Apuntes Universitarios, 2023: *13* (1), enero-marzo
ISSN: 2304-0335 DOI: https://doi.org/10.17162/au.v13i1.1332

Efectividad de la educación a distancia en instituciones de educación superior bajo la ley marcial

Effectiveness of distance learning in higher educational institutions under martial law

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Recibido: 09 de agosto de 2022 **Aceptado:** 10 de noviembre de 2022

Resumen

El presente estudio tuvo como objetivo evaluar la efectividad del aprendizaje a distancia en instituciones de educación superior (IES) bajo la ley marcial. Se analizó el desempeño de los estudiantes y los cuestionarios a fin de determinar la efectividad del aprendizaje a distancia. La encuesta incluyó una evaluación de la satisfacción de los estudiantes con el entorno educativo y la organización del aprendizaje, su motivación para estudiar y la socialización. Se encontró que el rendimiento académico de los estudiantes bajo la ley marcial cambió: el número de alumnos con Nivel A disminuyó, mientras que el número de estudiantes con Nivel C aumentó. Se estableció que solo el 30% de los estudiantes tenían una fuerte motivación por estudiar. El estudio tambien mostró que los estudiantes tenían un clima insuficiente para la comunicación interpersonal durante el aprendizaje a distancia, carecían de retroalimentación establecida por parte del maestro; y ante esto se hizo necesario utilizar la retroalimentación con la oportunidad de que los estudiantes se expresen, para comparar sus expectativas de la materia académica con lo que ofrecen los docentes para aumentar la efectividad de la educación a distancia. Se concluyó que la socialización se vio afectada durante el aprendizaje a distancia.

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Palabras claves: Aprendizaje, educación a distancia, ley marcial, comunicación, docencia, tecnologia, socializacion.

Abstract
This study aimed to assess the effectiveness of distance learning in higher educational institutions (HEIs) under martial law. Student performance and questionnaires were analysed to determine the effectiveness of distance learning under martial law. The survey included an assessment of students' satisfaction with the educational environment and organization of learning, their motivation to study, and socialization. It was found that students' academic performance while studying under martial law changed: the number of students with Level A decreased, while the number of students with Level C increased. It was established that only 30% of students had a strong motivation to study. The study also showed that students had an insufficient climate for interpersonal communication during distance learning, lacked established feedback from the teacher; and before this it became necessary to use the feedback with the opportunity for students to express themselves, to compare their expectations of the academic subject with what teachers offer to increase the effectiveness of distance education. It was concluded that socialization was affected during distance learning.

Keywords: Learning, distance education, martial law, communication, teaching, technology, socialization.

Introduction

The Russia’s military aggression against Ukraine forced Ukrainian HEIs to switch to the distance learning synchronously and asynchronously from February 24, 2022. In this context, traditional education has become impossible under martial law, and the transition to remote forms of education is a necessary condition for maintaining access to education for students. By the way, numerous studies examine the impact of armed conflicts and insurgencies on the educational process (Namen et al. 2020; Roy & Singh 2016). A number of international organizations such as UNESCO, UNICEF, GCPEA (Global Coalition to Protect Educators from Attack), UNHCR (UN Refugee Agency), etc., are engaged in the study of issues of education under martial law and the restoration of education after the end of armed conflicts. The experience of these organizations is based on the study of a wide range of military conflicts, they developed recommendations for the educational process in the wartime (Adams & Toh, 2021; Akresh, 2016). These recommendations can be adapted to the specifics of the educational process in Ukraine under the conditions of the military aggression.

The continuity of education during martial law is necessary to prevent the aggravation of the crisis in society. HEIs of Ukraine have extensive experience in online teaching during quarantine restrictions caused by the COVID-19 pandemic. However, synchronous online learning is not always possible under martial law because of the lack of communication, electricity or air raids. Some students didn't have uninterrupted access to the Internet, and accordingly, could not participate in online events synchronously.

The facts referred to above raise a need to introduce distance asynchronous learning methods during the martial law. Distance learning is completely out-of-class and does not necessarily require online interaction. That is, the interaction between the participants of the educational process takes place with a time delay. The transition to distance learning requires the introduction of new methods. For example, reading lectures should be replaced by independent study of the issues examined in lectures. Control should also have a different format.

