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Distance Learning of Health and Safety at University during the Pandemic

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Abstract

The epidemiological situation concerning the spread of the coronavirus infection in 2020 has significantly accelerated the introduction of distance learning into the educational process of higher educational institutions. The education system was forced to urgently switch to an online format without alternative options. In a short time, participants of the educational process needed to improve their ability to work with online resources. The study aimed at analyzing the main aspects of distance learning, determine the features of teaching the discipline "Health and Safety" during the pandemic. The study relied on the theoretical methods such as the analysis of educational and scientific-methodical literature and empirical methods such as questionnaires, pedagogical observation, and comparison. The study involved first- and second-year students of Vyatka State University studying the discipline "Health and Safety". The features of the organization of distance learning at the university during the pandemic were analyzed; the positive and negative aspects of such form of training were identified. Students noted the main problems associated with the formation of practical skills when studying the discipline "Health and Safety". They are related to first aid measures, rules of behavior, algorithms for actions in dangerous and emergency situations, use of protective equipment. Regardless of the importance of distance learning in the current conditions and efficacy of the use of electronic educational resources, this form cannot be considered a full substitute of traditional education.

Keywords: distance learning, Health and Safety, students, university, pandemic, COVID-19.

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Introduction

One of the key tasks of the Strategy for the Social and Economic Development of Russia until 2024 is the digital transformation of education which is built on modernization of the education system, including methods and organizational forms of educational activities, planned educational results and their assessment. The digital educational environment aims to improve the quality of educational results of students, expanding opportunities for solving educational problems, and most effectively controlling the results of students' educational activities (Khudolei, 2020).

The spread of the coronavirus infection and the epidemiological situation in 2020 contributed to the rapid development of distance learning, mastering new digital technologies and communication tools by all participants in the educational process (Aleshkovskiy, Gasparishvili, Krukhmaleva, Narbut, & Savina, 2020; Ali, 2020; Saveleva, I. V. & Saveleva, A. E., 2020; Zhu & Liu, 2020).

The shift to distance learning ensured the continuous work of the entire educational process in all educational institutions with varying degrees of success. This has also influenced the discipline "Health and Safety". According to the requirements of the Federal State Educational Standard of Higher Education (2014), this discipline is obligatory in the framework of mastering all areas of training, and it is aimed at forming professional culture of safe behavior, which has become even more demanded and significant in the current situation. Due to the reduction of a significant number of lectures and practical classes, a part of the educational material is studied by students in the form of independent work. In this regard, it is necessary to facilitate this work through the distance learning format.

The distance learning is not a new phenomenon, however, the emergency transition to this form of teaching and learning revealed serious problems that require immediate solutions when organizing the educational process and developing the ability to quickly and adequately respond to emerging requests (Fiialka, 2020; Novoselova & Novoselov, 2020).

Purpose and objectives of the study

The research aims at analyzing the main aspects of distance learning during the pandemic at Vyatka State University, identifying the positive and negative aspects of this form of education at university, determining peculiarities of teaching the discipline "Health and Safety".

Literature review

The situation developed against the background of the COVID-19 pandemic has contributed to the acceleration of the digitalization process. In particular, serious changes have affected the educational sphere where distance learning has become relevant. The rapid development of the coronavirus pandemic has entailed various psychological and organizational problems not only among students but also among teachers. Most of the students turned out not to be ready for effective changes in methods of acquiring knowledge (Kolykhmatov, 2020; Myslyakova & Usova, 2020; Sayeed et al., 2020; Sokolovskaya, 2020). In these conditions, distance learning has become an obligatory part of the educational process which until recently, was most in demand among students receiving additional education and students having various health limitations. It also allowed some students to combine education and work (Zener & Oshkina, 2020).

According to a number of authors (Akhrenov, Akhrenova, & Belous, 2020; Novoselova & Novoselov, 2020; Popova, 2015; Puchkova, 2016; Rogacheva & Semergey, 2020), digital technologies help to enhance the quality of education and, consequently, the professional competence of the younger generation due to the fact that traditional education does not always provide an opportunity to quickly adapt to new conditions of the educational process. According to Myslyakova and Usova (2020), the modern generation of students, characterized by having clip thinking and Internet addiction, is one of the determining factors for further development of distance learning in the education system.

The need to introduce distance learning to the educational process is substantiated in the works of Abramova, Boyarov, and Stankevich (2020), Alekhina and Makarova, (2020), Shamina (2019).

For the implementation of distance learning, various educational platforms and programs (Moodle, MsTeams, Zoom, Skype, Webinar.ru) are used. The educational process is carried out using a large number of electronic teaching materials, teaching aids, various types of knowledge control that are available to all students and teachers (Puchkova, 2016; Sadykova, 2020; Tantsura, 2020).

