

Distance education in the higher educational institutions of the ministry of internal affairs

Vitalii Pokaichuk^{1*}, Olena Nykyforova², Sergey Komissarov¹, Vadym Fursa¹, Yevhene Bakhchevan³

¹Department of Tactical Special Training, Faculty of Specialist Training for Units of Preventive Activity, Dnipropetrovsk State University of Internal Affairs, Dnipro, Ukraine.

²Department of Forensic Science and Pre-medical Training, Educational and Scientific Institute of Law and Training of Specialists for the National Police, Dnipropetrovsk State University of Internal Affairs, Dnipro, Ukraine. ³Department of Tactical Special, Fire and Physical training, Faculty of Specialist Training for Criminal Police Units, Odesa State University of Internal Affairs, Odesa, Ukraine.

Correspondence: Vitalii Pokaichuk, Department of Tactical Special Training, Faculty of Specialist Training for Units of Preventive Activity, Dnipropetrovsk State University of Internal Affairs, Dnipro, Ukraine. knfc@ukr.net

ABSTRACT

The purpose of this article is to identify the features of the use of distance education in higher educational institutions of the Ministry of Internal Affairs, to identify the problems faced by teachers and cadets during distance education, and to provide suggestions for improving the distance education process. The methodological basis of the study was the classic method of statistics of the Student's t-test. As a result of the study, the following advantages of distance learning were revealed: price-quality ratio, individualization; manufacturability; flexibility of training; remote access. Among the main disadvantages of distance learning, the following were highlighted: lack of direct face-to-face communication between cadets and the teacher; the need for a personal computer and an Internet access point; high requirements for training tasks, administration of the process and motivation of cadets; the problem of user authentication during knowledge verification; the need for several individual and psychological conditions; high cost of building a distance learning system at the initial stage of system creation; high complexity of developing distance learning courses. In conclusion, it is noted that the listed advantages cover the mentioned disadvantages of the organization of the educational process with the use of high-quality distance learning, which is the most promising in the whole world.

Keywords: Distance education, Higher education, Cadet, Survey

Introduction

We live in a world where interactive information technology is constantly evolving. Creating and improving science and education systems is something to strive for. Nowadays, the main purpose of the modern educational system is to create more efficient models of learning and motivate cadets to study certain subjects. The development of means of communication and telecommunications, especially in the context of the global

pandemic, generates in the educational system the creation of new technologies, ways and methods of organizing the educational process. As information technology, software, and hardware evolve every year, new forms of interaction emerge. One of the currently evolving educational technologies is distance learning. Order of the Ministry of Education and Science of Ukraine from 25.04.2013 № 466 adopted «Regulations on distance learning,» which defines the basic principles of organization and implementation of distance learning. Distance learning is understood as an individualized process of acquiring knowledge, skills, abilities and ways of human cognitive activity, which occurs mainly through indirect interaction between distant from each other participants of the educational process in a specialized environment, functioning on the basis of modern psychological and pedagogical, information and communication technologies [1].

Undoubtedly, implementing such a system of education implies several difficulties, which significantly affect the quality of the

Access this article online

Website: www.japer.in

E-ISSN: 2249-3379

How to cite this article: Pokaichuk V, Nykyforova O, Komissarov S, Fursa V, Bakhchevan Y. Distance education in the higher educational institutions of the ministry of internal affairs. *J Adv Pharm Educ Res.* 2023;13(1):93-9. <https://doi.org/10.51847/WptBj96hk9>

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-Non Commercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

educational process. At this stage, distance education in Ukraine has inherited almost all the features of extramural training. Therefore, so far, it does not perform the functions assigned to it.

Materials and Methods

To understand the state of readiness and aspects of the introduction of the distance form of work, a list of questions was developed and offered to lecturers of Dnipropetrovsk State University of Internal Affairs during the questionnaire. The university has used distance learning for several years on Moodle, MIA: OSVITA, and StuddyMo. Thirty people took part in the survey.

