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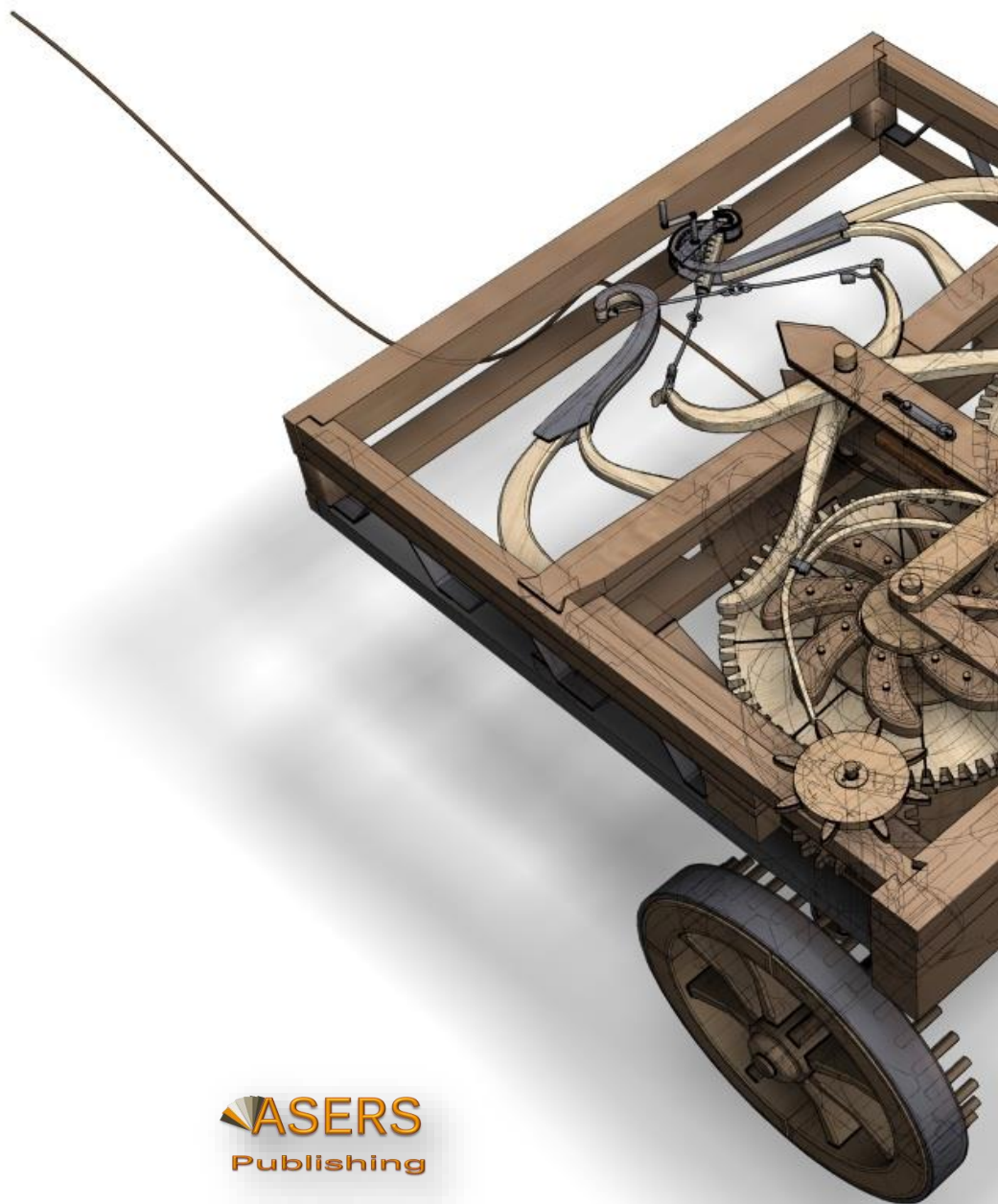
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Call for Papers

Volume XV, Issue 17, 2023

Journal of Research in Educational Sciences

The Journal is designed to promote scholars' thought in the field of education with the clear mission to provide an interdisciplinary forum for discussion and debate about education's most vital issues. We intend to publish papers that contribute to the expanding boundaries of knowledge in education and focus on research, theory, current issues and applied practice in this area.

The Editor in Chief would like to invite submissions for the **Volume XIV, Issue 16, 2023** of the **Journal of Research in Educational Sciences** (JRES).