The active introduction of distance learning to the educational process has been observed since 2020 which was facilitated by the epidemiological situation (Aleshkovskiy et al., 2020; Ali, 2020; Kapasia et al., 2020; Saveleva, I. V. & Saveleva, A. E., 2020). According to the order of the Ministry of Science and Higher Education of the Russian Federation No. 397 dated 03.14.2020 (Ministry of Science and Higher Education of the Russian Federation, 2020), due to the threat of coronavirus infection, educational institutions moved to the distance learning form along with the traditional forms. Despite the fact that in September 2019, distance learning of educational institutions of all levels accounted for only 7-12%, the education system in this situation was forced to urgently switch to online training without alternative options.

At the same time, some educational institutions were unable to fully and quickly organize the virtual educational process in the audiovisual digital form (Akhrenov et al., 2020; Bukeikhanov, Gvozdkova, & Butrimova, 2020; Machenin, 2020; Oleynik, Mutalova, Bezenkova, & Manannikova, 2020).

The issues of ensuring human and environmental safety, protection from harmful and dangerous factors have always been of great importance for the society. Currently, in connection with the prevailing epidemiological situation, issues of human and social security have acquired even greater importance. The responsibility of the education system in the field of training students to form safe behavior has increased.

The analysis of the works of a number of authors (Ivanov & Boriskina, 2019; Lutfullaev et al., 2020; Rogacheva & Semergey, 2020; Sadykova, 2020) revealed that the fast transition to distance learning entailed important problems in organizing the educational process. Many higher education institutions experienced difficulties when changing the form of teaching of certain academic disciplines, which was facilitated by a strong time limit for adjusting and developing the pedagogical design of some disciplines. Also, participants of the educational process needed to improve their ability to work with online resources in a short time. At the same time, a certain number of students and teachers in conditions of self-isolation were not ready to join the unusual educational process, quickly navigate in the new conditions, which contributed to a stressful situation (Chaikina, 2020; Kolykhmatov, 2020; Sayeed et al., 2020). This was expressed in the complexity of choosing and installing the digital educational platform, using capabilities of the platform, connecting to the meeting mode, connecting a microphone, a web camera. Many students had a low bandwidth of the communication channel, an insufficient level of computer literacy, no personal computer, and were not able to independently organize educational activities online. A large volume of independent work, lack of communication between participants in the educational process, insufficient content of electronic courses complicated the educational process. There were difficulties connected with the control of attendance and student involvement in the learning process, which influenced its effectiveness. There were problems with the student's authentication when checking knowledge during the current and intermediate assessment. This situation could cause a violation of interaction between the teacher and students online, a decrease in concentration of students' attention on the educational process (Bukeikhanov et al., 2020; Ladyzhets et al., 2020; Kapasia et al., 2020; Tantsura, 2020; Zener & Oshkina, 2020).

Maintenance of safe living conditions, formation of the culture of safe behavior, including in extreme and emergency situations, are studied within the framework of the discipline "Health and Safety". To preserve the health and life of the person, to maintain high performance, it is necessary to develop the ideology of safe thinking and behavior, foreseeing dangers, and avoiding them if possible.

In certain situations, knowledge and skills in first aid are required to save the person's life. The academic discipline "Health and Safety" forms the necessary knowledge about the negative factors of the environment, possible risks, knowledge and skills about how to protect against them, how to preserve life in dangerous and emergency situations. The discipline "Health and Safety" is compulsory and included in all bachelor educational programs. According to the competence UC-8 (Federal State Educational Standard of Higher Education, 2014), the student is able to develop and retain safe living conditions, including in difficult situations. According to the curriculum of the discipline "Health and Safety" 20 classroom hours are allocated for its study (two hours – lectures, 18 hours – practical classes), which is 28% of the total academic load. Most of it is in the form of independent work.

At the Department of Biomedical Disciplines at Vyatka State University, electronic educational resources within the framework of the educational discipline "Health and Safety" began to be implemented in 2017 in the Moodle system. The lecturers of the Department of Biomedical Disciplines for students of humanitarian and pedagogical directions drew up the lecture course on main sections of health and safety. This electronic training course includes video lectures, presentations, teaching materials, a fund of assessment tools for preparing and mastering the discipline by students. In view of the distance learning, the digital platform Microsoft Teams was used for organizing the educational process at Vyatka State University, which supplemented the Moodle platform. This platform made it possible to conduct lectures and practical classes according to the schedule, which took place in teams (groups) and channels (disciplines) online, post various educational and methodological materials, monitor student attendance, and give individual consultations.

