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# CUADERNOS DE SOFÍA EDITORIAL

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# WEBINAR AS AN INNOVATIVE TECHNOLOGY OF ONLINE EDUCATION WITH THE USE OF MODERN MEDIA RESOURCES

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### **Abstract**

Modern information and communication technologies allow creating a powerful e-education environment that is rapidly developing and blurring the boundaries between traditional formal and informal learning. A properly organized use of created learning environments encourages research and teaching staff to seek and find innovative methods of teaching and research activities, motivates them to cognitive activities, and develops students' skills for self-study. The article describes the features of creating and using webinar as an innovative technology of online education with the use of modern media resources (on the example of YouTube). Based on a pedagogical experiment on the introduction of webinar technology into the professional training of future specialists in humanities with the help of YouTube, it has been concluded that this technology will improve the performance and quality of training of future specialists in humanities.

### **Keywords**

Information and communication technology - ICT - Webinar - Students of humanitie

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## Introduction

The development of information and communication technologies (ICT) determines the appearance of ICT-oriented educational technologies, the newest means of education, the creation and use of the modern computer-oriented educational environment in pedagogical systems, the gradual formation and development of a computer and technological platform of the information learning space and electronic information educational resources and network services that fill it with content and support it in the process<sup>1</sup>.

Currently, the rapid growth of ICT diversity, the awareness of its educational potential, and the emergence of numerous open educational resources allow for an increasing introduction of modern ICT for blended learning into the humanitarian education system<sup>2</sup> which implies, in particular, distance learning. Modern ICT (blogs, wiki-technologies, webinars) allow implementing real-time learning, communication, cooperation, reflection, and the introduction of innovative pedagogical technologies<sup>3</sup>.

ICT, including multimedia, provide new learning opportunities for students of humanities. The use of audiovisual learning media has several advantages over purely audio and visual learning media. The main advantage is that information is delivered to the person who perceives it simultaneously through the visual and auditory channels. Therefore, the person who perceives information with the help of audiovisual means is influenced by a powerful flow of qualitatively unusual information that creates an emotional basis on which it is easier to move from a particular image to logical thinking and abstraction<sup>4</sup>.

The audiovisual means of learning include educational films, television, video, teleconferences, video chats, webinars, etc., which are easy to implement using modern media resources.

<sup>&</sup>lt;sup>1</sup> A. I. Nikiforov; A. M. Avdonina; T. V. Dikova; A. S. Bagdasarian y I. Yu. Ilina, "Formation of a Continuing Education System in Modern Conditions", Universal Journal of Educational Research Vol: 8 num 5 (2020): 1772-1777; S. Matveeva; N. Akatova; Y. Shcherbakov y N. Filinova, "Digitalization of Higher Education and Professional Development of Educators: Technologies and New Opportunities", Amazonia Investiga Vol: 9 num 29 (2020): 77-86 y T. Stepanova; K. Shapochka; R. Vdovychenko; Y. Babaian y N. Ivanets, "Formation of inclusive values as development of democratic values", Amazonia Investiga Vol: 9 num 29 (2020): 107-115.

<sup>&</sup>lt;sup>2</sup> V. N. Dolzhenkov; I. D. Maltzagov; A. I. Makarova; N. S. Kamarova y P. V. Kukhtin, "Software Tools for Ontology Development", International Journal of Advanced Trends in Computer Science and Engineering Vol: 9 num 2 (2020): 935-941; S. Duisenova; B. Kylyshbaeva y K. Avsydykova, "Ye. Ishanov. Sociological Analysis of Educational Strategies in the System of Higher Education in Kazakhstan", Space and Culture, India Vol: 7 (2020): 181-193 y G. M. Gogiberidze; V. A. Isakov; T. V. Ershova y O. V. Shulgina, "Development of innovations in the educational environment: inclusive education and digital technologies", Revista Inclusiones Vol: 7 num Especial (2020): 147-158.