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The aims and scope of the Journal includes, but is not limited to; the following major topics as they relate to the Educational Sciences:

- Educational Psychology;
- Engagement and Community;
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Features of the Interaction between Teachers and Students in Conditions of Mixed Learning

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Abstract: *The article is devoted to communicative technologies of blended learning as one of the most important areas of development of the educational process in higher education institutions. The author analyzes the main aspects and features of interaction between teachers and students in conditions of blended learning, the main advantages and disadvantages of such interaction. The practical implementation of information and communication models based on the functioning of modular object-oriented learning environments is studied. Based on the analysis, the author has developed the rules of communication between the teacher and students, which will make the educational process in conditions of blended learning more effective.*

Keywords: blended learning; higher education system; communication between teachers and students; information and computer technologies; information environment; online platform.

JEL Classification: I21; I24.

Introduction

Problem statement. Rethinking and updating educational practices in higher education institutions due to the introduction of requirements for the use of distance education technologies and e-learning has become an inevitable and natural process. This is evidenced by the trends in the development of modern society and the higher education system. Unfortunately, most attempts at the reactive implementation of blended and distance learning are characterized by the retransmission of educational material and formal evaluation control of students' activities. This is because the direct reproduction of the processes of the traditional education model using digital technologies hinders the development of highly effective pedagogical practices and models of educational work, as well as the inclusion of students in them.

In the context of network interaction of educational institutions, the information environments of individual universities should ensure the possibility of effective communication between students and teachers. Support is not limited exclusively to technical and administrative regulations, but also concerns the search and implementation of psychological and pedagogical aspects in the organization of blended and distance learning.

The quality of the educational process in higher education institutions is largely determined by the nature of interaction between the teacher and students. This interaction influences the level of training of the future specialist, the success of their professional activity, as well as the success of the teacher's professional self-realization. The characteristics of interaction between teachers and students in the context of blended learning become particularly important.

Purpose of the article. The aim of the work is to analyze the features of interaction between teachers and students in the context of blended learning, and to develop a system of communication rules for its participants.

Presentation of the main material. Effective interaction between teachers and students in a blended learning environment can be achieved by creating an open information environment in a higher education institution. This learning environment, saturated with information and computer technologies, allows for interaction between each element and other educational institutions, regional government bodies, representatives of professional groups, etc.

The primary task in designing and constructing open information systems is to develop universally accepted standards and requirements. Since the leading organizational aspect in a higher education institution is

the educational process, building an open information environment using distance education technologies requires consideration of not only technical aspects, but primarily psychological and pedagogical aspects of blended and remote interaction. The main challenges include:

- Lack of interactivity in the interaction between teachers and students.
- Weak involvement of students in the process of achieving a collective, synergistic result based on the outcomes of educational situations formed by the teacher in collaborative blended and distance learning.
- A high probability of students feeling isolated from the teacher and other students.
- A focus on completing tasks for quantity, not quality, etc. (Tkachuk, 2018).

Participants in the educational process are not always satisfied with the outcome of their interactions with each other. This dissatisfaction can be attributed to significant differences in the value orientations of teachers and students:

- Teachers, as a rule, place more importance on the active aspect of interaction.
- Students, on the other hand, pay more attention to the nature of communication and their relationships with the teacher.

At the same time, teachers focus on improving the style of interaction on activity components, leaving without proper development important components of communication and relationships for students, such as trust, benevolence, involvement, tolerance, listening skills, dialogicity, etc.

Special attention should be paid to the forms of pedagogical interaction implemented in the conditions of mixed learning. So, the characteristic features are:

- mutual trust in interpersonal relationships 'teacher-student' and 'student-student';
- mutual assistance of students in working together on projects;
- organization and implementation of systematic communication between teachers and students using information technologies (e-mail, chats, blogs, etc.);
- use of such forms as educational dialogue, mutual control and mutual assessment, mutual psychological, pedagogical and methodological support, etc. (Nazarenko, 2020).

There are three areas of communication between teachers and students, which undergo a significant transformation during the transition to distance and mixed learning formats. The first direction is technical communications aimed at transmitting structured information and facts by the teacher with an emphasis on the most important nuances during a lecture or seminar session. The second area of communication between students and teachers is emotional. In addition to knowledge, during communication, the teacher conveys his emotions to students and 'charges' them with enthusiasm for the subject of study. The third area of communication is feedback, which can be instantaneous or delayed. In the context of full-time training, instant feedback prevails: students receive comments after answering the seminar and ask questions themselves. In an online format, due to the lack of direct contact and modification of a number of training papers, feedback is most often delayed, which has both advantages and disadvantages.