There is a sufficient number of studies on distance learning models (Guay et al., 2018; Orsini et al., 2018). However, most of these studies describe a particular method and teacher experience (Kaoud et al., 2021; Lowenthal, 2022). Besides, distance learning in Ukrainian higher educational institutions was introduced during the COVID-19 pandemic, and there was often a combination of traditional and distance learning. Semester control was carried out in-class only. Distance education during martial law has its own peculiarities: as traditional education is completely excluded; participants of the educational process may have difficult emotional states and lack the possibility of working synchronously. Therefore, it remains unclear how effective learning is under such conditions.

According to the Ministry of Education and Science of Ukraine, 1,888 educational institutions were damaged and shelled, 180 were completely destroyed (Ministry of Education and Science of Ukraine, 2022). The basic human right to education is violated during martial law and armed conflicts, and participants in the educational process become targets of military aggression. International organizations such as UNESCO and UNICEF developed a number of recommendations regarding the educational process during martial law. In particular, it is stated there that it is recommended to use distance learning methods in order to maintain safe conditions (Akresh, 2016; Namen et al., 2020).

In modern pedagogy, distance learning is considered as a complex of pedagogical technologies based on the principles of computer and open learning, the use of active

communication methods (Kukharenko & Bondarenko, 2020). Electronic learning (e-learning) is a new approach to the educational process. Student orientation and lifelong learning are implemented during this form of teaching. E-learning systems (Estebanell-Minguell et al., 2021; Lee et al., 2013) have become a widespread tool to facilitate the teaching and learning process. They make the educational process flexible and student-oriented. This system allows working both synchronously and asynchronously.

According to Grieve et al. (2017), distance learning has both advantages and disadvantages. Flexibility in terms of work performance is one of the advantages of distance learning; this allows students to be more independent in choosing when and what to study now. distance learning contributes to a deeper understanding of the educational material, since the student spends much time on independent processing of the material. Besides, distance learning allows creating assignments with due regard to individual characteristics: for example, it will be optimal to watch a movie for some students, while for others, to read an article or listen to a podcast (Thai et al., 2017; Halili & Razak, 2018; Stuart et al., 2022; Turan et al., 2022). Therefore, the effectiveness of any educational model can be evaluated according to the following criteria: student's academic performance, possibility of its use in any educational institution, rational use of available educational resources and time of participants in the educational process.

In light of this background, the aim of the work is to investigate the effectiveness of various distance learning methods in HEIs during martial law. The aim involved the following research objectives: First, to analyse the academic performance of students during distance learning under martial law and for the previous semester. Second, to study students' satisfaction with the educational environment during distance learning under martial law and before the introduction of this form of work. And third, this paper explores the learning motivation and the socialization of students during distance learning under martial law.

Methods

Design

The study of the effectiveness of distance learning involved an analysis of the academic performance of 2° year students of different majors of V. O. Sukhomlynskyi National University of Mykolaiv in Philosophy, and a questionnaire survey, which provided for the assessment of

students' satisfaction with the educational environment and organization of learning, their learning motivation and socialization.

The Google Classroom platform was used for distance learning and communication with students on Philosophy. Lecture records, practical assignments, useful links, and review assignments were posted on the platform on a specific schedule (at the same time each week). Online classes were held twice a week in the form of consultations through Google Meet. The students who were able to join attended them remotely.

Assignments for students were developed taking into account independent performance and the need to use active forms of learning and feedback. For example, students were offered a number of questions that they should work on and write an article or summary, record a video or create a discussion on social networks. All students received feedback from the teacher through the Classroom chat platform or online consultations. This aspect was taken into account when developing assignments, as not all students had the opportunity to join distance learning synchronously. Students were provided with the list of questions for knowledge control in advance. The deadlines for completing assignments were flexible, that is, if a student could not complete the assignment due to valid reasons and gave notice of that in advance, the deadline for submitting the assignment was slightly postponed.