<sup>&</sup>lt;sup>3</sup> N. V. Ivanova y T. M. Sorokina, "The relationship between the categories "Educational environment" and "Educational space" in Russian Psychological and Pedagogical Science", Revista Inclusiones Vol: 7 num Especial (2020): 100-118 y N. S. Spartakian; I. G. Ryabova; E. U. Ivanova; N. M. Dugalich y Yu. A. Ermoshin, "A study of the moral-ethical views of Mohandas Karamchand (Mahatma) Gandhi under the influence of L.N. Tolstoy's nonresistance-to-evil philosophy", European Journal of Science and Theology Vol: 15 num 2 (2019): 171-179.

<sup>&</sup>lt;sup>4</sup> B. Irmer y P. Bordia, "Multiple determinants of media choice: The role of symbolic cues and contextual constraints", International Journal on ELearning Vol. 2 num 3 (2003): 51-58.

PH. D. (C) DARYA VLADISLAVOVNA AGALTSOVA / DR. NADEZHDA RODIONOVA / PH. D. SABEKIA RAUSHANA BEISENOVNA DR. ASHOT SARATOVICH KAGOSYAN / PH. D. VLADIMIR OSTROUKHOV

According to researchers<sup>5</sup>, a media resource is a set of online technologies through which interaction, cooperation, communication, and information exchange (including pedagogical) take place. Media resources can be created through various forms of information presentation, such as multimedia presentations, video instructions, educational films, video lectures, and the like. A type of video lecture is a webinar.

The analysis of publications allows us to state the high popularity of webinars as a tool used in the learning process. Thus, S. Wang and H. Hsu<sup>6</sup> and W.P. McKinney<sup>7</sup> describe the advantages of using webinar-oriented platforms. S. Cornelius and C. Gordon<sup>8</sup> and J. Bekerman and A.G. Palis<sup>9</sup> substantiate in detail the methodology of their choice and describe the methodological basis for their use. The studies<sup>10</sup> generalize the experience of using webinar-oriented platforms in organizing educational activities of university students; advantages of using webinars in distance learning; the most common hardware and software for organizing and conducting webinars.

- P.G. Shotsberger<sup>11</sup> notes that webinar is an innovative method of learning that allows users to fully recreate the conditions of a joint form of the learning organization, namely, seminar, laboratory classes, and lectures, using the means of audio and video data exchange and collaborative work with different objects, although its participants may physically be in different places.
- P. Goodyear<sup>12</sup> gives the following definition of webinars: this is a special type of web-conferences that is used to deliver learning material to future specialists because it minimizes feedback from the audience. P. Lieser<sup>13</sup> understands a webinar in the educational process as a way of delivering lectures and seminars remotely.

<sup>&</sup>lt;sup>5</sup> P. J. Slagter van Tryon y J. M. Bishop, "Identifying e-mmediacy strategies for Web-based instruction", Quarterly Review of Distance Education Vol. 7 num 1 (2006): 49-62.

<sup>&</sup>lt;sup>6</sup> S. Wang y H. Hsu, "Use of the webinar tool (elluminate) to support training: the effects of webinar-learning implementation from student-trainers' perspective", Journal of Interactive Online Learning Vol: 7 num 3 (2008): 175-194.

<sup>&</sup>lt;sup>7</sup> W. P. McKinney, "Assessing the evidence for the educational efficacy of webinars and related internet-based instruction", Pedagogy in Health Promotion Vol. 3 (2017): 475-515.

<sup>&</sup>lt;sup>8</sup> S. Cornelius y C. Gordon, "Facilitating learning with web conferencing recommendations based on learners' experiences", Education and Information Technologies Vol. 18 (2013): 275-285.

<sup>&</sup>lt;sup>9</sup> E. P. Mayorga; J. G. Bekerman y A. G. Palis, "Webinar software: A tool for developing more effective lectures (online or in-person)", Middle East African Journal of Ophthalmology Vol: 21 (2014): 123-127.

<sup>&</sup>lt;sup>10</sup> A. Gegenfurtnera y C. Ebnerb, "Webinars in higher education and professional training: A metaanalysis and systematic review of randomized controlled trials", Educational Research Review Vol: 28 (2019): 1-19; S. Hrastinski, "A study of asynchronous and synchronous e-learning methods discovered that each supports different purposes", Educase Quarterly Vol: 4 (2008): 51-55 y N. S. Chen; H. C. Ko y T. Lin, "A model for synchronous learning using the Internet", Innovations in Education and Teaching International Vol: 42 num 2 (2005): 181-194.