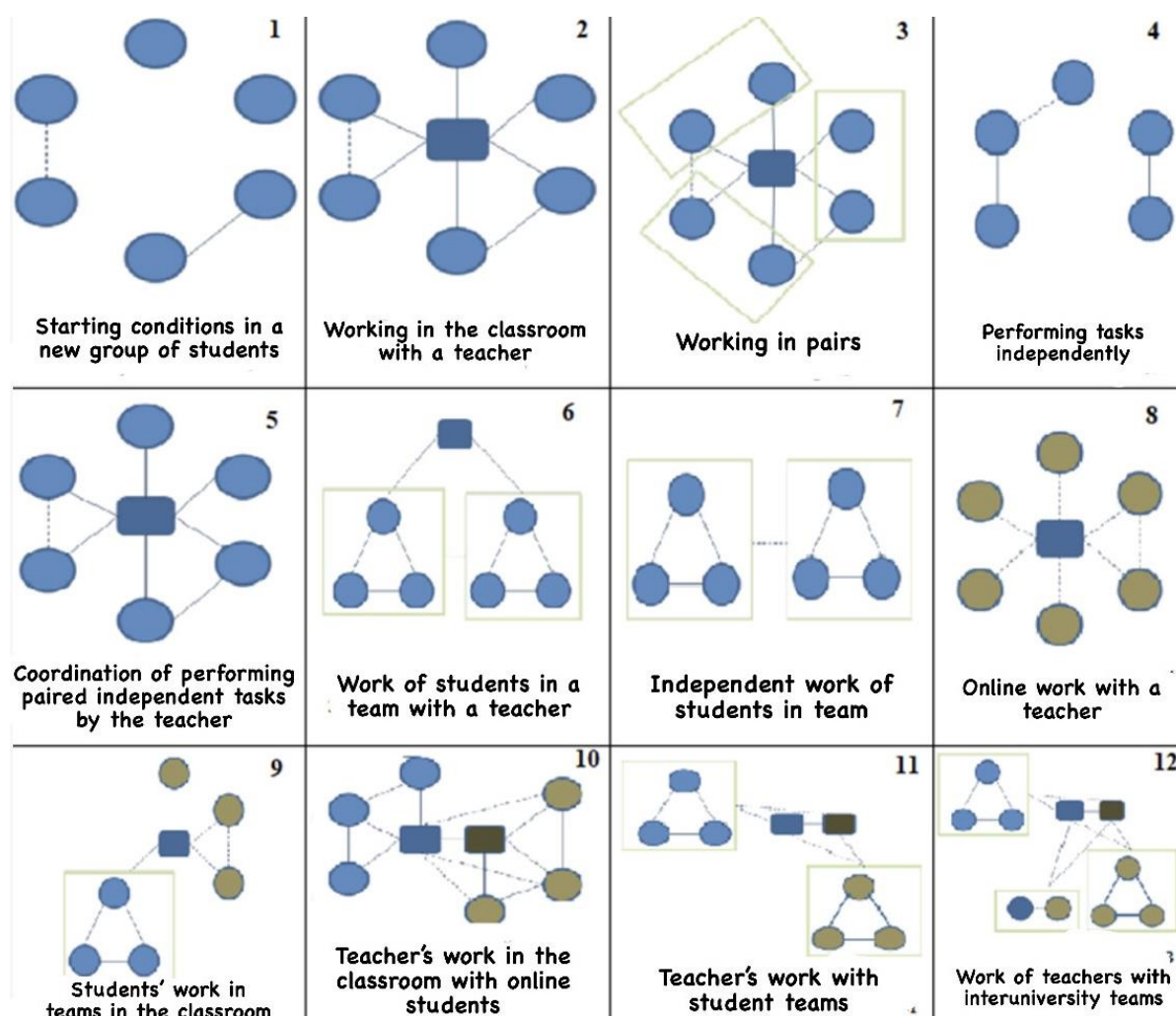
In the blended learning model, there are 3 components that form the communication process between the teacher and the student:

- full-time training, which is the traditional format of classroom classes;
- independent training, which includes independent work of students: search for materials in textbooks, manuals, on the internet, etc.;
- online training (Shrol, 2016).

Let's consider different models of interaction between participants in the educational process in mixed education in a higher education institution.

(Figure 1). Rectangles with smoothed corners represent the roles of teachers, and round vertices represent students. Strong connections are shown as continuous lines, while weak connections are shown as dotted lines.

Figure 1. Models of interaction of participants in the educational process in blended education in a higher education institution



Source: built by the author.