To evaluate the effectiveness of various forms of the teaching of pre-medical training for future police officers in number of 4 groups of 20 cadets, we identified 2 models of carrying out practical classes. Each model involved 2 groups. The theoretical block was the same for everyone. The first model consisted of working out practical skills on a particular topic of the training program through video conferencing with mandatory video reports by cadets and the lecturer's review of the accuracy of completing their assignment. The model included elements of situational tasks according to the same program. The second model was based on learning case methods in the form of situational tasks and role-playing games on the principle of «from simple to complex.» That means working out situational tasks for better mastering used the material of previous classes together with new knowledge. To implement this research, situational tasks with appropriate checklists were developed to unify the process of assessing cadets' knowledge levels. To monitor the effectiveness of mastering the material, it was decided to add elements of pre-medical care to all cadets (the list of basic skills was the same for all) during the face-to-face working out of tactical training scenarios 4 weeks after certification of the discipline «Pre-medical training.» In order to avoid the transfer of information from one group to another, the assessment was held simultaneously with compulsory isolation of those who had passed the assessment from those who had to pass it. It was under these conditions that we tried to apply an integrated approach during the realization of our project. The reliability of the results was assessed by the classical statistics method of the Student's *t*-test. In forming this article, the author relied on the work of Zeenath Reza Khan *et al.* (2021), Ulrica Langedgård *et al.* (2021), Chi-chung Foo *et al.* (2021), Huan Chenglin and Chen Jianwei (2021), Li Ran Dong *et al.* (2021), who helped develop the correct research methodology [2-6].

Results and Discussion

During the research, we found out the level of computer literacy of respondents. All lecturers showed a high level of computer literacy: 100% had knowledge of Windows XP/7/8/10

operating systems and demonstrated the ability to work with multimedia software and the Internet.

However, some teachers pointed to a number of difficulties. Thus based on the survey, the main problems that were found by lecturers while working in the distance learning system, as well as their possible consequences, were identified, namely:

- Subjective difficulties of PC users (visual, mental and muscular fatigue) without their timely elimination, which lead to loss of control over all educational and cognitive activities due to the lack of sustainable skills of mastering new software tools and approaches to learning.
- Stress, which leads to loss of control over activities.
- Lack of confidence leads to low activity and the desire to avoid situations that could harm self-esteem.

In addition, the survey was conducted on the specifics of distance learning. The majority of respondents of this survey believed that lecturers needed to take advanced training courses for working with distance technologies. Thus, when asked, «How much does the distance learning specifics affect the work of a teacher?» answers were distributed as follows (**Table 1**).

Table 1. Distribution of responses to the question «How much does the distance learning specifics affect the work of a teacher?»

№	Teacher's answer	%
1	Practically does not affect	11
2	Insignificantly, only at the moment of creating the discipline's content	26
3	Quite significantly, requires additional advanced training for creating distance learning courses	63

It has already been mentioned above the extremely important role of the lecturer in the distance learning system and how difficult it is for some lecturers who work in traditional forms of education to adapt themselves to distance learning. According to Nikola Simonović (2021), the issue of key competencies of teachers, necessary for innovating the teaching process, is certainly one of the fundamental issues when it comes to good and quality teaching because innovation changes the pedagogical system, improving the teaching process and its results [7]. Thus, the necessity to use innovative educational technologies sets the following tasks for teachers:

- studying the organizational and technological features of the platforms used by universities;
- continuous mastering of teachers in the educational process of perspective information technology training;
- constant training of the latest psychology and pedagogy achievements;
- the use of various forms of cadets' knowledge monitoring.

Currently, traditional regulated forms of education are widely used for distance learning: interactive lectures and seminars, consultations (including the use of information and telecommunication technologies), exams, independent work, etc. The specificity of applying these forms of distance learning is

manifested in the frequency of their inclusion in the educational process and the predominant use of new information technology tools. The educational institution independently establishes the minimum volume of cadets' contact work with the teacher and the maximum quantity of lecture and seminar-type classes in the educational process, including the application of e-learning. The volume of specific types of classes depends on many parameters - the level of equipment of the higher education institution with technological means, the number of developed or purchased electronic educational resources, as well as the level of training of teachers and employees of the organization. In distance learning, information-receptive and reproductive teaching methods are most frequently used; among the training tools are; electronic educational resources and audio and video materials [8].

