

## The experience of using the webinar in the preparation of engineering specialists

La experiencia del uso del webinar en la preparación de especialistas en ingeniería  
 A experiência de usar o webinar na preparação de especialistas em engenharia

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Written by:

Zhanna V. Smirnova (Corresponding Author)<sup>84</sup>

Natalia V. Kamenez<sup>85</sup>

Olga I. Vaganova<sup>86</sup>

Lyubov I. Kutepova<sup>87</sup>

Ekaterina V. Vezetiu<sup>88</sup>

### Abstract

The development of modern society in the context of computerization is associated with the introduction of information and communication technologies in all spheres of human life. Modern trends in the development of society as a whole and Russian education update attention to the development of distance education, which is based on the need for specialists in the continuous and rapid acquisition of new knowledge, without which the Business success and professional growth in a technologically advanced society is impossible, one of those resources is a webinar. We conducted a training experiment with 20 students from the State Pedagogical University of Nizhny Novgorod. The purpose of the pilot work was to test the effectiveness of conducting webinars to improve the quality of student education. The webinar performed differs significantly from those already available. With the help of this, student activity becomes more independent, there is an active pedagogical interaction between the students and the teacher, acquiring a research orientation. Guided by the results of the experimental work, they came to the conclusion that the use of webinars in the process of teaching students became a motivating factor in the learning process in general, while studying the academic disciplines, the practice of interest, there was an Interest in independent work, self-examination

### Resumen

El desarrollo de la sociedad moderna en el contexto de la informatización está asociado con la introducción de las tecnologías de la información y la comunicación en todas las esferas de la vida humana. Las tendencias modernas en el desarrollo de la sociedad en su conjunto y de la educación rusa actualizan la atención al desarrollo de la educación a distancia, que se basa en la necesidad de especialistas en la adquisición continua y rápida de nuevos conocimientos, sin los cuales el éxito empresarial y el crecimiento profesional en una sociedad tecnológicamente avanzada es imposible, uno de esos recursos es un seminario web. Llevamos a cabo un experimento formativo con 20 estudiantes de la Universidad Pedagógica Estatal de Nizhny Novgorod. El propósito del trabajo piloto fue probar la efectividad de la realización de seminarios web para mejorar la calidad de la educación de los estudiantes. El webinar realizado difiere significativamente de los ya disponibles. Con la ayuda de ello, la actividad de los estudiantes se vuelve más independiente, hay una interacción pedagógica activa entre los estudiantes y el profesor, adquiriendo una orientación de investigación. Guiados por los resultados del trabajo experimental, llegaron a la conclusión de que el uso de seminarios web en el proceso de enseñanza a los estudiantes se convirtió en un factor motivador en el proceso

<sup>84</sup> Minin Nizhny Novgorod State Pedagogical University, Uljanov street, 1, Nizhny Novgorod, Russia

<sup>85</sup> Industrial University of Tyumen, Volodarsky Str. 38, Tyumen, Russia

<sup>86</sup> Minin Nizhny Novgorod State Pedagogical University, Uljanov street, 1, Nizhny Novgorod, Russia

<sup>87</sup> Humanities and Education Science Academy (branch) of V.I. Vernadsky Crimea Federal University in Yalta

<sup>88</sup> Humanities and Education Science Academy (branch) of V.I. Vernadsky Crimea Federal University in Yalta, Acad. Vernadsky ave, 4, Simferopol, Crimean Republic, Russia

and self-assessment of knowledge and skills. The article summarizes the results of the web seminar "The state of housing and communal services problems in the Nizhny Novgorod region", carried out by the Technology Service and Technological Education Department of the State Pedagogical University of Nizhny Novgorod. The article shows the experience of organizing the professional training of specialists in the field of housing and community services, which is implemented in stages.