Instruments (measurement)

The conducted research is experimental and applied in nature. The student survey questionnaire was created in Google Forms. It was distributed among students as a link through social networks (student groups in Telegram), and additionally the link was placed in Google Classroom. A comparison was made between the students' average scores for the previous semester and the score obtained during distance learning under martial law. The survey results were evaluated as a percentage of the responses.

Participants

The study involved the 2nd-year students of different majors of V. O. Sukhomlynskyi National University of Mykolaiv who studied Philosophy. The total number of students participating in the study was 102 students, that is, one stream. The gender distribution was as follows: 62 girls and 40 boys. The size of the student sample can be considered representative.

Data collection

In order to assess students' satisfaction with the educational environment after the introduction of distance learning during martial law, a questionnaire survey was conducted to determine students' satisfaction with the educational environment and the organization of the educational process, to determine their learning motivation and socialization. Students were offered a number of questions to which they had to answer in the form of a rating from 1 to 5, where 1 is "I do not agree with the statement at all", 5 – "I completely agree with the statement". This survey was conducted at the end of each semester by the Internal Education Quality Department of V. O. Sukhomlynskyi National University of Mykolaiv.

The results of the questionnaire obtained in the previous semester were used as a reference. The testing procedure was standardized for each student. To validate the results of study success in the discipline "Philosophy" during distance learning in martial law conditions, the correlation of the grades obtained in the discipline "Philosophy" with the success of students in other educational disciplines was conducted. The correlation coefficient ranged from 0.97 to 0.73, indicating a high correlation between the student's performance in the studied discipline and overall performance.

Analysis of data

The χ^2 criterion was used to determine whether the obtained results of the effectiveness of distance learning during the martial law were effective. This method evaluates the independence of two samples. The null hypothesis states that two samples have the same distribution for a certain parameter, while the rejection of the null hypothesis states that there are differences in the samples.

Ethical criteria

All students were informed about the study and gave their consent before the start of performance analysis and questionnaire survey. Personal answers of students were not disclosed, only generalized data were subject to discussion.

Results

A study on the effectiveness of distance education during martial law was conducted. The points obtained for the academic subject were compared with the students' academic performance for the previous semester, during which the students had blended learning: both with the use of the

traditional model and distance learning during periods of quarantine restrictions. Traditional forms of education were mostly used during the previous semester. The students were divided according to the ECTS levels introduced at V. O. Sukhomlynskyi National University of Mykolaiv in order to assess their academic performance based on the assessment results (Table 1).

Table 1
Correspondence of the obtained number of points and the ECTS levels

ECTS level	Number of points
FX	35-59
E	60-63
D	64-73
C	74-81
B	82-89
A	90-100

The academic performance in Philosophy, which was taught online only during martial law, was compared with the average score of academic performance for the previous semester, in which learning was mainly traditional. Figure 1 shows the results for the effectiveness of learning.

