the subject "Computer Graphics and Web Design," which is taught as a professional subject in the training of future mathematics and computer science teachers, were developed.

The theory and practice of implementing the "Flipped Classroom" technology in the organization of classes in the discipline "Computer Graphics and Visualization" are presented in the research of Joseph Zambech, Viola Geyzer, I.Daible, Lisa Altemyuller, Cynthia Linkvist, Khe Fun Timothy Hue, Chung Kwan LO, Darya Dobritsa, as well as B.Z.Turayev, Sh.D.Dilshodbekov, Sh.N.Muslimov, A.G.Eminov, U.A.Nasritdinova, G.A.Baydrakhmanova, N.A.Usova. [1,2,3,4].

According to the analysis of the works of the above-mentioned scientists, when conducting lectures, practical and laboratory classes in the subject "Computer Graphics and Web Design" in higher educational institutions and organizing students' independent learning, the professor-teacher should pay attention to the following:

- familiarization with educational materials (video lectures, main and additional materials);
- posting presentations on a given topic (various tasks on different topics) on the educational platform;
- conducting online tests and quizzes based on topic materials.

Based on this, students acquire the necessary knowledge in the classroom on the new topic and are ready to perceive more complex information, participate in discussions, and apply the acquired knowledge in practice. In this case, the professor-teacher answers the students' questions, explains the problematic issues identified based on the control results, and provides an overview of the students'

work. Subsequently, practical tasks are performed to apply the acquired knowledge in practice.

Group project work is presented by students based on pre-completed independent assignments in the subject "Computer Graphics and Web Design." At the end of the lesson, the acquired knowledge was tested using an online quiz. It is organized in an electronic environment on the topic after the lesson and is dedicated to supplementing the process of studying the topic and consolidating the studied material. It includes: completing homework, testing, completing assignments completed in the classroom, discussing the final work, mutual evaluation and checking.

During classroom time, the professor-teacher works as an expert to sort all questions that arise among students in the process of joint topic preparation and provides explanations on completed tasks of lectures, practical, laboratory classes, computer control work.

When organizing lectures on the subject "Computer Graphics and Web Design," the professor-teacher provides the use of educational materials, video lessons, and additional resources. Based on the presented information, students present the results of graphic projects and, using forums, discussions, peer assessment methods, the professor-teacher gives instructions on problematic questions. Students' academic performance is monitored using team or individual online interactive quizzes. A quiz is a game that involves answering oral or written questions in various fields of knowledge. [5].

When organizing practical classes, the professor-teacher teaches how to work on selected graphic models using special programs and works on the graphic project selected by the students. In laboratory classes, based on assignments from the professor-teacher, students complete tasks, reinforce knowledge, expand their independent use skills, prepare specific projects, and work on graphic projects.

Also, classroom learning is organized on the basis of active cognitive communication, which positively affects the development of students' professional skills and abilities. This increases the opportunity to listen to everyone and share everyone's opinion.

Before switching to Flipped classroom technology, it is necessary to explain to students the content, purpose, requirements, and expected results of this form of education. The expected result will be achieved when students understand why they are studying in this form of education and remember that their activities in this process are purposeful. Therefore, when using the Flipped classroom technology in the educational process, the teacher's video lesson on explaining the topic should be scientifically based, the curriculum and content of the subject, the form of tasks should be developed in accordance with the age, lifestyle, and interests of students, and the requirements for completing the tasks should be taken into account.

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