**Keywords:** preparation of graduates, practice, webinars.

de aprendizaje en general, mientras estudiaba las disciplinas académicas, la práctica de interés, había un Interés por el trabajo independiente, el autoexamen y la autoevaluación de conocimientos y habilidades. El artículo resume los resultados del seminario web "El estado de los problemas de vivienda y servicios comunales en la región de Nizhny Novgorod", realizado por el Departamento de Tecnología de Servicio y Educación Tecnológica de la Universidad Pedagógica Estatal de Nizhny Novgorod. El artículo muestra la experiencia de organizar la formación profesional de especialistas en el campo de la vivienda y los servicios comunitarios, que se implementa en etapas.

**Palabras claves:** preparación de los graduados, práctica, webinars.

## Resumo

O desenvolvimento da sociedade moderna no contexto da informatização está associado à introdução de tecnologias de informação e comunicação em todas as esferas da vida humana. As tendências modernas no desenvolvimento da sociedade como um todo e a educação russa chamam a atenção para o desenvolvimento da educação à distância, que se baseia na necessidade de especialistas na aquisição contínua e rápida de novos conhecimentos, sem os quais o sucesso comercial e o crescimento profissional em uma sociedade tecnologicamente avançada são impossíveis, um desses recursos é um webinar. Realizamos um experimento de treinamento com 20 alunos da Universidade Pedagógica Estadual de Nizhny Novgorod. O objetivo do trabalho piloto foi testar a eficácia da realização de webinars para melhorar a qualidade da educação dos alunos. O webinar realizado difere significativamente daqueles já disponíveis. Com a ajuda disto, a atividade do aluno torna-se mais independente, há uma interação pedagógica ativa entre os alunos e o professor, adquirindo uma orientação de pesquisa. Guiada pelos resultados do trabalho experimental concluiu que o uso de seminários web em ensinar os alunos tornou-se um fator de motivação no processo de aprendizagem em geral, ao estudar as disciplinas acadêmicas, a prática interesse, houve um interesse em trabalho independente, auto-exame e auto-avaliação de conhecimentos e habilidades. O artigo resume os resultados do seminário web "O estado dos problemas de habitação e serviços comunitários na região de Nizhny Novgorod", realizado pelo Departamento de Tecnologia e Serviço de Educação Tecnologia da Universidade Pedagógica Estado de Nizhny Novgorod. O artigo mostra a experiência de organizar a formação profissional de especialistas na área de habitação e serviços comunitários, que é implementada em etapas.

**Palavras-chave:** preparação de graduados, prática, webinars

## Introduction

The development of information technology and informatization is one of the priorities of modern education. The most important component of these processes is informatization of the support of educational institutions, including universities. At the same time, informatization of the support of an educational institution is viewed as a process of its information support using modern information technologies acting as a management and coordination resource. A special role in the

solution of this problem belongs, to all appearances, to institutions of higher professional pedagogical education, which ensure the integration of various institutions into the educational cluster system. It is important to note that the higher education system for a long time was kept away from issues related to the use of information and communication technologies to improve the quality of educational activities (Achimugu et al, 2010).

In the context of informatization of the society, the problem of introducing modern information and communication technologies in the learning process is being updated.

At present, professional experience has accumulated a certain experience in the use of webinars in training specialists, there are theoretical generalizations and numerous methodical works on the use of computers in the study of various disciplines at all stages of education in the university (Agyei & Voogt, 2011). The webinar is aimed at real-time mode, there is interaction between the teacher and trainees. The ability to broadcast video allows you to see a teacher who, when explaining a material, can show a presentation or other documents. During the training, the teacher and students can exchange their files or give access to the computer. Electronic board allows you to leave a record for all participants of the webinar in accordance with their rights. An effective means of accompanying the lecture is the demonstration of the desktop with a display of the actions that the participant of the webinar is making (Gruzdeva et al, 2018).