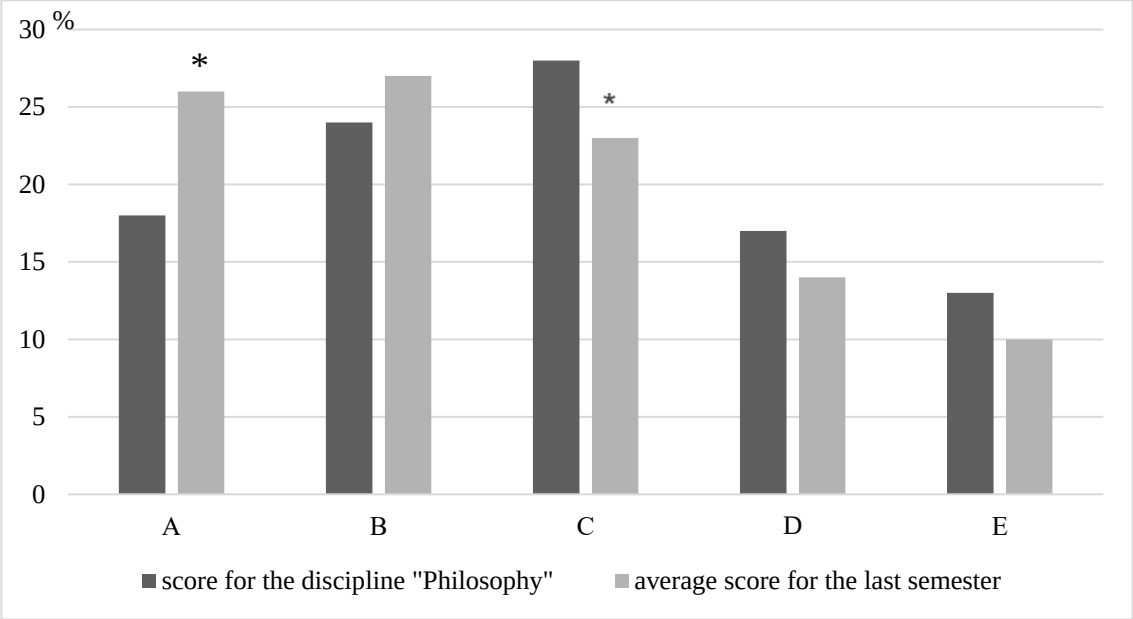

Figure 1. Evaluation of the effectiveness of students' distance learning

The transition to distance learning during martial law led to a significant drop in the number of students with Level A, a slight drop in the number of students with Level B, and a significant increase in the number of students with Level C. The introduction of distance learning during martial law almost had not affected the number of students with Levels D and E.

In addition to academic performance, satisfaction with the educational environment, organization of learning, and learning motivation to learn were assessed. Assessing satisfaction with the educational environment as a whole, the majority of surveyed students noted that they were satisfied with the educational environment created by the university (Figure 2), and the result practically did not change after the introduction of distance learning during martial law compared to the previous semester of study.

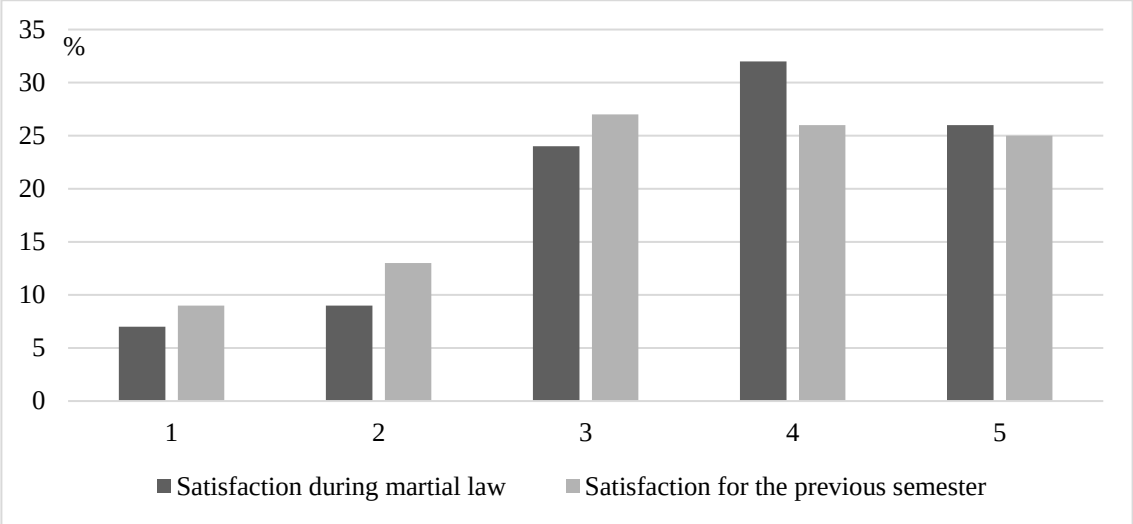

Figure 2. General assessment of students' satisfaction with the educational environment in distance education during martial law and studies in the previous semester
Note: "1" — completely dissatisfied, "2" — partially dissatisfied, "3" — rather satisfied, "4" — almost satisfied, "5" — completely satisfied

Students often associated their dissatisfaction and partial dissatisfaction with the educational environment with misunderstanding with classmates (3.6% of surveyed students), misunderstanding with the teacher (1.2% of surveyed students), uninteresting subject (11.4% of surveyed students), uniformity of applied study methods (11.4% of surveyed students), too many assignments for independent work (17.5%), lack of feedback from the teacher (9.7% of surveyed students). Similarly, students who were almost satisfied and completely satisfied with the

educational environment also noted that the teacher provided all course materials (47% of surveyed students). They were quite satisfied with the feedback from the teacher (36.7% of the surveyed students). The majority of surveyed students noted the introduction of flexible deadlines for submitting assignments as a positive point (58%).