The e-course of the discipline must contain at least:

- metadata of the established sample;
- working program of the discipline, syllabus of the course;
- materials that announce the electronic course: «Course content» and a video message from the course author to students/cadets, etc.
- electronic lecture notes on the discipline;
- a workshop or a practical manual on the discipline;
- glossary;
- video materials of the content of the discipline;
- conditions of interactive control of cadets' knowledge;
- materials (topics, questions, assignments) for holding events using informational means of cadets' communication with the teacher and each other in the learning process (forums, chats, webinars, etc.)
- information resources, including a list of references and links to open domestic and foreign electronic educational resources;
- electronic copies of printed textbooks, manuals, and links to the university repository;
- recommendations for independent and individual study of the discipline.

In general, training with such electronic manuals should ensure cadets with a minimum reference to additional literature [9, 10]. As a result of the survey, we highlighted the main advantages and disadvantages of distance learning at the university for both cadets and lecturers.

The main advantages of distance learning are identified in the following.

Value for money

As a rule, distance learning is much cheaper than usual conventional training - the cadet does not spend money on trips to the university, stationery, textbooks, accommodation (if the training takes place in another city), and reduced costs for organizing distance learning courses (no need to pay rent), etc.

Individualization

The cadet can return to topics that were incomprehensible to him, and he can skip those sections that he knows well. He doesn't have to learn the material by heart before the session, but he studies it during the learning process - hence the high percentage of residual knowledge. The cadet becomes independent, mobile, and responsible and improves his self-learning skills. There is no subjective evaluation and no psychological nervousness in passing the exam. This is an excellent possibility for individual adaptation of both the cadet and the teacher. It is always possible to organize different professional communities (online scientific circles, chat rooms, etc.) and communicate with cadets and teachers - hence reducing stress. According to Shoir Bekchonova (2022), the modeling of the distance learning process guarantees the prevention of falsification, that is, the elimination of ambiguity due to unpredictable changes in the pedagogical process, the ability to make scientifically reliable predictions, to see the effectiveness of which is obvious in advance [11].

Technological efficiency

Possibility to use modern programs and technical means. As a result, all visual information becomes easy for the cadets to perceive. Distance learning can be very interesting due to multimedia technologies; communication with the teacher can go both through video broadcasting and two-way interactive video. The development of high-speed Internet access and multimedia technologies make distance learning courses full-fledged. For example, U.S. educational institutions offer distance learning courses on the following technical basis:

- two-way interactive video - 57%;
- one-way prerecorded video - 52%;
- the Internet - 36%;
- one-way video, two-way audio - 24%;
- two-way online interactions - 14%;
- two-way audio - 11%;
- one-way audio - 10%;
- one-way live video - 9%;
- audio-graphic - 3% [12, 13].

DSUIA teachers prefer the following technical base (according to the survey):

- two-way online interactions - 54%;
- two-way audio - 11%;
- one-way live video - 22%;
- audio and video content - 13%.

Learning flexibility

It is possible to study several courses and get an education at the world's best universities. We are talking about self-education learning - it is carried out with the right to subsequent certification in organizations providing educational activities

(externship). Or you can choose an individual schedule of classes and combine study with work.

Remote access

You can study anywhere in the world. In this case, you need a teacher who will help to set up an individual training program for the possibility to study independently a bachelor's and/or specialist master's programs, which are regulated by current legislation.

Thus, the advantage of distance learning for cadets is that the material is provided in the most accessible form, and how and how much it needs to be studied is chosen by everyone individually. If cadets require additional consultation with the lecturer, this is also possible within the distance course. But it does not deny self-study of the subject's topics. The main task of the cadets is to stick to the developed program and to make in-time intermediate checks, so the lecturer has no opportunity to stop and make a detailed explanation of the material remotely to each person and several times [10, 14].