The effectiveness of conducting webinars is that in a short time, pick the best lecturer and company. You will be able to keep abreast of new techniques, techniques or knowledge, increasing your professionalism and personal qualities. In addition, you can get a record webinar - almost all webinars are recorded, as well as theoretical material in the form of presentations.

At the same time, the analysis of the experience of webinars allows us to identify a number of problems that affect the effectiveness of their use in the process of professional development: technical (primarily low quality of communication channels, Internet speed); motivational, psychological (readiness to develop new means of information and communication technologies); organizational (the availability of organizational conditions for conducting and participating in webinars); Competence (the level of information and communication technology - the competence of specialists in the education system) (Smirnova et al, 2017).

Webinar is a technology that allows you to fully recreate the conditions for organizing training in the form of seminars, labs, lectures, using audio, video, data exchange and collaboration tools with various objects, even though its participants can be physically located in different places (Krupoderova, 2012).

The webinar has significant advantages over existing traditional and innovative technologies.

- High accessibility for "attendance" by students;
- Significant time savings for the organization;
- Convenience for "visitors" - the perception of information and knowledge in a familiar environment, without unnecessary noise, etc.;
- Interactive interaction between the speaker and listeners, also listeners among themselves, etc.

However, at the present time, the use of such a form of organizing the educational process is insufficient for studies that disclose the application and development of the content of webinars in the process of training specialists in professional activities.

Thus, the relevance of modern forms of increasing the level of knowledge of university students in conditions of dynamic development of education predetermines the search for effective means of telecommunication interaction, ensuring the continuity of professional development, flexibility and mobility of training of modern specialists. One of such tools, recently received widespread in educational practice, are webinars (Petrova et al, 2017).

## Methods

The first stage is a preliminary acquaintance with individual actions (according to instructions, descriptions, visually) for the formation of an indicative basis for activities to implement it. The article presents a system of instructions for the implementation of educational action. The second stage is the performance of activities on the computer. The student participates in the course of activity, operation. The third stage is the pronunciation of the operations that are being mastered, for their generalization, reduction and automation. The approximate basis of activity is fixed in the student's speech. The fourth stage - the sequence of operations is spoken out to oneself for the intensification and generalization of activity. The fifth stage is the transition of activity to the internal plan. The main criterion, testifying to the effectiveness of the use in the educational activity of students of webinars, determining the improvement of the quality of education of future specialists (Bulaeva et al, 2017). The effectiveness of the application of webinars in the teaching of students was diagnosed before the beginning, and after the end of the experimental and experimental work.

The obtained data are presented in the table.

Table I

Score	Control group		Experimental group	
	Amount in% before experiment	Amount in% after experiment	Amount in% before experiment	Amount in% after experiment
The material is acquired	35%	40%	48%	70%
Material not mastered	65%	60%	52%	30%

In our experiment, a pedagogical study was conducted, which was carried out on the basis of the University of Minin, which is one of its priority areas in improving the quality of student preparation, is actively introducing information technologies into the learning process. Thus, the analysis of the assimilation of educational information at the staggering stage made it possible to reveal the percentage ratio received by students is presented in the table (Markova, 2017).

Department of Technology of Service and Technological Education of Nizhny Novgorod State Pedagogical University takes into account the tendencies declared by the university, regularly uses the technology of webinars in the process of training specialists for the sphere of housing and communal services. The department provides exclusive training of specialists of this sector, starting from 2005, teaching students in the direction of Service, the profile of service in real estate and the direction of Service (vocational training) profile service in the housing and communal services.

The development of housing and communal services in our country has long become one of the most important tasks for the state and today it is taken under special control. Accumulated in this area of problems - high accidental utility networks, a large proportion of dilapidated housing stock, the growth of tariffs for housing services and other issues require urgent solutions. Therefore, the process of preparing these specialists is a priority for the entire Volga region (Nemova et al, 2016).

The use of webinars in the process of teaching students of this direction is aimed at the close interaction of the training audience with

representatives of the structures responsible for the current state of problems in the sphere of housing and communal services.

