



Video Conferencing and Webinars: Integration of Online Tools in Traditional Forms of Educational and Scientific Activities

Tatyana Ilinichna Golubeva¹, Kapitolina Leonidovna Ulanova², Evgeniya Alekseevna Kurenkova³,
Nafiset Kirmizovna Kuprina⁴, Olga Yuryevna Shvetsova⁵, Vladislav Alekseyevich Dmitriyev⁶

¹Russian State Social University, Moscow, Russia

²The Peoples' Friendship University of Russia (RUDN University), Moscow, Russia

³Moscow Region State University, Moscow Region, Russia

⁴Adyghe State University, Maikop, Russia

⁵Federal State Budgetary Educational Institution of Higher Education Nizhnevartovsk State University (NVSU),
Nizhnevartovsk, Russia

⁶Federal State Budgetary Educational Institution of Higher Education Nizhnevartovsk State University (NVSU),
Nizhnevartovsk, Russia

ABSTRACT

The introduction of information technology at the institutional level in modern society requires a change in the methods and organizational forms of education. Unlike traditional educational technology, the use of electronic systems for organizing educational and scientific activities creates conditions to provide the educational process with the quality of continuity through the technological integration of online tools in traditional forms of educational and scientific activities of students.

The article presents the views of scientists on the theoretical and practical aspects of organizing video conferences and webinars. The opportunities offered by video conferencing and webinars for educational and scientific activities of students, as well as the main areas of preliminary work on the video conferencing and webinars preparation, are determined in the article basing on the results of an expert survey.

Key words : information and communication technology, ICT, digital economy, service economy, services sector, labour market, digital employment.

1. INTRODUCTION

Today, the use of information technologies in the educational process, in particular online services, requires special attention. There is a need for such changes when the use of the latest information and communication technology (ICT) becomes a permanent source of both its own and social modernization. These technologies allow to set and solve much more complex and extremely urgent pedagogical tasks, which are the tasks of human intellectual development,

analytical and critical thinking, creativity, independence in knowledge generation and work with various sources of information [1-3].

In the modern information society, mastering the latest means of information culture following the modern development level of information technologies is of particular relevance [4-6]. This highlights the problem of improving the forms, methods and means of organizing scientific and pedagogical activities. One of the ways to solve this problem is the use of electronic open-source conferencing systems and the emergence of open web resources that facilitate the transition from traditional conference organization to synchronous electronic interaction during video conferencing using web resources (web conferencing) [7, 8].

In the first years after the advent of the Internet, the concept of "web conference" meant communication on forums and mailing lists, that is, asynchronous communication.

Today, video conferencing via the Internet is a modern communication technology that is synchronous and allows one to communicate and exchange information remotely in real-time, using ordinary personal computers and various types of video cameras [9]. The possibilities of modern video conferencing are great, and the quality is so close to real live communication that now there are practically no areas in which this technology is not used [10].

Works devoted to the theoretical and practical aspects of organizing electronic conferences reveal the basic principles of pedagogy and psychology of modern education, the theories of the development of the information society and the provisions on the organization of the educational process in higher education institutions [11-13].

E-learning is considered to be a combination of modern technologies that ensure the delivery of information online through the use of ICT and make the educational process

accessible and mobile [14, 15]. Undoubtedly, it is relevant now how the role and functions of the teacher in the educational process are changing in the context of global informatization [16].

The study by P.G. Altbach and J. Knight [17] showed that the use of open electronic systems for organizing the educational process contributes not only to the educational and professional mobility, but also to the individualization of educational trajectories. The use of open systems of management and organization of scientific activity creates the conditions for making the educational process continuous through the technological integration of classroom and extracurricular activities [18].

The organization of video conferencing using social web services and open systems that underlie e-learning was also investigated by M. Martin [19] and R. Wiesemes [20]. These studies showed that the design of the information space and the analysis of the methodological framework of the fundamentalization of education are an integral part of the use of video conferencing (web conferencing) systems.

Video conferencing now is one of the most effective means of distance learning and communication [21, 22], which are as close as possible to real-time learning in virtual interaction mode. They are used in many universities both in the educational process and in the practice of scientific and professional communication. For example, in terms of virtual learning, video conferencing allows one to give lectures and practical classes between the university and its affiliated branches located in different cities or countries in a multi-point mode [23, 24].