Among the main disadvantages of distance learning are the following:

1. Lack of direct face-to-face communication between cadets and the teacher.

It is important to understand the impossibility of carrying out practical classes in certain specific disciplines of the professional direction of police officers, such as, for example, special tactical training, pre-medical training and tactical medicine. During practical classes, the teacher should take into account the peculiarities of the cadets' professional duties and form practical tasks accordingly. The learning process should be aimed at bringing theoretical training closer to practical. Practice plays a priority role in the inseparable unity of theory and practice. After working out practical skills that police officers should have and completing the training course, they should feel connected with today's realities, with specifics of practical realization, such as providing pre-medical care to victims.

For understanding the effectiveness and cadets' learning outcomes in a partial distance learning form (60% of the material of the course program was completed online) as part of the discipline «Pre-medical training.»

In the course of the research, we have obtained the following successful results. The theoretical block of test assignments was successfully passed by 94,40% of the cadets from the first group, who studied according to the standard program of pre-medical training online, and 95,33% of the cadets from the second group, who did not have distance learning. Accordingly, the cadets of both groups demonstrated a sufficient level of mastering theoretical material. The cadets' demonstration of necessary skills assessed the practical block, which was provided for a specific situation with a mandatory time limitation of 10 minutes. For example, the algorithm of police officers' actions in the presence of signs of critical bleeding, carrying out the initial examination of the victim, etc. The evaluation results are as follows: 69,85% of cadets from the first group successfully

managed the algorithm, and 86,43% from the second group. Four weeks later, in the course of working out tactical scenarios, we once again conducted the certification of basic skills of pre-medical training in conditions close to the reality on the territory of the tactical town. The study's results showed a statistically reliable decrease in success rates in the first group by 26,01% and in the second group by 6,35%, respectively (at $p \geq 0.05$). The most frequent causes of mistakes and incorrect actions of cadets from the first group were confusion, lack of compliance with personal security requirements, communication with group mates and dispatchers, and violation of the sequence of implementing protocols of pre-medical care.

As for the cadets of the second group, the success of completing the task remained virtually unchanged. They acted more confidently, there were almost no communication issues, and the algorithms of actions were performed in the correct sequence and under constant self-control according to the «4C method»: environment, communication, state, and special tactical breathing.

In our opinion, for developing basic practical skills of pre-medical training for cadets, which are necessary for future professional activity, as well as creating preconditions of psychological readiness for implementation of the acquired skills in real practice, lecturers should purposefully use active and interactive forms and technologies of carrying out classes, which can't be fully implemented only within the distance form of learning.

2. The need for personal computers and Internet access points.

This is due to the necessity for constant access to sources of information. Sufficient technical equipment is required, but not everyone who wishes to learn has a computer and a stable connection to the Internet. Technical readiness for using distance learning tools is required. According to GlobalLogic (2021), based on open data, the number of Ukrainian Internet users at the beginning of 2021 was almost 30 million people, that is, about 67% of the country's population [15]. Another survey from February 15, 2022, from the DATAREPORTAL (2022) resource indicates that as of January 2022, there are 31.1 million Internet users in Ukraine, which is 71.8% of the total population at the beginning of 2022. Also, according to 2019-2020 statistics, 51% of families do not have a single computer, and 17,000 out of 28,000 settlements in Ukraine did not have access to high-speed Internet [16, 17]. That is, the relevant problematic aspect cannot be significantly influenced at the level of the management of the higher education institution and requires the complex, joint work of several relevant state authorities to resolve the issue of providing cadets with adequate conditions for distance learning;

3. High training tasks requirements, process administration and motivation of cadets. According to Spitkovska K.V. (2020), the successful implementation of distance learning is possible if the following components are present: a clear plan of action, a joint strategy, clear rules, time management, professional flexibility, mentoring, and communication [18]. Starzhynska O.L. (2020) notes that the transition to distance learning requires a departure from traditional educational

technologies and the use of a new approach, in which the teacher's main function is the organization of the student's self-education, control and evaluation of his cognitive activity [19]. Lyashchenko I.V. (2015) points out that the remote learning process is impossible without creating a high-quality informational and methodological educational base [20]. The attempt to transfer the traditional (face-to-face) format of education to the online form without adapting it to new challenges leads, on the one hand, to an increase in the load on teachers and cadets, and on the other hand, to a decrease in the quality of educational services. Such a paradox is mainly related to the specifics of the interaction between teachers and cadets within the information and telecommunication technologies framework, making it impossible to apply a traditional approach to education in these conditions. Therefore, the emphasis should be placed on the organization of "knowledge bases," which should contain all the necessary information and the implementation of proper control over the level of competence of cadets within the framework of the work program.