The experience of regular holding by the department of webinars allows us to state that this technology is an effective tool that allows students to keep abreast of the current state of problems in the sphere of housing and communal services.

At the beginning of the experimental work, we conducted the initial level of training for students of the third year of engineering specialties. It was carried out in the process of studying various sessions of the training course. The lessons were conducted in the form of a webinar (Akimov, 2012).

In the university, webinars are practiced in the framework of seminars for students and teachers.

Classes conducted in this format receive positive feedback from students / students, as they are allowed in comfortable conditions:

- get answers to your questions on a specific topic;
- make independent decisions, conclusions;
- do not hesitate to express your opinion.

Students note that the involvement of participants in the webinar is higher than in the classroom; the discussion is more productive in the chat room: the written questions are more concise and thought out, compared with the given voice; lack of restraint inherent in full-time studies.

For example, a webinar held on May 26, 2018 by the Ministry of Housing and Utilities and Fuel and Energy Complex of the Nizhny Novgorod

Region in conjunction with the Department of Service Technologies and Technological Education of Nizhny Novgorod State Pedagogical University (Minin University), allowed to discuss the range of pressing problems of the state of housing and communal services in the Nizhny Novgorod region.

More than 40 people took part in the webinar, chaired by the Deputy Minister of the Ministry of Housing and Utilities and the Fuel and Energy Complex of the Nizhny Novgorod region Vladimir Bepalov, including Gusev Alexander

Vadimovich, the head of the housing and communal services department, the directors of the management companies of Nizhny Novgorod, representatives of the program "All houses", associate professors of the department "Service technologies and technological education", workers of housing and communal services and service industries, as well as students studying in the direction of "Service", the profile of "Service in Real Estate", specialties Service in housing and communal services, students of Nizhny Novgorod Construction College.



Bepalov Vladimir Viktorovich informed the participants of the webinar about the most important problems in the sphere of housing and communal services, such as major repairs of houses in Nizhny Novgorod, licensing of enterprises managing apartment houses, reforming the sphere of housing and communal services and the specifics of amendments to the Housing Code of the Russian Federation.

The head of the housing and communal services department, Gusev Alexander Vadimovich, reported on the results of the licensing of enterprises managing apartment buildings, as well as the importance of implementing the Federal Project "School of the Literate Consumer."

The speeches of the students of Minin University of Gorozhantsev Andrey and Parshakova Alina (group SB-14) aroused interest and questions both among technical school students and specialists in the sphere of housing and

communal services (representatives of the program "ALL DOMES").

Alexander Gusev answered many vital questions of the students of the Minin University and Nizhny Novgorod Construction Technical College on the problems of housing and communal services, as well as questions about the specifics of work in the sphere of housing and communal services and prospects for employment.

Vladimir Bepalov stressed the importance of organizing and holding such events as a webinar, as through joint meetings a competent perception of the growing generation of problems in the sphere of housing and communal services is formed and a responsible attitude of youth as a consumer of services is laid.

The webinar was supported by the staff of the e-learning department. For technical maintenance of carrying out of a webinar by high school the

use of Pruffme.com is recommended - it is an Internet service for the organization of webinars and videoconferences.

Advantages of Pruffme.com:

- Broadcast directly from the browsers of Google Chrome, Firefox Mozilla and Opera (Adobe Flash is not required!).
- Better echo cancellation.
- Simultaneous participation of up to 4 leading and 500 trainees.
- Maximum quality translation of the desktop.
- Video recording of webinars. Video recording of webinars appears in the personal office of the presenter a few hours after the end of the webinar.
- On tablets under the Android OS, you can participate in webinars from the mobile browser Google Chrome.

From the above, we can conclude that in conditions when a single intellectual space is created by means of Internet technologies, the combination of classical pedagogical technologies with information technologies of instruction becomes an urgent problem. Technologies Web 2.0., In particular webinars, contain a great potential for increasing the effectiveness of the educational process and require a clear definition of the conditions for their use.