Methodology

For the study, theoretical and empirical methods were used. The theoretical methods included the analysis of educational, scientific, and methodological literature. The empirical methods included questionnaires, pedagogical observation, and the method of comparison. The official approval of the ethics committee of Vyatka State University and the written consent of the participants to participate in the survey were obtained. The study took place in three stages. At the first stage, the theoretical analysis of literary sources on the research problem was carried out. At the second stage, the questionnaire based on the analysis of the works of Alekhina and Makarova (2020), Zener and Oshkina (2020) was developed. The sample consisted of the first- and second-year students (age 18-19) majoring in pedagogical and humanitarian fields at Vyatka State University (Kirov, Russia). The questionnaire included 20 questions. 15 questions were close-ended; 5 questions were open-ended.

The survey was aimed at identifying the advantages and disadvantages of distance learning, the peculiarities of studying the discipline "Health and Safety" in the distance form. At the third stage, an anonymous survey of students enrolled to the course "Health and Safety" in the distance form was carried out; it was followed by the analysis and interpretation of the obtained results. From the total array of respondents, 150 questionnaires were selected, which were filled out without errors. The data analysis was carried out by calculating the frequency of occurrence of responses to the total number of respondents with subsequent conversion to percentages. The percentage was calculated for each question of the questionnaire separately, the total number of respondents was taken as 100 percent.

Results

The survey results showed that the majority of respondents (71%) generally have positive attitude to distance learning, while 18% found it difficult to give an explicit answer, and only 11% of respondents do not approve this form of education. During the survey, students noted both positive and negative aspects of distance learning. When assessing the positive aspects, the majority of students noted the opportunity to study in a comfortable and familiar environment (88%), saving time and money on the way to the university and back (85%).

According to the results of the survey, the main most useful advantages of e-learning for students are the adaptability and flexibility of the learning process (55 and 65%, respectively), the ability to combine different types of work at the same time (49%), combine work with studies (32%). 13% of the respondents noted the individuality of teaching among the positive aspects. Students also noted the ability to timely and quickly edit and improve the completed educational material sent to the teacher for evaluation (34%). According to the respondents, it can be noted that some students had to “resort to studying additional literary sources” for a more in-depth study of educational issues (28%). However, among the total number of the respondents, there were students who treated this form of education formally (22%) and commented that “one can join the course but do other things instead”. Among the respondents, there were students who found it difficult to determine the advantages of this form of education (2-3%).

Among the negative aspects, the students noted an increase in the labor intensity of studying disciplines, a large volume of assigned educational materials (57%). In this regard, many respondents underlined that this training form requires more time to get ready for classes and do homework in comparison with the full-time training form (33%). According to the students, it is difficult to work in this mode; it is difficult to master the educational material (38%), which requires more time to study it (48%).

For prompt communication with the teacher, it is necessary to have a computer and an uninterrupted Internet connection, which is confirmed by the answers of the students who did not have the opportunity to ask questions on the topic of the discipline (8%) and receive a timely comment from the teacher on homework (8%). The sudden transition to distance learning and the negative aspects revealed as the result of the survey of the students contributed to a stressful situation, which negatively affected the general well-being of students (12%).

An important component of the educational process is the direct communication of students with the teacher during classes. In connection with the transition to the distance form, direct communication for students has become especially significant and necessary, which is consistent with the opinion of the respondents. Thus, 45% of the respondents noted the lack of direct communication with the teacher, 36% – that with classmates.

The survey results showed that the students faced difficulties in mastering online platforms. The students were required to independently connect to the platform, register, and study the features of using the platform's tools. These difficulties were experienced by 24% of the students, 31% of the respondents noted the lack of good Internet connection, 15% had difficulties with the placement of the completed work in the Moodle system for assessment by the teacher. In the opinion of some students (15%), when assessing the performed work by the teacher, there were no comments indicating errors and criteria of assessment (giving points).

Assessment of organization of distance learning when studying the discipline "Health and Safety"

For the formation of competence when studying the discipline "Health and Safety", it is obligatory to implement the practice-oriented approach, which in the conditions of distance learning turned out to be quite difficult. Thus, 75% of the respondents noted that the greatest difficulties in studying the discipline are associated with the formation of skills of providing first aid to the victim. Also, there were difficulties when studying the rules of behavior, algorithms for actions in dangerous and emergency situations (45%), the use of protective equipment (58%), which in most cases was theoretical. Students noted that watching demonstration videos (52%), studying information on specialized sites (Ministry of Emergency Situations, civil defence site, site of disaster medicine, and other sites) (38%) helped the most effective assimilation of practical tasks. According to the respondents, the positive aspect in mastering the educational material was the possibility of individual video consultations with the teacher in Teams (68%), the opportunity to receive an explanation of the mistakes and comments in the students' independent tasks online or in the chat (49%). For 45% of the respondents, the timeliness of checking assignments by the teacher was important.