The asynchronous learning enabled students to independently plan their educational activities, focusing on deadlines. Students positively noted flexible deadlines, as some of them were in difficult circumstances and required more time to complete a particular assignment. Besides, planning the assignment ahead of time made it easier for students to plan their own activities. So, for example, all students knew that every Wednesday at 10:00 a.m. they received new assignment and materials for study through Classroom. The teacher also held an online consultation twice a week, to which students could join, if necessary, and ask the questions they had. At the beginning of the course, all students received a list of questions for intermediate control and had the opportunity to work with them as convenient. However, many students noted that asynchronous distance learning should be supplemented with synchronous interaction, for example, in the form of online consultation.

The assessment of students' learning motivation and socialization showed that 30% of students had a strong motivation. They noted that the most important thing at the university is studying, regardless of the form (distance or traditional) — 9.4% of the surveyed students. Studying new topics and processing new information was important for 11.4% of surveyed students. The use of active forms of learning strengthened learning motivation in 12.5% of the surveyed students.

There were 25% of the surveyed students who had low learning motivation. Of them, 4.67% of students noted that they do not understand the educational material, and 5.83% associated low motivation with the need to prepare for knowledge control. Among the surveyed students, 3.6% noted that teachers provide a lot of information during classes, but, in their opinion, this information is not interesting. Some students noted that they lack communication with their peers during traditional forms of education, this is what prompted them to join classes.

In addition to the standard survey conducted by the Internal Education Quality Assurance Department at the end of each semester, we offered students to complete an additional survey regarding the assessment of the effectiveness of distance learning during martial law. The survey results are presented in Figure 3.