Let us analyze the above image in more detail. Traditional classroom training in higher education institutions at the initial stages is schematically illustrated in the first three segments. Strong communication connections within the student group, which were formed, as a result, of the initial random, are further developed and strengthened by the teacher through direct communication with students in the classroom. Independent work of students in traditional education at the initial stages is usually individual. In case of spontaneous division into teams, independent work of students encourages the emergence of significant risks of non-compliance. (Segment 4, 5). The latter case is almost identical to classroom activities. The organization of student teams in traditional training in a higher education institution allows you to increase the activity of students and at the same time reduce the communicative load on the teacher, especially with the appearance of leadership in teams (Segment 6). After appropriate training, senior student teams are quite capable not only of working independently, but also of interacting with other teams (Segment 7). The use of distance learning technologies in junior courses or without mixed learning, even within the same institution, uses distance communication and forms weak connections, dramatically reducing the interactivity of communication (Segment 8). In senior years, after a long adaptation stage, dropping out of unmotivated students, and applying elements of mixed learning, teachers still usually manage to establish strong connections with a certain number of distance learning students. However, it is quite difficult to achieve sustainable mass results in organizing student teams consisting of distance learning students (Segment 9). Simultaneous implementation of traditional and distance learning within two institutions of higher education or institutions and branches by the same qualified teacher clearly and unambiguously demonstrates the lack of interactivity and the above-mentioned psychological and pedagogical problems of distance interaction (Segment 10). In distance learning, as a rule, there are no teams. The long-term practice of Interuniversity work of leading teachers has revealed a high efficiency of the teacher's work with distance students with the help of a

teacher directly present. In this case, communication links with the distance-learning teacher begin to establish, and distance students interact with each other (Segment 12).

An important element of all blended learning models is interactive interaction, which can be carried out as follows:

- Teacher-student interaction (exchange of electronic messages, announcements, discussions, mini-lectures);
- Student-student interaction (discussions, group work, mutual evaluation of works, etc.);
- Interaction of student-educational material (reading material, electronic textbooks, manuals and course materials).
- When using electronic resources in the blended learning model, it is necessary to rely on the following approaches:
 - Sustainability: resources can be applied to broad-based devices with equal access for all participants, both in the educational institution and at home;
 - Availability: resources can be changed or reused;
 - Communication skills: resources should support participants' interaction, including interactive interaction, and provide feedback (Bugaichuk, 2016).

The use of modern technologies allows us to structure the features of interaction between teachers and students in a mixed blended environment as follows: the teacher establishes online communication with his students using online services, for example, such as 'Google Classroom' or 'Khan Academy'. Using these online services, the teacher publishes educational materials, assignments, checks students' work, provides feedback, etc. Students have the opportunity to use these online learning services during the scheduled time and complete tasks, listen to lectures, or participate in other activities. In addition to these online services used in distance learning, teachers can also meet their students through online video conferencing platforms such as 'Zoom' or 'Skype'. Some teachers give entire lectures through online services, and some simply use them to test students and make sure they understand the material. The time spent using 'Zoom', 'Skype', or any other virtual conference platform may vary depending on the application of teachers, but they are also an important tool for implementing blended learning (Hamutoglu *et al.* 2020).

The use of the online platform 'Moodle' provides a technical organization of blended learning, which allows you to maintain a balance of theory and practice, as well as various types of tasks. The teacher can conduct classes on a schedule, monitor student attendance, and make entries in online academic performance logs. This type of online platform gives students the opportunity to view presentations on individual subjects and academic disciplines, pass tests, independently process additional theoretical material, complete tasks for independent work, discuss problematic issues on forums, etc. (Polianovskiy *et al.* 2021). The main advantages of using 'Moodle' for organizing blended learning are system flexibility, convenience, modularity, interactivity, various forms of knowledge control, success log, event planning, etc. (Osadcha *et al.*, 2021).

The study of global trends in the development of modern distance learning technologies reveals some interesting findings. According to the published data from the Phil Hill report, which analyzed the learning management market in higher education institutions in the United States and Canada, four platforms dominate the distance learning landscape. These platforms are 'Canvas', 'Blackboard', 'Brightspace', and 'Moodle'. They account for 80-95% of the total market share in recent years. Despite the large number of commercial platforms, many of them remain accessible to all users (Polianovskiy *et al.* 2021).

Nowadays, there is a need to identify opportunities and limitations of online communication between teachers and students in a blended form of education in the higher education system.

The author conducted a study to examine the features of teaching under remote access conditions. 400 teachers of higher education institutions living in Ukraine were interviewed using an online questionnaire (using Google Forms). The study covered 5 cities (Kiev, Zhytomyr, Kharkiv, Lviv, Cherkasy), and included such institutions of higher education as:

- National Technical University of Ukraine 'Igor Sikorsky Kyiv Polytechnic Institute': 16 teachers from the Faculty of Engineering and Chemistry, 17 teachers from the Faculty of Sociology and Law;
- Taras Shevchenko National University of Kyiv: 17 teachers from the Faculty of Psychology, 16 from the Faculty of Sociology;
- At Vadym Hetman Kyiv National Economic University, there are 16 teachers in the Faculty of Marketing, 11 teachers in the Faculty of Finance, and 10 teachers in the Faculty of Personnel Management, Sociology, and Psychology;