<sup>&</sup>lt;sup>11</sup> P. G. Shotsberger, <sup>\*</sup>The human touch: Synchronous communication in Web-based learning", Educational Technology Vol: 40 num 1 (2000): 53-56.

<sup>&</sup>lt;sup>12</sup> P. Goodyear y M. Zenios, "Discussion, collaborative knowledge work and epistemic fluency", British Journal of Educational Studies Vol: 55 num 4 (2008): 351-368.

<sup>&</sup>lt;sup>13</sup> P. Lieser; S. D. Taff y A. Murphy-Hagan, "The Webinar Integration Tool: A Framework for Promoting Active Learning in Blended Environments", Journal of Interactive Media in Education Vol: 7 num 1(2018): 1-8.

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The results of the conducted analysis allowed us to identify the main areas of application of webinars: group learning lessons; distance learning, such as lectures, seminars, and workshops in the form of a webinar, and the like.

M. Power<sup>14</sup> considers webinar as a technology that allows not only transmitting audio and video messages but also recreating the full conditions of a collaborative form of the learning organization.

According to the researchers<sup>15</sup>, the advantages of webinars over ordinary lectures are:

- 1) the possibility of conducting classes remotely;
- 2) the possibility of recording lectures, seminars, and workshops;
- 3) an unlimited number of listeners;
- 4) the possibility to use additional materials related to computer science and media education.

According to the studies<sup>16</sup>, the following factors are necessary conditions for the introduction of media technologies in the educational process: 1) the access to the Internet; 2) the experience of working with media resources in the educational process; 3) basic technical support (the availability of devices for access to the Internet); 4) the knowledge of the technology of using multimedia devices in the educational process. A webinar can be carried out with the help of modern media resources such as YouTube<sup>17</sup>.

The objective of the article is to reveal and analyze the main aspects of the use of webinars in the educational process with the help of modern media technologies and to conduct an experimental study of the effectiveness of pedagogical conditions and the technology of creating and using webinars with the help of YouTube in the professional training of future specialists in humanities.

<sup>&</sup>lt;sup>14</sup> M. Power y A. St-Jacques, "The Graduate Virtual Classroom Webinar: A Collaborative and Constructivist Online Teaching Strategy", Journal of Online Learning and Teaching Vol: 10 num 4 (2014): 681-696.

<sup>&</sup>lt;sup>15</sup> R. Polanco-Bueno, "Blogs, webinars and significant learning: A case report on a teacher training program for college teachers", Higher Learning Research Communications Vol: 3 num 1 (2013): 56-67.

<sup>&</sup>lt;sup>16</sup> Z. Akyol; D. R. Garrison y M. Y. Ozden, "Development of a community of inquiry in online and blended learning contexts", Procedia Social and Behavioral Sciences Vol: 1 (2009): 1834-1838 y D. A. Cook; S. Garside; A. J. Levinson; D. M. Dupras y V. M. Montori, "What do we mean by web-based learning? A systematic review of the variability of interventions", Medical Education Vol: 44 (2010): 765-774.

<sup>&</sup>lt;sup>17</sup> J. Trier, «Cool» engagements with YouTube: Part 1" Journal of Adolescent & Adult Literacy Vol: 50 num 5 (2007): 408-412; J. Trier, «Cool» engagements with YouTube: Part 2", Journal of Adolescent & Adult Literacy Vol: 50 num 5 (2007): 598-603; P. Duffy, "Engaging the YouTube Google-eyed generation: Strategies for using Web 2.0 in teaching and learning", The Electronic Journal of e-Learning Vol: 6 num 2 (2007): 119-130 y T. Jones y K. Cuthrell, "YouTube: Educational potentials and pitfalls. Computers in the Schools", Interdisciplinary Journal of Practice, Theory, and Applied Research Vol: 28 num 1 2011): 75-85.