#### Results and Discussion

Based on the analysis of literature and existing webinars, we conducted a webinar for students in the field of training - speciality "43.03.01 Service". The goal of the webinar was to improve the quality of the educational process. Webinar is an online event on the Internet where one or more presenters can conduct lectures, presentations, trainings for a group of several to several thousand participants in real time (Ilaltdinova, 2017).

The main feature of webinars is interactivity, the ability to demonstrate, transmit, receive and discuss information.

Distinctive features of modern students are ambitiousness, social activity, readiness for visual perception of information, confident possession of new information and communication technologies. They are immersed in the world of gadgets, the Internet and social networks from an early age (Krupoderova, 2012). They value time, convenience and creativity. All this imposes its demands on the content and methodology of the organization of training, involves the development of modern means of information

and technology support and the development of the educational process, including tools for working with electronic teaching materials and on-line support organizations. Conducting webinars within the educational process allows you to organize full-fledged classes from academic lectures and seminars with general and individual surveys to practical classes, group and individual consultations. This is especially true for the correspondence form of getting education: students are in comfortable habitual conditions, saving time and money; the webinar record can be viewed in off-line mode, which allows you to study the material at a convenient pace (Ilyashenko, 2017).

However, one must understand that such technologies depend on technical equipment and conditions (first of all, on a stable Internet connection with sufficient bandwidth) and the level of preparedness of the participants of the event as users of information technologies.

It is important to note that while the results presented in this article, which expand the limited amount of work related to e-learning, they are based on the study of only a few institutions and a limited number of participants. It would be useful to see if the results presented in this article can be extended to participants from other educational institutions (Gruzdeva et al, 2018).

Classes conducted in this format receive positive feedback from students / students, as they are allowed in comfortable conditions: to receive answers to their questions on a specific topic; make independent decisions, conclusions; do not hesitate to express your opinion.

Students note that the involvement of participants in the webinar is higher than in the classroom; the discussion is more productive in the chat room: the written questions are more concise and thought out, compared with the given voice; lack of restraint inherent in full-time studies.

When conducting a webinar, first of all, you should pay attention to students who have a low level of academic achievement. Therefore, the emphasis should not be on the content side of information sources (Kuznetsova et al, 2017).

Thus, the current level of development of information technologies in education opens new opportunities for the educational process of



students in the university. As it turned out, one of the means of implementing information and communication technologies in the learning process at the university is the conduct of webinars (Andrushhenko et al, 2017).

Webinars are being introduced in educational institutions around the world, but the breadth and depth of this implementation varies significantly between nations and between institutions, despite their perceived need and strong desire. Webinars can be used to improve the effectiveness of engineering education, regardless of whether they were offered through traditional (based on positivism) or new approaches. The use of webinars in educational institutions is at the initial stage of development. The introduction of webinars into the educational process in different countries is applied in different ways (Gruzdeva et al, 2014).

The Higher School of Education in Russia entered the educational space through the adaptation of information and communication technologies. Such an experience of rapprochement is solved by the following

problems of education: the exchange of experience in the modernization of higher education; foreign experience acts as a source of refinement and strengthening of the scientific, professional, pedagogical basis of Russian higher education; the possibility of domestic systems coming out of the crisis on the basis of similar experience of other countries (Kostylev, 2016). Thus, the use of webinars in the educational process is an integral part of the educational process itself, which provides quality training for students (Gruzdeva et al, 2018).

After the end of the webinar, we conducted a questionnaire on the topic "Housing and communal services in the service sector". Students were asked questions on the topic of the webinar, the level of development of the material by participants participating in the discussion and work of the webinar showed better results. 70% answered all the proposed questions, students who did not participate in the webinar responded to the same questions the proposed questions are worse than 30% (Andrushhenko et al, 2017).