- Kyiv National University of Technology and Design: 16 teachers from the Faculty of Art and Fashion, 15 teachers from the Faculty of Mechatronics and Computer Technologies, 12 teachers from the Faculty of Management and Business Design;
- Ivan Franko Zhytomyr State University: 15 teachers from the Faculty of History, 12 teachers from the Faculty of Physics and Mathematics, 13 teachers from the Faculty of Natural Sciences;
- Zhytomyr Polytechnic State University: 14 teachers from the Faculty of Business and Service Sector, 11 teachers from the Faculty of National Security, Law and International Relations, 17 teachers from the Faculty of Pedagogical Technologies and Education;
- Zhytomyr Medical Institute: 15 teachers from the Faculty of Public Health, 10 teachers from the Faculty of Physical Therapy, Occupational Therapy, 10 teachers from the Faculty of Nursing;
- National Technical University 'Kharkiv Polytechnic Institute': 21 teachers from the Educational and Scientific Institute of International Education, 16 teachers from the Educational and Scientific Institute of Energy, Electronics and Electromechanics, 18 teachers from the Educational and Scientific Institute of Mechanical Engineering and Transport;
- V. N. Karazin Kharkiv National University: 14 teachers from the Faculty of Philology, 17 teachers from the Faculty of Economics, 10 teachers from the Faculty of Physics;
- Ivan Franko Lviv National University: 14 teachers from the Faculty of Biology, 9 teachers from the Faculty of Geography, 10 teachers from the Faculty of Journalism;
- Lviv National Academy of Arts: 11 teachers from the Faculty of Fine Arts and Restoration, 13 teachers from the Faculty of Design;
- Bohdan Khmelnytsky Cherkasy National University: 12 teachers from the Faculty of Foreign Languages, 12 teachers from the Faculty of Economics.

The sample is quota based on three grounds: gender (200 women, 200 men), age (25 to 45 years) and position held. The study was conducted from May 15 to May 19, 2023, when teachers had already adapted to existing forms of education.

The first limitation of online communication faced by teachers and students is the material and technical equipment of the workplace. Only a quarter of the surveyed teachers (24.3%) have a separate office where they can work and conduct classes online. 29.3% of respondents have a dedicated workplace in a common room (desk, computer). 25.5% of teachers possess their own laptop (netbook, tablet), with which they can find a quiet corner to work. 21% of respondents are in the most difficult situation, as they have to share their equipment and workplace with other family members.

The majority of respondents needed to upgrade their equipment. 9.5% of teachers needed to purchase a new computer (laptop, tablet). 27.3% of respondents bought additional components for their home computer, and 28% updated their software. As a rule, higher education institutions do not finance such expenses and do not always provide technical support to their employees.

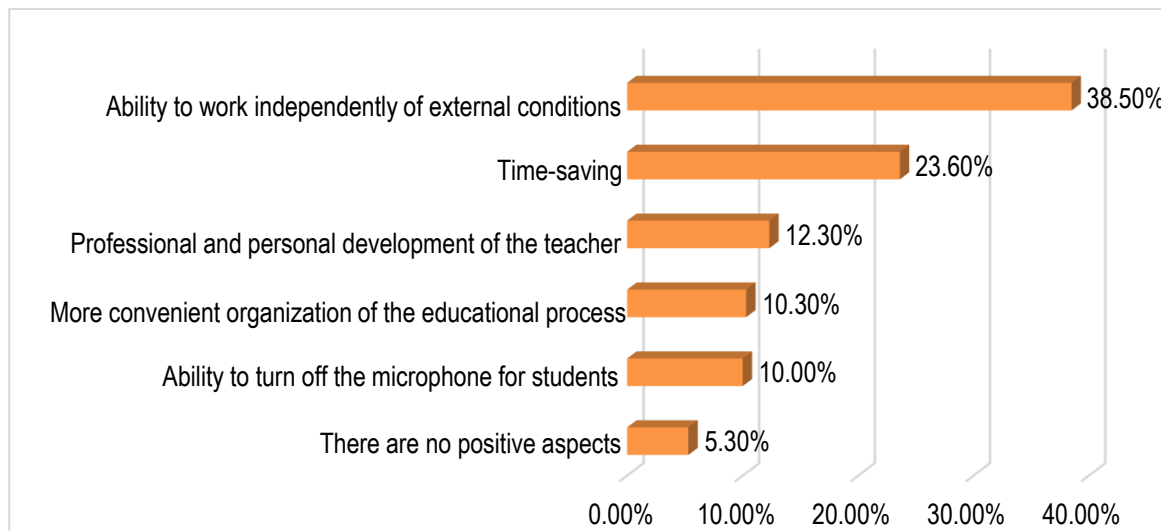
There is a belief that the older a person gets, the more difficult it is for them to master new information, methods, and ideas. Teachers of higher education institutions refute this statement. Many teachers, in the crisis conditions of self-isolation, not only learned how to cope with technical problems but also urgently mastered new educational platforms. The majority of teachers have the opportunity to choose their own online platform for teaching students (65.8%), but a third of respondents (34.3%) are deprived of this opportunity.