The hypothesis of the study: the introduction of webinar technology in the professional training of future specialists in humanities with the help of YouTube will improve the performance and quality of education for future specialists.

According to the results of the study, it can be concluded that the goal set in the study was achieved.

### Methods

Based on the study of psychological, pedagogical, methodological, and scientific literature, we developed and theoretically justified the technology of creating and using webinars via YouTube. To test the effectiveness of pedagogical conditions and this technology, we conducted a pedagogical experiment.

The objectives of the experimental study were as follows:

- 1. Testing of the use of webinar technology through YouTube in the training of future specialists in humanities;
- 2. Testing of the efficiency of the developed technology through the quantitative and qualitative analysis of the results of future social workers in the experimental and control groups.

The experimental study was attended by 264 students of the 1st-3rd years of education. The control and experimental groups, which were qualitatively homogeneous in their composition, were identified. The students participating in the experimental research studied in 12 groups: six experimental (3 groups per course) and six control groups (3 groups per course).

### Results

The experimental study was conducted in two stages: ascertaining and forming. At the ascertaining stage of the pedagogical experiment, we studied the level of the students' progress and its results are presented in Table 1.

Nº	Group	Quantity of	Average grade point of success for
		students	the previous semester
1	Control (CG)	131	3.98
2	Experimental (EG)	133	4.01

Table 1

The average grade point of progress for the previous semester of the studied students

To test the research hypothesis, we conducted a formative pedagogical experiment. At the forming stage of the experiment, learning activities in the CG (131 people) were carried out traditionally. In the EG (133 people), the technology of using webinars via YouTube was implemented in the educational process. To determine the efficiency of the proposed technology in training future specialists in humanities, it was necessary to compare the results of the CG and EG. The results of the learning data allowed us to identify three levels of success in the training of future specialists as a result of the educational process — high, medium, and low; their distribution is shown in Table 2.

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Nº	Levels	CG		EG		
		Quantity Success, %		Quantity	Success, %	
1	High	35	26.72	36	27.07	
2	Medium	69	52.67	68	51.13	
3	Low	27	20.61	29	21.80	
Total		131	100	133	100	

Table 2
Distribution of students by success levels

Thus, the majority of both groups of the studied students were characterized by an average level of academic success: 52.67% of CG students and 51.13% of EG students. At the same time, every fifth participant of the experiment had a low level of success in educational activities (20.61% and 21.8% of the respondents respectively).

The studied educational success level of the students participating in the experiment determines the level of their professional knowledge, skills, and abilities, which, in turn, corresponds to the readiness for professional activity and is determined by the pedagogical conditions of the professional training organization.

The hypothesis of our study suggests increasing the level of success in training future specialists in humanities by introducing webinar technology with the help of YouTube into the educational space of the experimental group.

This organization of training affects the quality of their learning achievement. The effectiveness of learning in the EG and CG was measured by a comprehensive test that was conducted at the end of our pilot study. The results of the EG and CG test are presented in Table 3.

Groups	Quantity of	Leve	els	of	learning	Absolute	Qualitative
	students in	achievement				academic	academic
	general	2	3	4	5	achievement	achievement
CG	131	8	41	48	34	94%	63%
	100%	6%	31%	37%	26%		
EG	133	4	25	52	52	97%	78%
	100%	3%	19%	39%	39%		
Total	264	12	66	100	86	95%	70%

Table 3
The success of students of the EG and CG at the forming stage of the pedagogical experiment

Thus, according to Table 3, the level of academic achievement of students who received "good" and "excellent" for writing a test was 78%, and in the CG — 63%.

We summarize the results of the EG and CG students' academic achievement in Table 4.

Levels	CG				EG			
	Before		After		Before		After	
	Quantity	Success, %						
High	35	26.72	38	29.01	36	27.07	57	42.86

Medium	69	52.67	64	48.85	68	51.13	64	48.12
Low	27	20.61	29	22.14	29	21.80	12	9.02
Total	131	100	131	100	133	100	133	100

Table 4.