Regarding the motivation of cadets, according to some American researchers, the problem of low motivation of students in the framework of distance learning can be solved with the help of high-quality material and technical preparation of the course, evaluation of the effectiveness of training, self-regulation of the educational process by students [21, 22];

4. One of the key issues is the problem of user authentication during the knowledge check [13, 23, 24]. Most distance programs still provide a face-to-face examination session because it is difficult to identify who is on the other side of the screen in online communication mode if a specific password and login are used as identity verification. In some cases, this is a problem and requires special measures, techniques and skills from teachers. This problem is partially solved by installing video cameras on both sides during communication and the appropriate software. Another problem is cadets distribute the correct answers through computer screenshots during the test or situational tasks. For the teacher, the only way out of this situation is to individualize all types of tasks and/or create a large database of test questions with the possibility to apply for a random order when forming the attestation block;
5. The need for some individual-psychological conditions. Distance learning requires strict self-discipline, and its result directly depends on the independence and consciousness of the cadet. As a rule, cadets experience a lack of practical classes with visual control by the teacher. The lack of constant control is a powerful incentive to postpone course attestation deadlines. According to Vasylieva O. (2022), solve these problems can help: organization of psychological and pedagogical support for students with the aim of individualizing the educational process [25]; taking into account the opportunities and prospects for the development of the information and educational environment in the

professional training of the future specialist; the use of a mixed form - distance and face-to-face learning, taking into account the requests of students and the goals of professional education in the introduction of distance technologies; creation of a positive motivational and emotional environment in the organization of communication, interaction with the student in conditions of distance learning; increasing students' motivation to study in the conditions of distance education; formation of psychological readiness of teachers and students to expand educational opportunities using remote technologies (systematic training of scientific and pedagogical staff to organize and conduct classes in an online format; involving students in the independent construction of their own educational activities, effective monitoring of students' educational results, etc.). To this can be added the need for the maximum use of visualization tools to establish contact with cadets at all stages of the lesson, the use of visual means of information transmission (presentations, educational films) with a mandatory accompanying explanation from the teacher, attention to verbal means of communication, organization of feedback communication with cadets, a more thoughtful attitude to the deadlines for completing tasks, taking into account the specifics of distance education;

6. The high cost of building a distance learning system at the initial stage of creating the system: large expenses for creating a distance learning system, the courses themselves and purchasing technical hardware;
7. High labor intensity of development of distance learning courses. Creating one hour of interactive multimedia interaction requires about one hundred hours of professional work. One of the ways to solve this problem is to search and use existing video and audio files, methods of gradual complication of distance learning courses. For example, Google offers a video search and video upload service. Also, according to some scientists, for the development of distance education, it is advisable not only to train specialists in the use of distance technologies in education but also to develop platforms with an intuitive, uncomplicated program interface for creating distance courses, to promote the spread of quality programs for the organization of distance education [26, 27].

Also, it is necessary to change the structure of distance learning to achieve greater efficiency, in particular:

- application of practical video manuals during conducting the theoretical course;
- development of additional courses to fill in missing knowledge;
- strengthening protection and control of software-hardware complexes of distance learning disciplines [28, 29].

Some difficulties will also arise for cadets who have insufficient computer skills, i.e., lack of typesetting skills or can't install

training software. The complexity of distance learning causes only those who do not have diligence and determination because you have to achieve results by stimulating yourself. In the full-time study, cadets write down lectures in a notebook, though they often don't like it. In a distance learning environment, you have to study on your own because not everyone will be able to set themselves up to learn the material.