Video conferencing makes it possible for students from different cities and even countries to be present in a virtual classroom: to see and hear the teacher, ask questions, discuss the material with one another, present their works in front of other students. In other words, a video conference provides all the same opportunities for students and teachers as a real classroom with people present there [25].

Video conferencing (web conferencing), which involves a "one-way" communication and minimal feedback from the audience, is called webinar.

The article aims at covering the main issues of integration of

video conferences and webinars as well as the conditions for their organization. Foreign experience in the integration of video conferencing systems is also analysed in the article.

The research hypothesis is that video conferencing and webinars are an effective means of integrating online tools in traditional forms of educational and scientific activities of students.

According to the results of the study, it can be concluded that the aim of the study was achieved.

2. METHODS

A set of theoretical and empirical methods was used in the research. Theoretical methods included a review of scientific and methodological, as well as psycho-pedagogical, literature on the problem of video conferencing and webinars integration into traditional forms of educational and scientific activities of students.

Empirical methods included an online expert survey in the form of an informal interview, which was aimed at determining the opportunities offered by video conferencing and webinars for educational and scientific activities of students, as well as the methodological aspects of preparing video conferencing and webinars or, in other words, the main areas of preliminary work on the video conferencing and webinars preparation.

Fifty experts took part in the online survey; all of them were professors and technical staff of Russian universities.

Before the survey, the experts were informed about the purpose of the study and that we would publish the research results in a summarized form. Any personal data of the experts was not be made public in open sources of information. The survey was conducted in the Russian language.

3. RESULTS

According to the experts, video conferencing and webinars offer the following opportunities for educational and scientific activities of students (Table 1).

Table 1: Opportunities offered by video conferencing and webinars for educational and scientific activities of students

No.	Opportunities offered by video conferencing and webinars	Experts' reasoning	%*
1	Distance lectures by leading professors, including those from foreign universities	Universities can reach a larger audience of students and save time and money on teachers' business trips	90%
2	Remote attendance	People with disabilities can get an education without leaving home; students who were absent for various reasons will have the opportunity to attend classes or view its record	85%
3	Rapid exchange of educational materials	By pressing two buttons, the teacher gets an opportunity to distribute the necessary materials to all students	80%
4	Multiple views of educational materials and lectures from the archive	Students who missed classes for various reasons can easily catch up	80%

5	Large-scale scientific discussions and seminars (video conferencing only)	Practically, discussions and seminars organization is a rather complicated process. Video conferencing allows to minimize the effort to organize the event and save on rentals and travel expenses of the participants	75%
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According to the experts (75% of the respondents), the teacher should help students to prepare for video conferencing. During classes, they can give a prepared in advance or spontaneous speech to the audience (a group of students). It is possible to use the video camera for further analysis, as well as to organize simulation of video conferencing. Any presentations course and/or public speaking course also prepares modern specialists for participating in video conferencing.

The teacher should help students to learn to speak clearly and to hold the microphone at a certain distance from the face. A relatively slow pace of speech often helps to achieve this goal. The teacher can offer students clichés that are used in the teledialogs. Future specialists, while participating in a video conference, should introduce themselves after being given the floor. As a part of learning effective communication, students should be taught how to ask questions correctly.

Based on the expert survey, the main areas of preliminary work on the video conferencing and webinars preparation were determined.

First, both participants and organizers should thoroughly examine the features of the used system. It is important for the facilitator who holds a conference while using the studio system to attract several volunteers from among modern specialists to develop and stick to alternative scenarios of video conference if necessary. Usually, the facilitator does not deal with the technical problems of establishing and maintaining communication, but it will be useful to discuss with the technical staff the possible options if any technical difficulty appear.

Second, during the discussion of the topic and scenario of a video conference with the other side (facilitators from another educational institution), the content and direction of the discussion in each studio should be foreseen in case of connection, video or audio signal malfunctioning and so on. It will be useful to connect in advance for a test run before the video conference.