Assessing the answers to the question “How do you assess the changes in teaching of the discipline during the transition to distance learning?” showed that “quality of teaching the discipline (quality of lectures and practical lessons)”, according to 15% of respondents, improved, for 62% it remained unchanged, 12% thought it worsened. At the same time, the objectivity of the teacher's assessment, according to the majority of respondents, remained unchanged (79%). Meantime, 19% of the students believed that the objectivity of assessment increased during the period of distance learning, 3% of the respondents noted its decrease.

In general, according to 72% of the respondents, elements of distance learning should be more actively used when organizing traditional education, since this form of education was convenient and comfortable. However, 18% of the respondents consider the traditional form more convenient for learning in comparison with distance learning. According to the students, there is direct communication with the teacher, an opportunity to form practical skills and the amount of independent work is less in the traditional form. Thus, the survey of students showed that distance learning is convenient for most students. However, the identified problems and difficulties related to the organization of the educational process require further improvement of this form of education.

Discussion

The conducted research confirms the need to improve the organization of distance learning when teaching the discipline "Health and Safety". When organizing the educational process in the distance form, the pedagogical community faced a number of problems and difficulties that needed to be solved urgently. First of all, these are the technical difficulties when mastering various digital educational platforms by teachers and students, as well as problems associated with self-organization and self-discipline of students, which could affect the quality of assimilation of the educational material. Learning in a digital environment does not fully provide an opportunity to develop communicative functions and group work skills, which is also confirmed by research of other authors (Akhrenov et al., 2020; Aleshkovskiy et al., 2020).

The distance learning form limits possibilities for organizing practical classes due to the presence of certain technical difficulties (Alekhina & Makarova, 2020; Ivanov & Boriskina, 2019; Shamina, 2019). One of the main problems was organization of the educational process for formation of skills in the field of security: “virtual” training in practical skills does not contribute to formation of real action. For example, mastering skills of cardiopulmonary resuscitation, first aid for injuries, using personal protective equipment, working out algorithms for actions in emergency situations. Under these conditions, mastering the discipline "Health and Safety" in the online form was mostly of formal and theoretical, which may further affect the ability of students to act correctly in dangerous and emergency situations.

Distance learning does not make it possible to carry out the necessary full control of attendance and student involvement in the educational process. This is due to the students' technical difficulties. Also the authors of this article consider the lack of desire of some students to take a direct part in the discussed issues.

Despite difficulties and problems of the distance learning form, according to the results of the survey, we and a number of authors (Akhrenov et al., 2020; Leontyeva & Rebrina, 2018; Lutfullaev et al., 2020) noted positive trends. In line with the results of the survey among students of Vyatka State University and the analysis of the opinions of students from other universities, this form of education is more convenient. This is due to the presence of a comfortable (home) environment, an individual pace of learning, the possibility of self-education and combining study with other activities. For the teacher, this is an opportunity to improve professional competence, self-expression, the ability to overcome difficulties and barriers of the electronic communication by students. Nevertheless, the most promising form of organizing the educational activities of higher educational institutions is blended learning, which involves integration of full-time education with distance technologies, which provides additional opportunities for acquiring knowledge and methods of obtaining it (Abramova et al., 2020; Alekhina & Makarova, 2020).

During the period of distance learning, it became possible for universities to expand cooperation with each other and give methodological support for the use of digital platforms in the educational process. This training form provides a wide range of favorable circumstances and possibilities for changing and advancing educational systems, allows the teacher to use various tools to stimulate students to master the course (Lutfullaev et al., 2020).

Conclusion

Thus, the study allows to conclude that it is necessary to improve the distance learning form, expand possibilities of using various electronic resources in the educational process when teaching "Health and Safety". At Vyatka State University, the transition to distance learning during the pandemic was organized timely using electronic educational platforms (Microsoft Teams, Moodle). To organize training in the discipline "Health and Safety", the electronic training course was added, which contained educational and methodological materials. Classes were held in accordance with the schedule in the form of webinars and video lectures. The survey of students made it possible to identify the advantages and disadvantages of distance learning. When organizing the full-time educational process, elements of distance learning must be used to modernize the educational process. Regardless the importance of distance learning in forced conditions and effectiveness of using information learning systems, this form cannot be considered a full alternative form of traditional education.

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