Distribution of students by success levels before and after the forming stage of the pedagogical experiment

The data of Table 4 show that, after the forming stage of the pedagogical experiment, the high level of success in EG increased from 27.07% to 42.86% (in CG — to 29.01%).

The dynamics of redistribution of students by success levels shows that the level of the students' performance in CG did not practically changed. In EG, there was a sharp decrease in the number of students with a low level of academic success: from 21.8% at the ascertaining stage of the pedagogical experiment to 9.02% of students after the forming stage. It means that the technology that was implemented at the forming stage of the pedagogical experiment in the EG educational space allowed increasing the level of students' academic success and provided the growth of quality of professional knowledge, skills, and abilities.

Statistical analysis of the EG and CG students' success results after the completion of the forming stage of the experiment with the help of Student's t-test confirmed the significance of the difference between the EG and CG average efficiency indices ( $t_{emp} = 2.9$ ; t = 1,96, therefore,  $t < t_{emp}$ ).

Therefore, a statistically substantiated conclusion can be made that the efficiency of learning and cognitive activities in the EG was higher than in the CG. In other words, the systematic use of webinar technology through YouTube in the training of future specialists in humanities ensured a higher level of success.

Thus, analyzing the statistical data received, we can assert the expediency of the use of webinar technology with the help of YouTube in the learning process, since the average evaluation of students' progress and the absolute and qualitative progress of EG is higher than that of CG.

## **Discussion**

Consider in detail the features of creating and conducting webinars using the media resource YouTube.

YouTube is a popular video service that provides services for placing video materials. This site was created to facilitate search and exchange of video files between Internet users. YouTube is available as an Internet resource with access through any browser and applications for iOS and Android devices.

This resource allows for live broadcasts, recording of webinars, and providing feedback by listeners. While conducting a webinar via YouTube, it should be kept in mind that the material should be available, clearly formulated, and illustrated by a presentation or other form of visual demonstration. YouTube allows for the demonstration of video from a web camera, computer desktop, individual programs (PowerPoint, Word), as well as modern electronic applications (tablets, phones, etc.).

The appearance of the lecturer is very important. The person conducting the webinar should be dressed appropriately and record the webinar preferably on a light background, in the office or a specially designated place for work. During the webinar, there should be no extraneous noise that could distract the lecturer and the audience.

The technological support of the webinar and the webinar organizer's ability to use electronic devices and resources is also important. For example, the lecturer needs to have a YouTube account (or Facebook, or Google), have primary computer skills, and have access to the Internet.

To create a webinar on YouTube, first, one needs to log into a YouTube account via Google Mail or Facebook account and go to the menu "My Channel".

Then one must go to the "Creative Studio" menu and start broadcasting. To do this, it is necessary to install a video encoder by instructions on the site. After all the instructions and video coder settings are completed, one can record lectures and broadcast screen share, presentations, webcam video, etc.

The second way to add a video is to download it from the user's computer. To do it, one should press the "Download" button and choose the corresponding video file. Once it is done, the file will be uploaded to the YouTube server.

On the video upload page, a link is displayed where the video will be available after uploading. On the same page, it is necessary to specify the title, description, and tags (keywords) for the video file. The user can also specify here the category to which the video belongs by selecting from the list of suggested ones. It is important to choose the right theme of the profile "Education".

It is also necessary to pay attention to the profile settings on the user's channel. The default privacy settings will be set to "For All". However, the user can change it for each video separately. To do it, one should click on the "For All" list and choose the appropriate restrictions: video can be watched by anyone, or it can be restricted for a group of users only.

When all necessary settings are made, the educator can make a webinar, record it, and communicate with listeners online. While watching videos, students can leave comments on the materials and ask questions. Besides, during receiving a link to this video for sending it or inserting it to the pages of the site, YouTube video service allows indicating the time from which to start playing the video. Thus, students and educators can leave timestamps in comments, which are a link to a point in a video fragment. One of the tasks when working with video materials can be to search for specific fragments and fix them in the comments (description).

The subject matter of the webinar is determined by the working curriculum. It is possible to conduct webinars on issues related to a particular academic discipline but not covered by the curriculum. Records of webinars can be placed on personal web resources of the university teaching staff.