The positive aspects of mastering online platforms within the framework of blended learning are obvious: the ability to work and receive education, despite external crisis conditions, the development of new competencies for teachers and students, the adaptability of the educational process, time savings, territorial accessibility, as well as the ability for people with disabilities to work and study (Figure 2).

Regarding the positive aspects of online education for students, we can highlight: the possibility of learning from anywhere in the world, the possibility of combining it with other activities, constant access to educational materials, the availability of online education, and an individual approach to learning.

15% of respondents agree that adapting classes to the online version increases labor costs. It is necessary to change the form of presentation of the material, prepare classes longer, and fatigue from 'talking to the wall' is much greater, because there is no energy exchange with students.

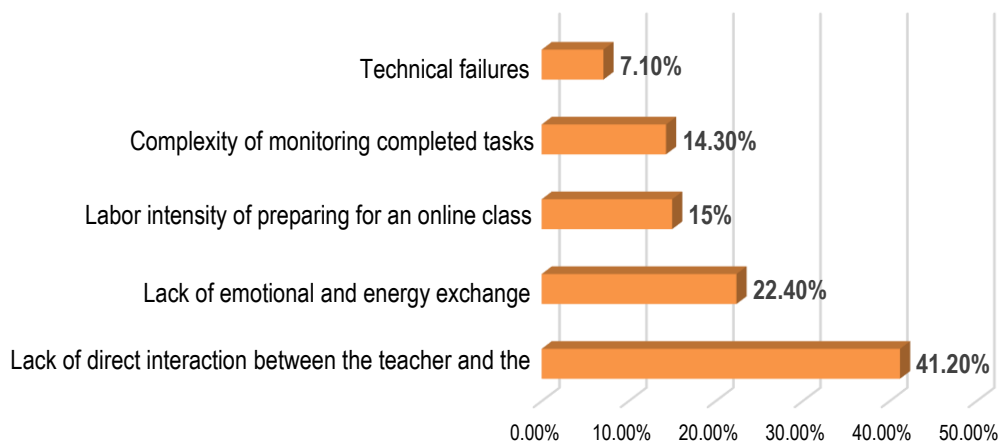
Figure 2. Positive aspects in online education with distance learning for teachers



Source: built by the author

Technical difficulties also include improper quality of the internet connection (this problem was noted by 7.1% of respondents), many technical aspects that need to be delved into. Computer proficiency for many people, especially the older generation, has caused difficulties before, and in the conditions of a general remote, it was necessary to deal with everything at once, and often without any help from the institution of higher education. Mastering educational platforms requires a lot of time – 40.5% of respondents said so. Teachers are also disturbed by the functional imperfection of online platforms – 30.8%. In addition to the difficulties of mastering online platforms, there are other negative aspects of remote access in a blended form of training, which were highlighted by respondents (Figure 3).

Figure 3. Negative aspects in online education with distance learning for teachers

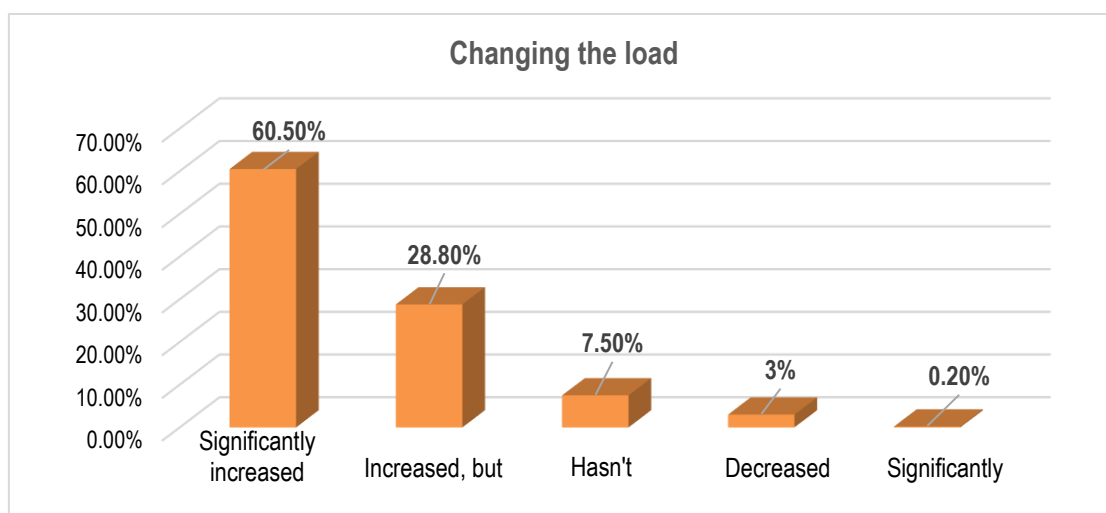


Source: built by the author

The most negative aspect of online education in a blended form of education is the lack of direct interaction between the teacher and the student (this is the opinion of 41.2% of respondents). The mediation of the teacher's contact with students leads to a decrease in the quality of the broadcast material, and of course, affects the degree of collective cooperation, breaking, in a certain way, traditional social ties that are formed and operate only within the framework of direct interaction between students and the teacher.

