Problems and prospects in increasing university students' motivation and performance in e-Learning

Lev Makhno [*], Tula State University, Department of Theology, Prospekt Lenina, 92, Tula, 300012, Russian Federation, https://orcid.org/0000-0003-1483-3540

Irina Leontyeva, Kazan Federal University, Department of Biology and Chemistry, Kazanskaya str., 89, Elabuga, 423604. Russian Federation, https://orcid.org/0000-0002-0154-6684

Abstract

A new online environment creates possibilities for both educators and scholars to research the new methods of teaching. Educational establishments tried to introduce the best practices encouraging students to prepare for lessons and acquire knowledge. The research identified the main problems that students face in online learning and assessed motivation and academic performance of university students during online education. To analyze the data and identify statistically significant differences, Student's t-test was used. The research assessed academic achievements on the major and minor disciplines studied for three months. The students had to answer 4 open-ended questions on the e-learning difficulties they faced. In addition, the research analyzed the impact of e-learning on student motivation. It was found that academic achievement and motivation improved. The results will further expand the concept of e-learning, help to identify the advantages and disadvantages of developing distance education on a broad scale. Further research in this field is still required.

Keywords: academic performance, distance learning, e-Learning, online learning, motivation.

[*] ADDRESS FOR CORRESPONDENCE: Lev Makhno, Department of Theology, Tula State University, Prospekt Lenina, 92, Tula, 300012, Russian Federation
 E-mail address: levmakhno4@rambler.ru, levmakhno@gmail.com / Tel.: +7 910 9423282

1. Introduction

The world has changed since the onset of the COVID-19 pandemic that forced people to adapt to the new social conditions. The changes affected almost every area of human life including education (Kawachi, 2003; Lall & Singh, 2020). Going digital was the only possible way to ensure uninterrupted learning. The resistance to change among teachers was the main problem in the transition period. Teachers did not have enough knowledge and skills to teach online. The main problems that resulted from the sharp transition from the traditional classroom to the online format included a search of the effective and easy ways to use online platforms, appropriate materials in the electronic format, and the development of an optimized curriculum (Güner et al., 2020; Hamzah et al., 2015).

Since the outbreak of the Coronavirus pandemic in 2020, distance learning has become the mainstream in many educational establishments. The two years of distance learning make it possible to assess the impact of e-learning on academic performance and student motivation. The scholars used the statistical data collected during this time frame and the results of prior research to investigate the problem and provide recommendations for teachers (Biswas, 2013; Nazilah, 2021).

The research found that the present education had had some resources to teach university students remotely before the COVID-19 outbreak. Universities have had a number of programs and platforms for distance learning. Information and communication technologies helped educators to search for educational materials, keep records and receive feedback from students (Gunawardena & McIsaac, 2004).

The technical equipment and the high speed of the Internet could not reduce resistance to change among teachers. The educators underline that they experience technical difficulties which should be fixed as soon as possible to ensure effective distance learning (Pasek & Hargittai, 2009). Moreover, they identify important factors such as the isolation of students and the negative impact of distance learning on motivation and academic performance. Learning in the university is the period of knowledge acquisition and skills mastering (Ali, 2020). For young people, it is a period of networking, communication and social activity (Allo, 2020; Paechter et al., 2010).

The research aims to investigate the impact of e-learning on the motivation and academic performance of university students. The quarantine restrictions have been in force since 2000 and the research will help to identify problems and the ways to improve distance learning. Educators can successfully introduce the findings in their educational establishments. The research analyzed the teaching practices that have already been implemented in e-learning modes. The research provides evidence for changes in the future and gives recommendations that may be pertinent to other universities on how to improve academic performance and student motivation in distance learning. The scholars concluded that the academic performance and motivation of students have changed. Moreover, the survey allowed to receive feedback from participants and analyzed the issues related to e-learning.

1.1. Literature review

Many scholars had investigated academic performance and student motivation before the COVID-19 crisis. The main part of the research analyzed the traditional classroom environments and motivation triggers that influenced students' behavior patterns. The main research areas involved gender differences, teaching modes, family values, socio-economic components, the number of students in a group, learning innovations and the emotional intelligence of teachers (Singh et al., 2016).

