SECTION 7. DIGITALIZATION OF EDUCATIONAL AND SCIENTIFIC ACTIVITY / ЦИФРОВІЗАЦІЯ ОСВІТНЬО-НАУКОВОЇ ДІЯЛЬНОСТІ

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DIGITAL TOOLS FOR SYNCHRONAL EDUCATIONAL INTERACTION

Abstract. We have identified the importance of establishing synchronous educational interaction, analyzed digital tools, analyzed examples of the use of individual services for streaming, Conducting videoconferences and webinars for students.

Keywords: digital instruments; streaming; videoconference; webinar; institutions of higher education

1. INTRODUCTION

Needs of digital transformation requires the flexibility of modern universities to ensure the implementation of society demands through innovative teaching and IC-technologies. Leveraging these technologies requires not only the creation of the digital learning environment [1], but also changes in the educational process. Distance Learning, mixed up and smart learning are actively used in educational practice. However, the experience of introducing these technologies will highlight the need for the selection of tools for communication between students and faculty in the process of processing theoretical information in synchronous and asynchronous modes.

Analysis of research and publications. In order to attract students to study in digital environments, it is necessary not only to create high-quality content but also to establish effective communication with the use of webinars and forums, video conferences, asynchronous and synchronous communications, chats, blogs and wikis, which should help the teacher to communicate with students at a new level [2]. The most studied programs for synchronous educational interaction are software products for webinars. N.Morze, O.Ignatenko, who believe that such toolkit is very well combined with different types and methods of learning[3, p.35]. Techniques for working with webinars were considered by I. Brunets [4], Y. Morozov [5] and V. Kukharenko [6]. Also, different aspects of conducting webinars as virtual classes are researched in the works of authors - D.Kegan, E.Shovke, H.Fritch, R.Grifin.

The main goal of the publication is presenting the results of software analysis for synchronous learning interaction.

2. THEORETICAL FOUNDATIONS

Educational communication can be implemented in two ways:

1. *Asynchronously* - the teacher prepares the material and writes in advance (it can be text with diagrams, drawings, tables, and other visual material, or video or audio content), and students can view it at any time convenient for them. Feedback in this case is realized through comments or discussion in the forum.

2. *Synchronously* - with the use of interactive methods of communication through the Internet, the teacher and students simultaneously get in touch. The feedback takes place during the webinar - students can ask questions, answer the teacher's questions, etc.

Although in terms of ease of study, the student is better off asynchronous studying, but rejecting live communication (synchronous) is not a good way for modern learning. Comparison of synchronous and asynchronous learning technologies was conducted in S. Khrastinsky's dissertation [7]. It is written in the dissertation that the use of asynchronous method leaves the student feeling of solitude and isolation, which can lead to a decrease in motivation and, in some cases, a cessation of the learning process. Periodic online communications stimulate the learning process.

Chats (currently considered obsolete technology and used only as a complement to other technologies), video conferencing and webinars are among the means of supporting synchronous educational interaction. Also, we will add to this list the new technology coming from the field of games and entertainment - streaming. In terms of involving students in the learning process, we will consider these technologies in the following order: streaming, videoconference, and webinar.

3. RESULTS AND DISCUSSION

Streaming is used on popular social networking sites by bloggers and gamers that show their ideas and actions in real time. It is best to apply such an approach to lectures when the teacher transmits the training material and responds to short questions by students. In this case, students can view video and listen to audio, see a desktop demonstration, and text information in chat. Feedback from a student is possible only in chat. However, the teacher can launch a questionnaire that will further engage students in the learning process. An additional plus of the streaming is the involvement of a large number of listeners. The most popular streaming application today is Open Broadcaster Software, which is an open source software. This application supports streams on YouTube, Facebook (e.g. https://www.facebook.com/idt.nubip/videos/370951330188201/), Twitter, etc. From a financial point of view, streaming does not cost much - only standard hardware for video communication on the teacher's side.

Video conferences - is a way of exchanging video, sound and data between two or more objects equipped with the corresponding hardware and software complexes. Video call participants can see and hear each other in real time, and change or share data together. In this way, students are more closely involved in the learning process. Each student can become a speaker, and each will be able to see and hear others. Not only the teacher can show the desktop, but also every student can do it. It is advisable to use videoconferencing not only at lecture classes but also at seminars, demonstration projects, etc. To work effectively during a videoconference, students, as well as the teacher, should be free to own the software that they will use for the call. However, there are limitations on the number of simultaneously connected users. From a financial point of view, the use of video conferencing also does not cost, but there are certain limitations. Individual software services allow you to make a limited number of connections for free. For video conferencing, you can use Skype, Google Hangout, Discord, and others.

Platforms for *webinars* have the greatest functionality for the learning process. Modern platforms for webinars provide great opportunities: broadcasting multiple participants at once, instant messaging in the form of text chat, demonstration of electronic resources of various

formats, file sharing, collective work with software, joint visit of websites, testing of participants, whiteboard - electronic panel, which performs functions of a board for collaboration, breakout rooms - separate rooms for group work, "lifting hands" - allows the participant of a webinar record to the recording of a webinar for the future, view it, informing members and etc. From a financial point of view, such webinars are the most expensive: you need to sign up for the appropriate web services with payment functionality and the number of participants or purchase your own powerful server for webinars. For webinars, you can use CISCO WebEx, OpenMeeting, BigBlueButton (for example, https://webinars.eapcivilsociety.eu/playback/presentation/0.9.0/playback.html?meetingId=bc51afc278bb792c24e48865c5a84091fae345ad-1554381265685). The last two can be installed on your own university server for free.

Which technology to choose depends on the forms and teaching methods that will be used. And also, from financial opportunities.

CONCLUSIONS AND PERSPECTIVES FOR FURTHER STUDIES

In the process of the general analysis of synchronous digital learning technologies (streaming, video conferencing and webinars) were analyzed and practical testing was carried out during the training of students of the Faculty of Information Technologies, including with the involvement of international experts. We determined the strengths and weaknesses of each of these tools. The short-term perspective is the development of recommendations for the use of digital instruments for synchronous and asynchronous interaction in the educational process.

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