Third, it is difficult to carry out a conference in the table mode during class hours in the context of full-time education. The teacher should somehow include all the students in such sessions. As one of the options, several conferences can be held simultaneously with two to six participants from each side (at the same computer). Another option may be the order in which students participate in these events. Participants can prepare and submit a kind of report for the entire group (if the group includes more than ten people) about the video link with students from another university. Due to the great technical capabilities and adequate material base, it becomes

possible to conduct several sessions simultaneously and then analyze and compare the results.

Speaking about the webinar features that distinguish it from the traditional lesson in the classroom, most of the experts (90% of the respondents) noted that webinar requires special organizational events. Such events include preparing and organizing a workplace, sending invitations to a webinar, posting announcements about a webinar, hosting a test webinar to prevent technical problems, developing and downloading materials for a webinar (a presentation, questionnaires, forms, etc.) and so on.

Based on the expert survey, features of the organizational and methodological work of the teacher during preparation for the webinar were determined.

1. Development of educational materials. This stage of the preparatory work is very similar to the preparation for the traditional lesson, since it is still necessary to decide on the topic of the lesson and its purpose, develop a work plan, think about the content, prepare multimedia resources (usually in the form of a presentation). However, unlike the classroom lesson, while preparing for the webinar, it is necessary to think in more detail about the use of the platform web tools and take into account the psycho-pedagogical features of this form of learning organization.

Despite this, because of the absence of physical contact, it is advisable to enrich one's story with interesting information that will increase the level of attention to maintain the interest of the audience.

2. Development of a webinar scenario and planning interactive communication between participants. For effective interaction between the speaker and the listeners, it is necessary to think about the sequence of presented material and the completion by the participants of educational activities. For example, if the material is presented in the form of a presentation, then a commentary should be thought out for each slide.

Theoretical material should be presented in small parts (6-10 minutes), after which interactive communication with participants should be carried out, for example, asking questions. It is important to determine the place of interactive communication with the participants within the webinar and prepare questions in advance. As a rule, a place for questions is left either at the end or after each semantic block of the topic. However, it is important to ask questions regarding the individual thoughts or experience of the audience, but in no case provoke a discussion; otherwise, such a webinar can last very long.

3. Developing a webinar work plan. While developing a plan,

it is necessary to decide on the date of the lesson, time, duration of the webinar (within 45 minutes), the number of participants who plan to listen to the webinar. In this case, it is very important to choose a convenient date and time, determine the potential audience and describe this information in an informational invitation letter, which is then sent to the participants.

4. Development of materials for individual work. It is advisable to plan individual work after a webinar. For students, it allows reinforcing obtained knowledge and for the teacher – checking the attentiveness of students during the webinar.

5. Notification of potential participants about the webinar. It is advisable to create a notification in the form of an informational invitation letter. It is also advisable, in addition to the date and time of the webinar, to send in the letter the materials that listeners need to familiarize with before the start of the webinar. This should be materials related to the topic, purpose, tasks and the main idea of the webinar and so on. The focus of the materials should be the updating of the listeners' knowledge, but not a short or expanded presentation of the content. Despite this, it is important to provide the participants with methodological recommendations for participating in a webinar. For example, it may be information about the technical tools needed for a webinar. Notifications may also contain a registration form for providing information about participants, a questionnaire, tests, other information that the facilitator may need to conduct the lesson and so on.

6. Hosting a test webinar. This activity is carried out together with the administrator, who is responsible for the technical side of the work. To prevent any malfunctions, it is always advisable to carry out preliminary training of the speaker, test the functionality of technical equipment and software (microphone, web camera, slides switching, webinar recording, etc.).

7. Participation of the co-rapporteur. The co-rapporteur can significantly simplify the speaker's work, since they do not need to think about slides switching, messages in the chat, as well as such issues as who asks questions, who needs the microphone to be turned on/off and so on.

As it can be seen, preparation for a webinar takes much longer than for a regular lecture. However, after the first preparation, the following one will take much less time. According to one of the experts, "the process of preparing for a webinar can be minimized if the organizer has the experience and knowledge related to the process".

The experts also noted that for the organization of the educational process in the form of video conferencing or webinar, the teacher must be prepared not only in terms of methodology, but also technically, which requires knowledge and skills to work with a computer and other managed systems to be able to switch the monitor and various applications. In some universities, there are technical staff

who help the teacher to conduct video conferences and webinars. However, the teacher needs to have information and communication skills for managing the educational process.