Motivation in learning means methods, processes and incentives for cognitive activity and active acquisition of knowledge. The main motives of educational activity include the following: 1) cognitive motives (become erudite and acquire new knowledge); 2) social motives (the social status); 3) professional values (expand professional skills); 4) aesthetic motives (talents and pleasure from learning); 5) communicative motives (expand communication) (Lin et al., 2014). The research argues that educators are responsible for the development of positive attitudes of students to education. Moreover, they should motivate them to be involved in learning and master the required knowledge and skills. The article *Motivating students to learn,* suggests several ways to increase student motivation in learning (Preobrazhensky & Choporov, 2016; Starodubtseva, 2014).

The research, conducted before the COVID-19 pandemic, highlighted that e-learning was opening new opportunities for students in higher education. E-learning makes the process of acquiring knowledge flexible meeting the needs of social and economic problems. Students do not need any specific place and time to learn online (Salamat et al., 2018). The scholars of the current research highlight that the modern era of education is known as *e-education*. They claim that knowledge acquisition in the future will be based on the e-tools and provided via e-learning platforms. The research revealed that there were students dissatisfied with e-learning and wanted to return to traditional education because they faced difficulties learning online. Nevertheless, the majority of participants reported that they were satisfied with innovations and wanted to continue learning online. The research found that academic performance and student motivation to learn increased but insignificantly (Salamat et al., 2018).

E-learning and traditional education have both advantages and disadvantages. Greece scholars investigated and analyzed the data on academic achievements and motivation of students in the article *How Greek Students Experienced Online Education during Covid-19 Pandemic in Order to Adjust to a Post-Lockdown Period*. They conducted an anonymous online survey asking students about the problems and challenges of the new form of education. The findings revealed the difficulties and problems students experienced learning online (Oyelere et al., 2021).

Therefore, the results described in the article *Do teamwork experience and self-regulated learning determine the performance of students in an online educational technology course?* corresponded with the research (Oyelere et al., 2021) stating that poor communication between teachers and students and a lack of communication between peers influenced the motivation of students to learn online. These problems may pose a threat to academic achievements. Moreover, many activities require group work and active student participation. Communication quality depends on the electronic devices, but the main problems may be caused by an inability of educators to manage effectively online communication rather than technical problems identified by the prior research (Oyelere et al., 2021).

The research conducted in universities got different results on the impact of e-learning on the academic performance of university students. The article *The student use of the Internet* (Malaney, 2004) stated that online education worsened academic achievements. It was difficult for students to allocate time to study and spend the whole day in front of the monitors. Students had to watch online classes and study the material sent by teachers for a long time. Moreover, students had to do their homework reading additional sources online. In contrast, the research (DeTure, 2004) stated that academic performance remained the same in students learning online and in traditional classrooms.

1.2. Problem statement

Universities have been introducing e-learning platforms recently. The shift has caused educators to rethink teaching methods but there was no research on the impact of e-learning on academic performance and student motivation. Today, the scholars give recommendations on how to introduce new approaches and improvements in online learning. The present research analyses statistical data on the effectiveness of e-learning for university students (Dubey & Piroska, 2019).

The main goal of this work is to identify the impact of e-learning on the academic performance and motivation of university students. The research objectives are as follows:

1) assess the students' academic achievements analyzing their knowledge and calculating the average score;

2) assess the motivation of students to learn online;

3) evaluate the students' progress in 3 months after the e-learning would be launched;

4) conduct the posttest survey to assess motivation in the experimental group;

5) identify the main problems that students face learning online.

2. Methods and Materials

2.1. Sample

The sample consists of 26 students from one of the pedagogical universities in St. Petersburg. The research analyses the impact of e-learning on academic performance and student motivation. The second-year students studied on the humanitarian and pedagogical faculty (Russian language and literature teacher). The participants were 19–20 years. The research involved male and female students with different levels of academic achievement from large cities, and small towns and rural areas. There were 11 males (42%) and 15 females (58%) in the experimental group. The students born in St. Petersburg or another large city were 69% (18 participants), and the participants from small towns and rural areas were 31% (8 participants). Fifteen teachers of the university under study were also involved in the synthesis of results.