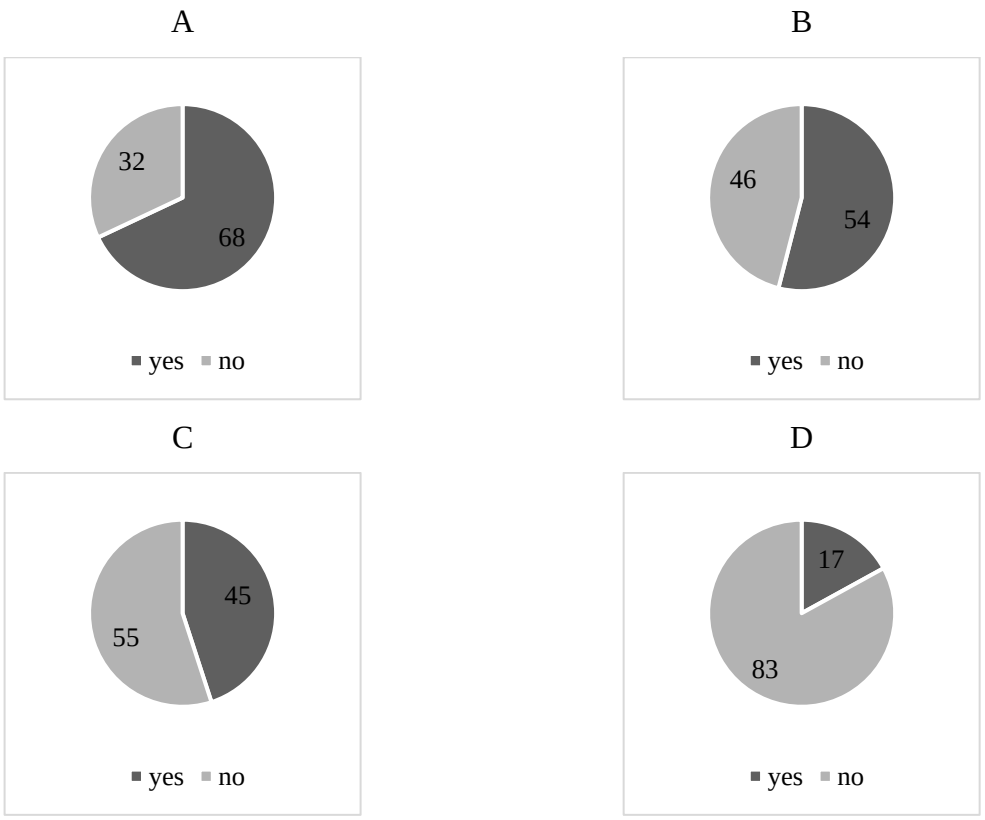

Figure 3. Satisfaction with distance learning during martial law

Note: Asked questions:
A – Have you participated in online classes?
B – Did you have stable Internet?
C – Did you have a place for seclusion during your studies?
D – Did you not participate in distance learning because you considered it impractical for you at this time?

The results indicate that more than a third of students had difficulties with access to the Internet and the lack of a place for seclusion, which is why they did not join online classes. Among the students there were those who considered distance learning during martial law to be impractical. The last question obviously indicated that these students were in a stressful condition during the survey, because according to the results of academic performance, all students scored the minimum number of points for the academic subject.

Besides, some students reported that it is difficult for them to organize themselves during an armed conflict, they are in unfavourable conditions (air raid sirens, sounds of explosions, the threat of bombings, the need to go to shelters). A small part of students noted that it is difficult for them to complete assignments independently. So, the obtained results of the study indicate that

distance learning during martial law is significantly different from distance learning during the COVID-19 pandemic. Students experience greater emotional instability because of the sense of insecurity. Students were divided into those who stayed at home in the occupied territories and had connection problems, and those who left, had connection, but experienced problems with the place for study and the availability of gadgets. Such conditions of the educational process require the correction of pedagogical activity and its adaptation to current conditions. In order to understand the necessity of using certain methods, it is necessary to evaluate their effectiveness in the educational process.

Studying the effectiveness of distance learning of students during martial law, it was established that academic success has undergone changes; the percentage of students who received Level A decreased, while the percentage of students who received Level C increased. At the same time, only 68% had the opportunity to join online classes. The other 32% worked with the educational material asynchronously only. Also, 46% of students noted the lack of stable Internet, which also created difficulties for participating in online classes and completing assignments.

It can be stated that the decline in academic performance during distance learning under martial law is primarily related to technical difficulties and the emotional state of students. In confirmation of this opinion, 17% of students answered that they did not consider it appropriate for them to join distance learning, some students noted that it is difficult for them to organize themselves during an armed conflict and they are in unfavourable conditions (air raid sirens, sounds of explosions, the threat of bombings, the need to go to shelters). However, all students were able to join distance learning during the semester as it was convenient for them, and score the required number of points.

Studying satisfaction with the educational environment, it was found that the number of students engaged in distance learning during martial law who are almost or completely satisfied with the educational environment has increased. The share of students completely or partially dissatisfied with the educational environment of the university decreased. The teacher and group supervisors tried to maintain contact with all students, to identify the groups of those students who needed help (for example, medicines or food kits) throughout the entire period of distance learning during the armed conflict. Such support of students affected their degree of satisfaction with the educational environment. Besides, asynchronous learning allowed students to independently plan their educational activities, focusing on deadlines. The students positively noted flexible deadlines

introduced by the teacher of Philosophy, as some of them were in difficult circumstances and required more time to complete the assignments. Posting materials in Google Classroom by the teacher in advance also made it easier for students to plan their own activities.

Discussion

The study of the effectiveness of distance learning under martial law showed that the students' academic performance changed: the number of students with Level A decreased and the number of students with Level C increased; students had technical difficulties with connecting to classes synchronously, an unfavourable emotional state.

A big role in increasing the effectiveness of training, according to Kaoud at al. (2021) play precisely the stimulation of motivation to study. According to the data of our research, only 30% of students had a strong learning motivation. The share of students who had not weak learning motivation was 25%. A strong motivation is manifested in the students' interest in acquiring new knowledge, the need to acquire knowledge. Studying the motivational profiles of dental students, Orsini et al. (2018) found that the motivational profiles of students were characterized by different degrees of internal motivation, which determined academic success.