Conclusion

The main advantage of distance learning over the full-time form is, first of all, its convenience: the cadet chooses the time and place for training. In addition, replacing written notes with electronic resources and the latest teaching methods and constant consultations with the teacher give this form of additional self-education advantages over extramural training. Among the shortcomings should highlight lecturers' psychological and «computer» unpreparedness. This is related to the traditional teaching methodology, which implies not virtual, but «live» communication between the cadet and the teacher. Another problem is the significant financial expenditure for the university, as it is necessary to update the material base and computer equipment, allocate premises to provide Internet access for teachers, etc. In addition, there are still no clear technological possibilities for the authentication of higher education recipients in Ukraine. They perform several tests and tasks remotely for self-control, but they must pass the final exams «in person.» However, in the final analysis, such advantages outweigh the shortcomings in the organization of the educational process with the use of distance learning, which is the most promising in the world.

Acknowledgments: The authors would like to express their sincere gratitude to the university students who participated in this survey. The authors also have no financial or ethical claims against each other.

Conflict of interest: None

Financial support: None

Ethics statement: None

References

1. Ministry of Education and Science of Ukraine. On approval of the Regulations on distance learning. Order of the Ministry of Education and Science of Ukraine dated April 25, 2013 No. 466. Retrieved July 11, 2022, from <http://zakon2.rada.gov.ua/laws/show/z0703-13>
2. Khan ZR, Sivasubramaniam S, Anand P, Hysaj A. 'e'-thinking teaching and assessment to uphold academic integrity: lessons learned from emergency distance learning. *Int J Educ Integr.* 2021;17(1):1-27. doi:10.1007/s40979-021-00079-5
3. Langedgård U, Kiani K, Nielsen SJ, Svensson PA. Nursing students' experiences of a pedagogical transition from campus learning to distance learning using digital tools. *BMC Nurs.* 2021;20(1):1-0. doi:10.1186/s12912-021-00542-1
4. Foo CC, Cheung B, Chu KM. A comparative study regarding distance learning and the conventional face-to-face approach conducted problem-based learning tutorial during the COVID-19 pandemic. *BMC Med Educ.* 2021;21(1):1-6. doi:10.1186/s12909-021-02575-1
5. Chenglin H, Jianwei C. Research on Blending learning Design for Promoting Deep Learning. *J Edu Res Rev.* 2021;9(7):173-8. doi:10.33495/jerr_v9i7.21.137
6. Dong LR, Wan GC, Tong MS. On the Role of Online Courses in Higher Education during COVID-19 Pandemic. *J Edu Res Rev.* 2021;9(8):214-20. doi:10.33495/jerr_v9i8.20.209
7. Simonović N. Teachers' Key Competencies for Innovative Teaching. *Int J Cogn Res Sci, Eng Educ.* 2021;9(3):331-45. doi:10.23947/2334-8496-2021-9-3-331-345
8. Andrushchenko V, Kudin A. Means of distance e-learning and pedagogical technologies. *Bull Acad Distance Educ.* 2014;2:2-5.
9. Samoliuk N, Shvets M. Relevance and problems of distance learning. *N Pedagog Thought.* 2013;1:193-4.
10. Valeev R. Formation of cognitive independence of cadets of higher educational institutions of the system of the Ministry of Internal Affairs of Ukraine by means of information technologies: dis. for science. degree of Cand. ped. Science: 13.00.04 – theory and methods of vocational education. Luhansk: LNU; 2013. 362 p.
11. Bekchonova S. Methodology of Individualization of Distance Educational Processes on the Basis Of Digital Technologies. *Eur J Innov Nonformal Educ.* 2022;2(1):72-5.
12. Rembach O, Liubych O, Antonenko M, Valieiev R. University students' satisfaction: The impact of computer-mediated blended learning. *Rev Rom pentru Educ Multidimens.* 2019;11(4 Supl. 1):221-41. doi:10.18662/rrem/186
13. Shahzad A, Hassan R, Aremu AY, Hussain A, Lodhi RN. Effects of COVID-19 in E-learning on higher education institution students: the group comparison between male and female. *Qual Quant.* 2021;55(3):805-26. doi:10.1007/s11135-020-01028-z
14. Benson V, Morgan S. Student experience and ubiquitous learning in higher education: Impact of wireless and cloud applications. *Creat Educ.* 2013;4(8a):1-5. doi:10.4236/ce.2013.48A001
15. GlobalLogic. During the year of quarantine, the number of Ukrainian users in social networks increased by 7 million and reached 60% of the country's population. GlobalLogic. 2021. Retrieved July 11, 2022 from <https://www.globallogic.com/ua/about/news/social-media-during-quarantine>