2.2. Research design

The data comparison helped to analyze the impact of e-learning on academic performance. The research assessed academic achievements on the major and minor disciplines studied for three months. The scholars surveyed students using the methodology described in '*Researching the motives of students' learning activity'* by Yakunin (1994). Moreover, the research analyzed different students' motives to study at the university. The research compared the data collected before and after the implementation of the e-learning program. The scholars analyzed internal (stable and excellent knowledge acquisition) and external (receive a diploma) motivation triggers.

The survey included 16 statements (Appendix 1). The participants assessed each statement using 1 to 7 points to evaluate the answers. Instead of "strongly disagree" or "strongly agree", the assessment is based on a numerical description. Thus, 1 point means the low significance of the motive and 7 points means the maximum significance of the motive for a student. The higher number of points assigned to the motive, the more important this motive is for students.

The scholars used the methodology proposed by Yakunin (1994) because it helped to assess the motivation of each student and the group. Therefore, the methodology helped to evaluate the

motivation quality in the experimental group using the variability of the proposed statements (*Ilyin,* 2011). To evaluate the data, the arithmetic mean and the standard deviation were calculated for each motive. The Student's t-criterion helped to analyze the reliability of the differences in the first and posttest surveys. The research assessed students' motives to learn online.

As soon as the pre-test survey was conducted, the experimental group participants moved to distance learning. For three months, educators taught lessons online using platforms such as Skype, Google Classroom and Google Docs. At the end of distance learning, the scholars collected the data on academic performance and student motivation.

The students had to answer 4 open-ended questions on the e-learning difficulties they faced (Preobrazhensky & Choporov, 2016; Starodubtseva, 2014). The questions were as follows:

1. What technical difficulties did you face learning online?

2. What is the best education format for you to acquire new material: traditional or online? Why?

3. What personal problems did you experience learning online?

4. Would you like to continue distance learning?

The posttest questionnaire was synthesized into an online format using Google docs.

The questionnaire was tested using Cronbach's alpha. The interpretation of Cronbach's alpha values is as follows: >0.9 excellent; >0.8 good; 0.7 acceptable; 0.6 questionable; and >0.5 poor (Gliem & Gliem, 2003). The cumulative Cronbach's alpha value for the questionnaire was 0.92 with values of 0.92, 0.95, 0.93, 0.96, 0.87, and 0.94 for the six dimensions in the order they were mentioned above. Conclusion - the questionnaire is reliable and can be used for interviewing.

2.3. Data analysis

Analyzing the statistical data, the average score of each participant was calculated. The arithmetic mean was calculated for all points. The following formula was used to calculate the Student's t-criterion:

$$t = \frac{\bar{x}_2 - \bar{x}_1}{\sqrt{m_{r2}^2 - m_{r1}^2}} \qquad (1)$$

$\bar{x}$ - arithmetic mean of points in each group;

SD - standard deviation;

m_r - error.

To calculate m_r the standard deviation should be divided by the square root of the number of participants in the experimental group:

$$m_r = \frac{SD}{\sqrt{n}} \qquad (2)$$

2.4. Ethical issues

In the experimental group, each participant was familiarized with the research goals and objectives. They signed written consent to participate and process the data. The research collected personal (age and sex of participants) and professional (academic) information. The cross-section of rating was analyzed. No details were disclosed. Each experiment group participant received the identification number to ensure anonymity.

2.5. Research limitations

The research had some limitations. They included the personal factors of each experimental group participant. For example, interest in one or another subject, the complexity of the subjects learnt under the proposed program. Therefore, the research took into account the health of students during the research and other reasons that affected internal and external motivation. A relatively narrow timeframe was assigned to the research. Moreover, only one university group located in the city participated in the research. Using the results, the scholars recommended areas for further improvements. The small research sample presented a challenge for further analysis.

3. Results

The first analysis of the average academic achievements found that 8 participants got *C* (31%), 13 people got *B* (50%) and 5 students *A* (19%). The survey data was used to calculate the average academic score for each participant. The methodology of Yakunin (1994) helped scholars to analyze the data. The pretest survey examined motivation in the experimental group participants. The data are presented in Supplementary Table 1 (Appendix 2).