According to the researchers, self-motivation is decisive in the success of learning during distance education. This research confirms this opinion, since approximately the same number of students who had weak learning motivation received Levels E and D. It is necessary to apply methods that will strengthen self-motivation for the latter group of students. As they noted that classes are uninteresting and monotonous, it is necessary to expand the range of active learning methods and increase opportunities for communication. Studying distance learning models, Shibani et al. (2020) found that simple use of a website is not able to support learning motivation, as there is no feedback. In confirmation of this opinion, the majority of students with high academic performance and satisfaction with the educational environment noted that there was well-established feedback between them and the teacher. As Lowenthal (2022) points out, during distance education, direct contact between students and teachers is lost, therefore, one of the priority areas of work during distance education is the support of communication and feedback between the teacher and the student.

Many researchers associate distance learning with the lack of socialization and satisfaction of the basic psychological need to communicate with people. Wong (2019) disagrees with those

studies. He believes that students spend more time on computers and other gadgets, they have fewer opportunities for face-to-face communication during distance learning, as a result, there are fewer conflicts resulting from misunderstandings. According to his research, distance learning contributed to a better understanding of academic subjects and increased learning motivation.

The researcher observed an increase in self-esteem due to a decreased fear of receiving negative judgments from peers. Dissatisfaction of students with the lack of communication in this study was associated with insufficient encouragement from the teacher to communicate in Google Classroom chats. This indicates the need to improve the teaching methods that were used and develop new assignments taking into account the increased opportunities for students to communicate asynchronously. The need to increase the space for communication during distance learning was also emphasized by other teachers (Bhagat et al., 2019; Turan et al., 2022). That is, when using distance learning, it is necessary to take into account the space for communication of students. Wong (2019), in his research, emphasizes that students' social interaction is no longer limited to the classroom. Provided that the learning takes place exclusively at a distance, the role of the teacher is not only in the preparation of educational material but also in the constant adjustment of methods, methods of delivery, and means of communication (Stuart et al., 2022). Our research confirms this opinion about the need to constantly adapt the educational process to the needs of students.

Distance learning during martial law had a number of positive aspects: creating flexible deadlines, the opportunity to study at students' own pace and plan their own work. Such positive aspects of distance learning are also noted by other researchers, for example by Greener (2020). The negative aspects of distance learning include weak feedback between the teacher and the student, the lack of communication between students, and the weak learning motivation. Similar negative aspects of distance learning were noted in their writings Wong (2019), Stuart et al. (2022) and Turan et al. (2022). The identified weaknesses should be taken into account and strengths should be supported when selecting educational material and distance learning methods.

The strengths of the study include the assessment of not only academic performance in distance learning during martial law, but also motivation, socialization and satisfaction with the educational environment of the educational institution, which makes it possible to assess the overall effectiveness of the educational process. Weaknesses include the lack of a comparison of the

impact of different teaching methods on the effectiveness of teaching, since the research was planned under martial law.

Research limitations and prospects for further research

The study had a number of limitations. Not all students enrolled in the stream took part in the survey and analysis of academic performance. The study was not pre-planned, it was planned "in the field", as the authors did not anticipate the introduction of martial law. There was no control group, as all students were on distance learning under martial law. In further studies, the range of distance learning methods will be expanded, comparing the influence of different ways on the effectiveness of training, enhancing student feedback, and re-examining the effectiveness of distance learning in asynchronous mode.

Conclusions

On the basis of studying the evaluations of students' learning effectiveness, we established that the effectiveness of distance learning can be improved through using feedback with the opportunity for students to express themselves, to compare their expectations from the academic subject with what the teachers offer.

The obtained results of the study of the effectiveness of distance learning during martial law enabled identifying weaknesses in the development of assignments for students and the selection of educational material. As this study found that students had insufficient communication, feedback and motivation to study, the obtained results will help to strengthen this aspect of the distance educational process. It is necessary to create more space for students to communicate asynchronously, to improve feedback with students or to use platforms that allow for the automation of feedback. When selecting educational material, the teacher must choose methods that enhance students' motivation and interest in learning.

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