16. Newformat.info. In Ukraine, 51% of families do not have a single computer. Newformat.info. 2019. Retrieved July 11, 2022 from <https://newformat.info/news/v-ukraini-51-simej-ne-majut-zhodnogo-komp-jutera/>
17. Ukrinform. The results of the first study in Ukraine of the population's access to high-speed Internet. Ukrinform. 2020. Retrieved July 11, 2022 from <https://www.ukrinform.ua/rubric-presshall/3072241-rezultati-persogo-v-ukraini-doslidzenna-naavnosti-dostupu-naselenna-do-visokosvidkisanogo-internetu.html>
18. Spitkovska KV. Preparation of an educational institution for the organization of distance learning. Distance learning: challenges, results and prospects: Guide. From the work experience of educators in the city of Kyiv: educational and methodological manual. 2020:52-7. Retrieved July 11, 2022, from <https://don.kyivcity.gov.ua/files/2020/8/19/90.pdf>
19. Starzhynska OL. Distance learning in medical education using collaborative learning technologies. Integration of scientific bases into practice : abstracts of IV International Scientific and Practical Conference, Stockholm, 12–16 October 2020. Stockholm, Sweden: International Science Group. 2020:237-41. doi:10.46299/ISG.2020.IV
20. Lyashenko IV. Prospects for the Development of Distance Learning in Higher Education. Public Educ. 2015;1(25):28-31.
21. Ley K. Motivating the distant learner to be a self-directed learner. In 20th Annual Conference on Distance Learning and Teaching. 2004. http://www.uwex.edu/disted/conference/Resource_library/proceedings/04_1395.pdf.
22. Martens R, Gulikers J, Bastiaens T. The impact of intrinsic motivation on e-learning in authentic computer tasks. J Comput Assist Learn. 2004;20(5):368-76.
23. Hwang GH, Chen B, Huang CW. Development and effectiveness analysis of a personalized ubiquitous multi-device certification tutoring system based on Bloom's taxonomy of educational objectives. J Educ Technol Soc. 2016;19(1):223-36.
24. Valieiev R, Pokaichuk Y, Zhbanchyk A, Polyvaniuk V, Nykyforova O, Nedria K. In the search for the golden mean: Studentssatisfaction with face-to-face, blended and distance learning. Rev Rom Pentru Educ Multidimens. 2021;13(1):20-40. doi:10.18662/rrem/13.1/357
25. Vasylieva O. Psychological features of distance learning in the preparation of future psychologists. Sci Bull Izmail State Univ Humanit. 2022;58:36-44.
26. Sysoieva SO, Osadcha KP. Condition, technologies and prospects of distance learning in the higher education of Ukraine. Inf Technol Learn Tools. 2019;70(2):271-84. doi:10.33407/itlt.v70i2.2907
27. Yarema YR. Perspectives of the development of remote study in institutions of higher education. Distance learning in higher education institutions: models, technologies, perspectives: materials of a round table with the participation of advisors of academic groups and teachers of the Faculty of Financial Management and Business. 2021;106-9.
28. Herdiana R, Shafie A. Moodle: Tool to manage probability and statistics course in Universiti Teknologi PETRONAS. In Proceedings (ICEE 2008) International Conference on Engineering Education "New Challanges in Engineering Education and Research in the 21st Century". Pécs-Budapest, Hungary; 2008. pp.27-31.
29. Huda M, Maselena A, Atmotiyoso P, Siregar M, Ahmad R, Jasmi K, et al. Big data emerging technology: insights into innovative environment for online learning resources. Int J Emerg Technol Learn. 2018;13(1):23-36.