After e-learning, the average academic scores on the major and minor disciplines changed. After three months of e-training, the number of students who got an *A* increased from 5 to 6 people. Therefore, 2 students got *B*, but previously they got *C*. At the end of the research, the participants got the following marks: 6 individuals (23%) – *C*, 14 individuals (54%) – *B*, and 6 individuals (23%) – *A*. Figure 1 presents the data in a visual format.
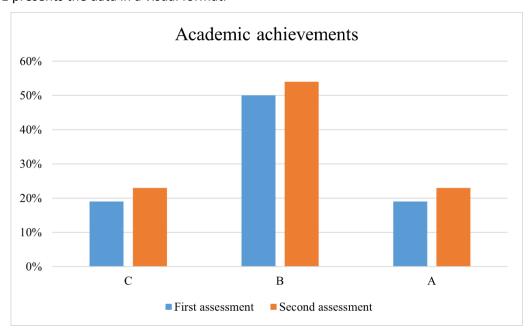

Figure 1. Students' academic performance: traditional classroom and e-learning.

The results comparison revealed that the average academic achievements in the experimental group learning online increased insignificantly. The posttest survey was to examine the motivation in the experimental group. The results are presented in Supplementary Table 2 (Appendix 3). The horizontal display of numbers reflects the statements in the questionnaire, the vertical display indicates an identification number of each participant.

Analyzing the data, the average motivation scores for each participant was calculated. The arithmetic mean was found. It should be noted that the biggest value was 6.1, but the lowest value was also changed. Two of the experimental group participants got 3.8 points (the lowest value). The average motivation score of the group changed insignificantly from 4.8 to 4.9 points.

Comparing statistical data, the scholars use the same three groups: high motivation (5.2 - 6.1 points), average motivation (4.3 - 5.1 points) and low motivation (3.3 - 4.2 points). The following results were received: there were students with high motivation 38% (10 students), average motivation - 43% (11 people) and low motivation - 19% (5 people). Figure 2 presents the comparison and visualization of the results.
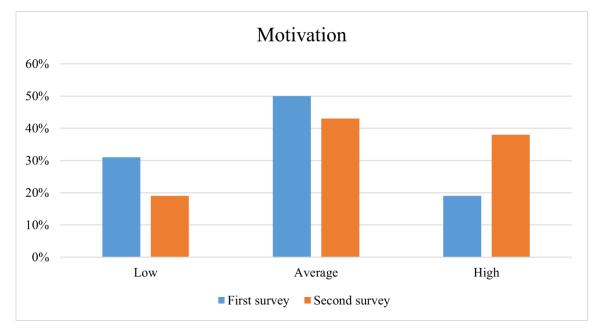

Figure 2. Student motivation: traditional classroom and e-learning.

The Student's t-test is used to examine significant differences in the results that should be taken into account in further research (Table 1).

Table 1. The data used for Student's t-test

Education format	$\bar{x}$	SD	m_r
Traditional classroom	4.8	0.007	0.0013
E-learning	4.9	0.057	0.0111

The calculations showed that there were no significant differences between the two forms of education. The results are more than 90% correct. The results of the test suggested that $p < 0.05$, and the error is considered statistically insignificant.

After the end of the experiment, the survey was conducted to explore the opinion on e-learning. Table 2 presents the main results.

Table 2. Questionnaire data

	Yes	No
Students experienced technical differences	81%	19%
Students admitted that traditional education is more effective	46%	54%

Poor interpersonal communication	96%	4%
Students will continue online learning	15%	23%

Analyzing the questionnaire, the scholars conclude that the majority of students (81%, 21 individuals) experienced technical difficulties learning online for three months. They used electronic devices to learn online. For students and teachers, the most common problems were the poor Internet connection, low speed of the Internet, inability to participate in the lesson when the lights were turned off, problems with web cameras and microphones.

Answers to the second question were unexpected. Half of the experimental group (46%, 12 students) believed that the traditional form of education was better and helped them to master the necessary knowledge and skills fast. The other half of the students (54%, 14 students) claimed that e-learning was effective and they understood the educational material well.