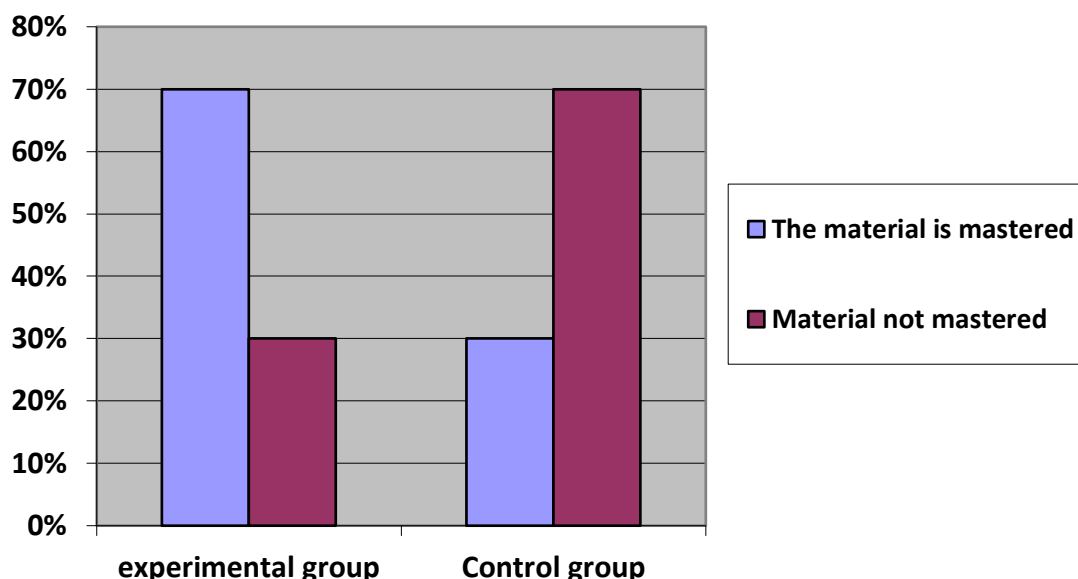


Figure 1- Level of assimilation of materials of students of experimental and control groups

From these data it follows that the results of qualitative preparation of students where the webinar is applied is much higher. Students are more interested in this form of lesson organization, increases interest in the material being studied.

### Conclusions

One of the active ways to improve the quality of student training is to improve the system of providing information technology for the

educational process of universities. As the results of the research show, this can be obtained by improving the use of information and communication technologies in the educational process (Smirnova et al, 2017).

The revealed system of indicators and criteria for the effectiveness of the application of webinars in the conduct of training sessions, seminars allowed to establish a system of evaluation indicators, which are combined into two criteria. A step-by-step assessment of the effectiveness of the application of webinars in educational activities was carried out. All the indicators performed make up the percentage of mastering the training material. criteria. Thus, the positive results obtained during our study allow us to conclude that the use of webinars in the educational process is an effective means of increasing the level of mastering of material by students.

The webinar, which was held on the basis of Minin University, it was examined in the webinar that more than 40 people participated in it, including the head of the Housing and Communal Services Department of Nizhny Novgorod management companies, representatives of the All Houses program, associate professors of the Department of Service Technology and Technology education ", employees of housing and communal services and service industries, as well as students studying in the direction of " Service ", the profile of " Service in Real Estate ", specialties Service in housing and communal services economy, students of Nizhny Novgorod Construction College.

In order to improve the use of non-traditional forms of organizing the educational process in the form of webinars, it is recommended to begin the application of webinars in other disciplines. Organize more informative information of the event - constant involvement of webinar participants in the process. This can be done visually attractive slides, frequent interactive surveys with a demonstration of answers, discussion of pre-designed questions in the chat.

The use of webinars will be constantly expanded. However, it should be noted that it is advisable to use webinars in conjunction with other means of distance learning, which will significantly improve the effectiveness of training.

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