4. DISCUSSION

Today, video conferencing as communication technology is used predominantly in universities that have affiliated branches. The main obstacle to the widespread use of this Internet technology, according to the experts, is the cost of the necessary equipment, which is not always available at local educational centres (affiliated branches) of the university.

Today, video conferencing is affordable and advanced enough to ensure high quality. These factors make video conferencing and webinars a widely used Internet technology in education. The above-mentioned Internet technology for distance education programs is of greatest interest. However, the integration of video conferencing and webinars into full-time education is not excluded. For example, well-known scientists and practitioners can give "distant" lectures [26].

The teacher should pay attention to several aspects during the preparation for the lessons via video conferencing. They must decide what is the purpose of the lesson and what should students acquire from it; in what form the video conference will take place (lecture, seminar, discussion, etc.); what audio and video materials, handouts and illustrative materials are supposed to be used; what will be the duration of the video conference; whether any additional equipment is necessary to demonstrate video materials or titles for instructions; whether it is necessary to send any materials to the participants of the video conference in advance and so on.

Humans receive most of the information visually. That is why it is very important for students not only hear the teacher and see a presentation or a syllabus, but also to have eye contact with the teacher. This is a very important psychological aspect that increases the effectiveness of the learning process [27].

That is why visual contact with a virtual audience must be maintained to create a pleasant atmosphere and conditions for open communication. For this purpose, according to one of the experts, "video camera should be considered to be a participant of communication and the teacher should constantly maintain eye contact with the video camera, as well as show equal interest in the participants not only in the studio or room, but also in a virtual classroom. It is important to overcome the constraint that many people have in front of a video camera, especially without addressing the audience directly, which helps to establish and maintain contact".

Virtual communication is often characterized by difficulties in perceiving of the questions, since technical malfunctioning and a psychological barrier can play a negative role. The speaker should repeat the questions if no answer is received

from the virtual audience immediately after the question (within five to seven seconds). A facilitator in a virtual classroom can encourage the audience, for example, by reformulating a question, addressing anyone who potentially can or wants to answer this question. Video conferencing organizers need to select relevant issues and topics for sessions, in which modern specialists are interested; to think of creative forms of presenting information to maintain the interest of participants to continue the conference [28].

As it was already mentioned, along with the increase in the quantity and quality of ICT, the integration of tools intended for organizing conferences in the educational process is becoming more and more popular not only in Russia, but worldwide. According to the popular GoToMeeting system, every year more than 330,000 organizations and more than 100 million people use web conferencing facilities [29].

Video conferencing via the Internet is also in demand in foreign universities [30]. Thus, Leland Stanford Junior University, or Stanford University (California, USA), uses the paid Blue Jeans system. This system supports video recording, creation of video conference rooms, HD video and screen-sharing, and up to 100 participants can participate in a video conference at the same time. Princeton University also prefers to use this system. Boston University (Massachusetts, USA) uses the paid Adobe Connect Pro system to organize its web conferences. The tool supports file uploading, video conferencing, chat, voting and Voice over IP (VoIP). Cornell University uses several systems to host its events, among which there are WebEx and Microsoft Skype for Business for Windows and Lync for Mac and mobile devices.

5. CONCLUSION

Video conferences and webinars can be used to increase efficiency and mobility of participants of the educational process, and, most importantly, they provide a unique opportunity to organize collaborative work in the integration of online tools in traditional forms of educational and scientific activities of students.

The results of the study confirmed the hypothesis that video conferencing and webinars are an effective means of integrating online tools in traditional forms of educational and scientific activities of students.

Summing everything up, it is worth mentioning that distance technologies and their innovative tools will certainly be integrated into the educational process and modify it. Moreover, they will directly influence the content, methods and organizational forms of educational activity. At the present stage, this process has the following characteristics:

- the advantages are determined by the low cost of maintaining; the absence of any geographical and time limits; the great possibilities of using multimedia materials; mobility, a wide range of means of control; easiness of

updating content and flexibility.

- the constraints are characterized by the duration of the initial development; requirement of a certain level of information competence, modern technology and changing of the general culture in the field of education.

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