The students who liked the traditional form of education admitted that personal contact with the teacher was important for them and helped them to understand theoretical knowledge much better. Therefore, it was easy to correct mistakes. Students who preferred the face-to-face education model and communication with the group and teachers underlined that it was difficult for them to sit in front of a computer, laptop and tablet screen all day. E-learning leads to general fatigue and students are unable to concentrate on lessons. The participants who supported distance learning underlined that they saved time usually spent on the road. The saved hours can be spent on learning or rest. Therefore, students could revise the course material at any time and place.

All participants (96%, 25 students) underlined they lacked personal communication with other students. They could not attend cultural and social events organized by the university. For many students, it was difficult to complete group assignments during online lessons and work on their homework without personal contact with the group. Only 4 students (15%) wanted to continue education online, 6 students (23%) did not want to learn online, and 16 students (62%) wanted to combine traditional and distance learning. Students noted that they enjoyed the opportunity to learn from any place and at any time.

4. Discussion

The experiment took place for six months (three months of training was conducted in the traditional form and three months was online training). The results revealed the impact of distance learning on academic performance and students' motivation in higher education. The research found that academic achievements improved during the period of distance learning. A survey was based on the methodology proposed by Yakunin (1994) to compare the data. The Student's t-test proved that the results were not statistically significant. The results can be used in further research and analysis on how e-learning impacts student motivation. The research collected information on the attitude of participants to the traditional classroom and e-learning.

The results of academic achievement differ from other research performed on a similar topic. The authors argue that students' academic performance fell because they spent a lot of time on the Internet. It was difficult for students to control and allocate time (Malaney, 2004). The authors of another research claimed no significant differences in a similar experiment (DeTure, 2004).

The scholars who have conducted research on academic performance and related aspects concluded that e-learning helped students to organize their time and activities better than in a traditional classroom. They are more successful in self-learning. At the same time, it was difficult for students to work on group assignments. The experimental group participants reported a lack of

physical contact with other team members to complete a particular task. The current data reflected the questionnaire offered to students. The experimental group participants stated that they lacked the physical presence of other students in the classroom, and it prevented them to perform the team tasks effectively (Oyelere et al., 2021).

Using the anonymous online survey of students learning online, Greece research received unexpected answers. The survey involved 370 undergraduate students from 25 educational establishments (63.5% females and 36.5% males). The survey questions included two categories: 1) technological problems and the Internet connection (computer, laptop, tablet, mobile phone, webcam, microphone, Internet quality); and 2) pedagogical problems caused by online learning. The students answered two open-ended questions: 1) What changes should be introduced for students so that they could graduate successfully? 2) Do you want to continue learning online in the post-pandemic period and why? The results claimed that the main problems faced by the participants were technical problems. About half of the students (51.3%) had problems with the Internet connection, 14.9% of the students reported problems with voice communication on their side, and 37.9% of the respondents reported communication problems on the teacher's side. Other technical problems included inappropriate images and platforms for practical assignments. Only 22.1% of students stated that they did not experience any technical difficulties learning online (Giannoulas et al., 2021).

Moreover, two-third of students (75%) surveyed by Greek researchers reported a lack of social interaction with classmates, and more than half (57.5%) of students admitted a lack of live communication with teachers. One-third of students (30.8%) reported that they felt lonely and isolated, and these problems reduced their motivation to learn (Giannoulas et al., 2021).

The results conducted in other countries were contradictory. However, the difference in the data could be explained by the different time frames of the research. Moreover, different training methods were used to educate teachers on how to use information and communication technologies in distance learning. In spite of the fact that the results differed, most students who took part in the research admitted the same problems in learning online. The problems include the poor quality of mobile devices and the Internet. Students are unable to focus on the educational process because of technical breakdowns. Thus, students feel isolated and lonely due to the lack of live communication with peers and teachers (Musso et al., 2019). The research found that learning environments might not have an impact on academic performance and student motivation in a short time. Therefore, the scholars highlighted improvements in academic performance. However, in the long term, negative factors had a significant impact on students and worsened their academic achievements (Agarwal & Kaushik, 2020).