15% of respondents chose the complexity of preparing for online classes. The visual content of such a lesson should be greater than the lesson in the classical form. It is very difficult for students to concentrate and just listen to the teacher, so the development of presentations, tests, and various materials for online communication requires much more time and effort. These conclusions are confirmed by the answers received to another question, for example, the question of changing the workload in distance education (Figure 4.).

Figure 4. Changing the workload when switching to distance learning



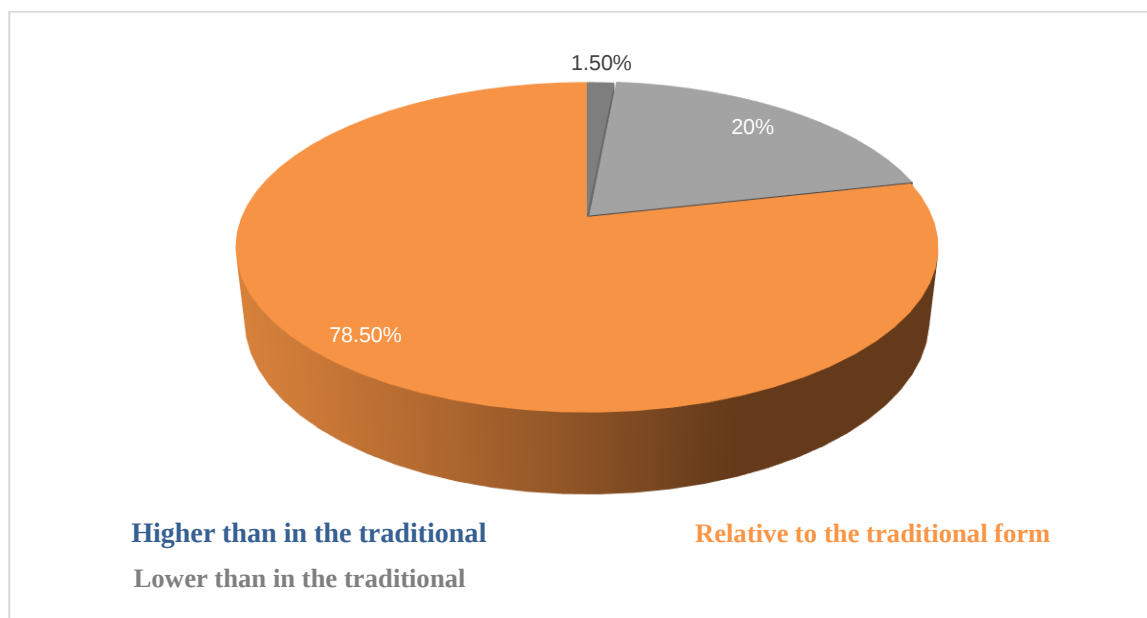
Source: built by the author

The workload has increased significantly, according to 60.5% of respondents. Another 30% believe that it has increased, but not significantly. Less than 10% believe that it has not changed (7.5%) or even decreased (3.2%).

Comparing the quality of blended learning with traditional, according to teachers of the analyzed higher education institutions, presents a rather depressing picture (Figure 5).

The overwhelming majority of respondents believe that the quality of blended learning is inferior to traditional education (78.5%). Certainly, the online communication that has developed under conditions of self-isolation is of an extreme nature. Full-fledged online courses, which are hosted on leading platforms, stand out due to their conceptual design and methodological preparation.

Figure 5. Comparison of the quality of blended and traditional training



Source: built by the author.

Thus, one of the ways to solve existing problems is blended learning. For example, many western universities today view students as partners or co-authors in the learning process: they provide them with the opportunity to participate in the management of higher education institutions or the formation of the curriculum; they implement mutual learning programs or conduct training sessions in which the student's activity is stimulated. In most educational institutions, such classes are held in a blended format, combining online and full-time teaching methods (Lisetskyi, 2013). Such pedagogical practices are developed and adopted by teachers who are

ready to reconsider their role in the educational process and become intermediaries and assistants in learning, giving up the status of a monopoly owner of knowledge.

Conclusions

Emerging technologies have revolutionized traditional teaching methods and teaching structures. The traditional structure reveals a teacher-centered approach where they are actively involved in learning, and students listen and follow them. The modern structure is student-oriented learning, driven by a personality-oriented approach. This is how students actively interact with the teacher and classmates. Modern technologies help to introduce online education in blended education in higher education institutions.