When using webinars in the process of education via YouTube, the question is how to properly combine video with other means (text, images, and audio). First of all, it is

necessary to follow the principles of combining media and organizing multimedia content on the screen<sup>18</sup>:

- the principle of multimedia the better absorption of the material contributes to its presentation by various means (hence, it is appropriate to supplement the video sequences with text support);
- the principle of relatedness learning is more effective when the learning material is presented on the screen at an approaching and simultaneous level (the video sequences should be synchronous and not remote in time and space);
- the principle of modality learning is more effective with the use of different modalities (video and story are better than video and text);
- the principle of redundancy learning is more effective when the message is not presented in more than one form (the video and story shown in the video should not be duplicated in the text description).

It is of particular importance to follow the standards designed by the developers of multimedia products when combining and posting multimedia on YouTube. Particularly, according to the basic design and ergonomic requirements for multimedia resources defined in the international standard, the following should be considered when displaying multimedia messages<sup>19</sup>:

- different combinations of multimedia data have different effects on the learner, so multimedia components must be combined in such a way as to facilitate the achievement of their goals;
- the choice of media combinations should provide the learner with the maximum amount of information required;
- when choosing a combination of multimedia components, it is necessary to consider the relevance of the audience (age, level of knowledge, specialisation, level of user skills);
- the learner should be allowed choosing a certain resource from the presented combination, according to their own needs;
- it is necessary to consider the semantic content that depends on the combination of multimedia and, therefore, to exclude switching off one of the components to avoid distorting the content;
  - full disclosure of the content must be ensured;
  - it is prohibited to submit messages by two means with conflicting content;

<sup>&</sup>lt;sup>18</sup> R. Hamilton, "YouTube for two: Online video resources in a student-centered, taskbased esl/efl environment", Contemporary Issues in Education Research Vol: 3 num 8 (2010): 27-31.

<sup>&</sup>lt;sup>19</sup> D. Anthon; A. Hemingway y A. Smith, "A technological trifecta: using videos, playlists, and facebook in law school classes to reach today's students", Rutgers Computer & Technology Law Journal Vol: 40 num 1 (2014): 1-16.

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- it is prohibited to use combinations that overload one perception channel (video and explanatory text);
- provide the learner with time and opportunity to perceive all the learning material presented:
- an educator must consider that some multimedia combinations may overload the technical channels of reproduction and transmission, which may prevent the presentation from being presented in an acceptable form.

The combination of multimedia components should increase learners' motivation and enhance their aesthetic perception. If a video sequence, for example, is accompanied by captions, the choice of font should be made reasonably. It is important not only to select the appropriate type size and contrasting colour to the background but also the appropriate headset so that the text is readable and facilitates a quick and error-free perception of the content. Besides, the selected headset should correspond to the stylistics of the video material, complement it harmoniously, and not be a foreign element.

If the audio accompaniment is present, it is important to consider the speaker's speech characteristics. An important condition for quality perception of speech in the process of stream-education is its legibility, which depends on the optimal duration of the pronunciation of sounds, on the pace of the pronunciation of words (optimal — 120 words per minute), sufficient volume, and no disturbances. Perception of speech messages also depends on the speaker's voice features: intonation, tempo, and timbre affect the quality of sound accompaniment. Therefore, the speaker's voice recording should be concise, accessible, not replace the visual range, and sound qualitatively. The speaker's speech should be expressive, clear, understandable, without defects, and of optimal speed.

# Conclusion

The technology of conducting webinars in the learning process with the help of modern media resources (in particular, YouTube) provides a thorough training of the educator for the use of technical means to create video lectures in the form of a webinar, their awareness of the format of such classes, namely, the appearance, place of recording the class, and design of illustrative materials. At the same time, the introduction of a new format for lectures and workshops in the learning process is a time requirement, a necessity that can improve the quality of the sessions and increase the interest of higher education students in the information provided.

The results of the study confirmed the hypothesis that the introduction of webinar technology with the help of YouTube in the process of professional training of future specialists in humanities will improve the academic achievement and quality of training of future specialists.

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