The findings can be used in further research to examine academic performance and student motivation in higher education. The COVID-19 restrictions are a relatively new phenomenon. The scholars have not had time and opportunities to investigate the impact of quarantine restrictions on education. The current research will help to restructure knowledge acquisition modes and improve education shifting online.

5. Conclusion

The research examines the impact of e-learning on academic performance and student motivation. The experimental group included 26 students (15 (58%) female and 11 (42%) male) of the 2^d year of study. The research was conducted in one of the higher educational establishments in St. Petersburg. The participants' age was 19–20 years.

The analysis of the student's academic achievements was based on the grades assessment and the academic average after three months of traditional training and three months of online classes. The research found that academic achievement improved. Before the research, students' academic achievements were assessed. Students learnt in traditional classrooms for three months and the results were as follows: 8 students (31%) got *C*, 13 students (50%) got *B* and 5 students (19%) got *A*. Then, the participants learned online for the next three months. After the distance learning, the data was collected. The results were as follows: 6 students (23%) got *C*, 14 students (54%) got *B* and 6 students (23%) got *A*.

The pretest survey showed that there were 19% (5 students) with high motivation, 50% (13 students) with average motivation, and 31% (8 students) with low motivation to learn. After switching to e-learning, the survey was repeated. The results are presented in Supplementary Table 2 (Appendix 3). The findings revealed that there were 38% (10 students) with high motivation, 43% (11 people) with average motivation and 19% (5 people) with low motivation. The Student's t-test helped to identify that the differences in the two surveys were statistically insignificant.

Moreover, the survey helped to get feedback on different forms of education from the experimental group participants. The questionnaire asked about the difficulties that students might face during e-learning. The most common problems identified were technical difficulties and a lack of live communication with peers and teachers.

The findings are important for the educators moving online. The research highlights the benefits of distance learning and its impact on the academic performance and motivation of students. Therefore, the scholars provide recommendations to universities on how to implement distance learning and develop effective online learning programs. Further research is still needed. It should be focused on investigating the possibility of using these and other online platforms to improve academic performance and motivation switching to distance learning.

This article can be used to form educators' motivational set of influence on international cooperation between universities in distance learning. At the same time, the findings also indicate the main advantages and disadvantages of digital learning tools as evidence of diversification of the applications and social networks mentioned in the article.

Acknowledgments

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Appendix 1

List of motives proposed by Yakunin in '*Researching the motives of students' learning activity.'*