The key aspects that determine the effectiveness of the blended learning model are:

- shifting the focus from providing students with ready-made knowledge to the joint formation of new knowledge, which leads to the transformation of the traditional role of a teacher into a translator of knowledge, an expert;
- improving the quality of the educational process by organizing not only classroom work, but also independent work of students, intensifying student interaction, and involving them in the educational process;
- overcoming the main shortcomings of the established distance learning model due to interactivity, transparency, and manageability of the educational process.

Considering the analysis, it is advisable to develop rules for interaction between teachers and students in a blended learning model, which combines traditional face-to-face instruction with online learning. This will make the learning process more efficient:

- Formation of a clear schedule of classes and a mandatory condition for its compliance by both teachers and students;
- Exit from the online office and temporary offline access is allowed only with the approval of the teacher;
- Any technical problems should be reported to the teacher and the rest of the students by the person experiencing them.
- It is recommended that students attend the lesson with the camera and microphone turned on;
- Teachers should not delay students after classes and overload them with written assignments, etc. (Shrol, 2016).

To address these challenges, it is advisable to apply a comprehensive approach that combines the following elements:

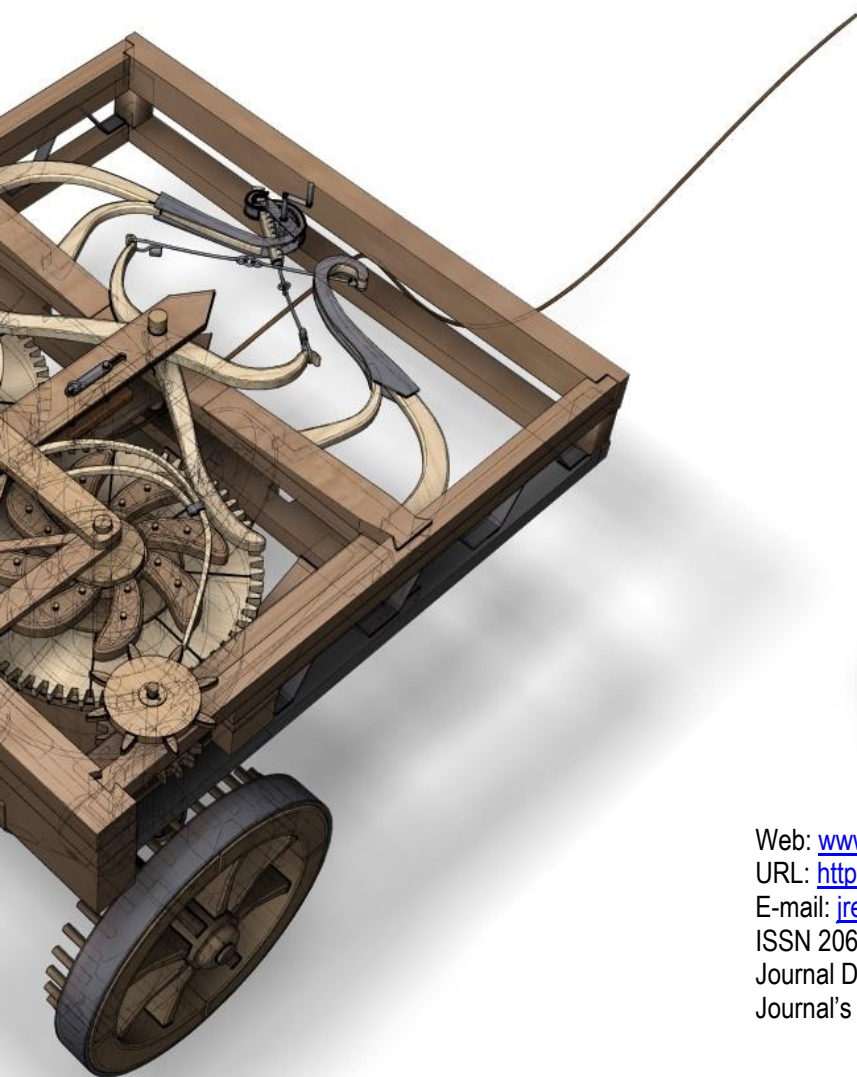
- The use of innovative pedagogical methods to engage students in the educational process.
- Coordination of student-teacher communication by the management of higher education institutions.
- Expansion of communication channels between students and teachers.
- Qualified psychological support for all participants in the educational process.
- Creation of clear rules regulating the interaction of teachers and students based on mutual respect and tolerance.
- Development of modern software.
- Technical support for participants in the educational process.
- Implementation of training to prepare teachers for work in remote and blended formats.
- Preliminary planning of classes by the teacher using up-to-date information and communication technologies.

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