1. Become a highly qualified specialist.

2. Get a diploma.

3. Successfully continue your studies.

4. Study hard. Pass exams on *B* and *A*.

5. Receive a scholarship.

6. Acquire stable and excellent knowledge.

7. Be prepared for the next lesson.

8. Do not fail on any subject.

9. Keep up with other students.

10. Ensure the success of future professional life.

11. Follow pedagogical requirements.

12. Respect teachers.

13. Be a role model for other students.

14. Get the approval of parents.

15. Avoid judgment and punishment for poor academic performance.

16. Get intellectual satisfaction.

Appendix 2

Supplementary Table 1: The experimental group survey results

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	7	5	2	6	7	7	6	6	7	7	5	6	4	5	5	5
2	3	3	6	2	6	5	6	7	4	5	5	6	4	5	7	4
3	6	6	4	6	7	5	7	6	6	5	4	6	3	6	6	5
4	4	4	6	5	6	6	6	3	7	4	5	4	4	6	5	6
5	5	6	5	5	7	4	5	4	5	6	6	7	2	3	4	5
6	3	4	3	6	5	6	6	7	2	4	5	6	6	3	2	2
7	6	7	7	5	6	7	4	5	5	3	4	6	6	7	5	4
8	3	3	2	5	3	4	4	4	3	5	6	5	5	2	2	4
9	5	7	6	6	5	7	6	6	4	5	4	4	7	5	6	6
10	6	6	5	6	5	5	5	4	6	7	6	7	7	5	5	7
11	4	4	3	4	5	4	4	3	3	4	4	5	3	6	5	4
12	6	5	6	6	4	7	3	4	4	5	7	6	6	4	5	4
13	5	6	4	4	5	4	6	2	2	4	6	5	5	3	4	4
14	6	7	7	5	6	6	7	4	5	5	7	6	7	5	4	6
15	5	4	5	5	7	6	5	5	6	4	3	3	4	5	4	6
16	7	6	7	6	7	5	5	6	5	7	6	7	7	4	7	6
17	3	2	3	3	3	4	3	5	5	2	4	3	5	4	4	5
18	5	5	4	7	5	6	4	5	5	4	7	3	2	2	6	4
19	5	4	4	5	3	4	7	5	5	4	6	2	4	2	5	6
20	6	4	6	5	5	7	6	4	6	3	3	4	6	7	5	5
21	5	7	6	6	5	7	7	4	6	7	5	5	6	5	7	6
22	4	3	2	2	5	4	4	6	3	3	2	5	3	4	6	4
23	2	2	3	3	3	3	4	2	2	4	3	3	4	6	4	5
24	6	7	5	5	6	4	5	4	4	6	4	2	5	4	6	6
25	3	5	3	4	4	3	5	4	4	6	5	4	5	5	6	3
26	7	6	7	7	6	5	7	6	5	5	7	6	6	4	6	7

The horizontal numbers represent statements in the questionnaire, the vertical numbers represent an identification number of each participant in the experimental group (Appendix 2). It should be noted that the biggest value was 6.1, but the lowest value was 3.3 points. Comparing statistical data, the scholars use the same three groups: high motivation (5.2 - 6.1 points), average motivation (4.3 - 5.1 points) and low motivation (3.3 - 4 , 2 points). The following results were obtained: there were students with high motivation 38% (10 students), average motivation - 43% (11 people) and low motivation - 19% (5 people). Two of the experimental group participants had 3.8 points (the lowest value). The average motivation score of the group changed insignificantly from 4.8 to 4.9 points.

Appendix 3

Supplementary Table 2: The experimental group survey results after e-learning.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	7	5	2	7	7	7	6	6	7	7	5	6	4	5	5	6
2	5	3	6	4	6	5	6	7	4	6	5	6	4	5	6	4
3	6	6	6	6	7	5	7	6	6	5	4	6	3	6	6	5
4	4	4	6	5	6	6	6	6	6	4	5	4	4	6	3	6
5	5	6	5	7	7	4	7	4	5	6	6	7	2	3	4	7
6	4	4	3	6	5	6	6	7	2	5	5	6	6	3	2	5
7	6	7	7	5	7	7	4	5	5	3	4	6	6	7	4	4

8	3	3	2	5	3	6	4	6	3	5	4	5	5	2	2	4
9	5	7	6	6	5	7	7	7	5	4	4	4	7	5	6	6
10	6	6	5	6	5	5	5	4	4	5	6	7	7	5	5	7
11	6	4	3	6	5	6	4	5	3	4	4	5	3	6	5	3
12	6	5	6	6	4	7	3	4	4	5	6	6	6	4	4	4
13	5	5	4	4	4	4	6	2	2	4	6	5	5	3	4	4
14	6	7	7	5	6	6	7	4	5	5	6	6	7	5	4	7
15	5	4	6	5	7	6	5	6	5	4	3	3	4	5	4	6
16	7	6	7	6	7	7	5	7	5	7	6	7	7	4	5	6
17	3	2	3	3	3	4	5	5	5	3	5	3	5	4	5	5
18	6	5	4	7	5	6	6	5	5	4	7	3	2	2	6	6
19	5	6	3	4	3	4	7	5	5	4	6	2	4	2	5	6
20	5	4	6	5	5	7	6	4	4	3	4	4	6	7	5	5
21	5	7	6	6	5	7	7	4	6	6	5	5	6	5	7	6
22	4	3	2	2	5	5	4	6	3	3	2	5	3	4	6	4
23	4	2	5	5	3	5	6	5	2	5	3	3	4	6	4	5
24	6	7	5	5	7	4	5	4	5	6	3	2	5	4	5	6
25	4	5	3	4	4	3	6	5	4	3	5	4	5	5	6	5
26	7	6	7	7	6	6	7	6	5	5	7	6	6	4	6	6