

# Online Learning with the Eyes of Teachers and Students in Educational Institutions of Ukraine

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**Abstract** – The article presents an analysis of the attitude of teachers and students, colleges and universities to distance learning during the 2020 in Ukraine. The factors of the success of online learning were analyzed. The main stress factors were identified. Analysis of the results of the dynamics of opinions led to some conclusions and recommendations: for teachers regarding self-development; for school administrations regarding technical, organizational, and moral support for all participants in the educational process; for universities that provide professional training for future teachers.

**Keywords** – online learning, e-learning, professional training, teacher, improvement of professional training, educational institutions.

## 1. Introduction

Due to the COVID-19 epidemic, the Ukrainian education system was tested for strength in real conditions.

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Online learning, due to quarantine restrictions, not only helped to test the effectiveness of traditional teaching practices, common hardware and software, educational e-platforms, pedagogical technologies, and teaching methods but also identified problems that prevent educational institutions from providing quality online educational services. The perception of online learning by students has not always been successful and required them to further mobilize the intellectual, emotional, value-semantic, behavioral spheres for their professional development. This highlighted the need to study the factors (psychological, pedagogical, organizational, etc.), that positively or negatively affect the results of online learning.

## 2. The Analysis of the Terminological Field

Online learning and features of its implementation (technical, pedagogical, technological, organizational) have been the subject of research by many scientists [1]. Among the results presented to the general public, it should be noted the work of Todorova N., Bjorn-Andersen N., where it is predicted that the key moment for the development of distance learning technologies may be natural disasters [2].

A comparative analysis of online learning and traditional learning was conducted by Maureen Henney and Tracy Newwine [3]. Researchers have published a comparative analysis of learning environments from the standpoint of meeting the needs of part-time students living in suburban areas and made the following conclusions: 1) students can sacrifice the quality of education for convenience, time and cost savings; 2) "hybrid" learning can become better in relation to traditional.

Ways to increase the effectiveness of distance learning have been studied by Maria Niara, Evaggelia Manus and Antonias Lionarakis [4]. They

believe that distance learning is a rather controversial form of learning, and therefore suggest applying the Pygmalion effect (inflated expectations from students can lead to improved learning). The results of the study showed that the positive expectations of the mentor, his encouragement, especially those that are expressed non-verbally, have a good effect on the student's attitude to learning and increase his self-motivation.

Long-term experience in the distance learning environment Javan S. [5] made it possible to highlight the key factors of successful and psychologically comfortable online learning: the presence of video conferencing and the ability to conduct discussions high-quality internet connection; availability of educational materials from any device; recording of lectures and the ability to view at a convenient time.

Lauren Nais and Kathleen Heidler believe that online learning should be dynamic, interesting, and interactive. It is important to humanize the educational process as much as possible. Thus high-quality communication should be leading in the system by means of distance learning [6].

Quarantine restrictions, which were introduced in the world a year ago due to the COVID-19 epidemic, led to the widespread use of online learning, which updated the scientific intelligence of its effectiveness in Ukraine. E. Pomitkin, L. Pomitkina, and L. Ivanova studied the emotional states of teachers during the pandemic. They analyzed the problem of complicating the performance of professional duties and the most typical trajectories of the emotional response of the individual (doubt, sadness, confusion). Based on 10 scales, created on the basis of the classification of 300 emotions and feelings of personality, the causes of destructive states were analyzed. Among them: insufficient ICT competence of teachers, especially over 45 years old, high requirements for teachers from the state and parents, lack of skills in conducting lessons in distance learning. Researchers emphasize the need to provide psychological assistance to teachers, as well as the mandatory conduct of appropriate seminars and consultations to improve the skills of teachers [7].

Similar conclusions were reached by A. Shevtsov, O. Lastochkina, and N. Nikonenko, who studied the conditions of teacher training in the conditions of emergency implementation of distance education. Among the difficulties, they note the technical shortcomings of existing online learning systems, as well as the psychological rejection of participants in the educational process of organizing learning only through online contacts [8].

Summarizing these and other research findings, along with highlighting technical, organizational, and technological issues, confirmed the lack of scientific research on the perception of online learning by teachers and students.

The article aims to compare the peculiarities of the perception of online learning by teachers and students of educational institutions of Ukraine.

### 3. Methods of Visualization of the Learning Material

Research base comprises: colleges of the Sumy region (Mechanical Engineering College of Sumy State University, Sumy College of Economics and Trade, Agrarian College of Sumy National Agrarian University) and universities of Ukraine (Sumy State Pedagogical University, Donbas State Pedagogical University, Dnipro National University, Alfred Nobel University).

The number of respondents is 1185 people, of which 75 are college teachers, 438 are college students, 109 are university teachers, and 563 are university students.

To conduct the study, we used:

- theoretical methods (analysis and systematization of scientific ideas that relate to the research problem; study of the experience of online learning in Western countries; abstraction and modeling to identify the characteristics of mental health in online education);
- empirical methods (observations, conversations, questionnaires).

The study took place in three stages.

At the first stage, based on the analysis, the factors of success of online learning were identified: existing experience in online learning, research on the implementation of online learning, materials of scientific and practical activities.

At the second stage, a comparison was made of students' learning outcomes for 2018-2020. We found out whether online learning affects the results of mastering different disciplines. To do this, we used the Pearson chi-square test to statistically evaluate the distribution of learning outcomes among ourselves.

At the third stage - a massive survey of teachers and students was conducted from February to October 2020. The survey was conducted using the author's questionnaire (Table 1): the first six questions related to the state of online learning, the rest of the questions related to perception of online learning by teachers and students.

Table 1. Questionnaire

No	Questionnaire for college students / teachers
1.	What platforms are online learning available on?
2.	What technical devices do you use for online learning?
3.	How do you rate the quality of online learning on a 10-point scale
4.	How do you rate the quality of traditional classroom teaching on a 10-point scale?
5.	Would you like to continue studying online?
6.	What type of training seems more promising to you?
7.	Are you satisfied with the online learning schedule? If not, please provide reasons.
8.	What was your study load like?
9.	How can you describe your feelings during online learning?
10.	What was the main motivation for you to study?
11.	Do you consider the assessment of your knowledge objective?
12.	Have you had conflicts and disputes?
13.	If there were disputes with teachers / students, then indicate the reasons
14.	Your wishes or suggestions to teachers / those who supervise teachers

## 4. Results of The Study

### 4.1. Success Factors for Online Learning

An analysis of scientific research, materials of scientific and practical activities showed a more comprehensive study of online education abroad. It turned out that in foreign countries, the success of online learning is due to various factors. So, in Canada the success of online learning directly depends on the quality of feedback from the teacher. Also, the teacher has to have a degree and distance learning experience. At universities and colleges in the UK, this learning format is based on the principle of independence, which is ensured not only by flexible and well-structured curricula but also by the willingness of young people to use IT for educational purposes. Online learning in Japan is positioned as a "lifelong learning" strategy, therefore it is actively used for training or retraining personnel. The quality of education is achieved through highly qualified teaching staff and the introduction of online monitoring and self-assessment systems. In Italy and Germany, the success of online learning is ensured by an optimally distributed cognitive load, pedagogical design of teaching materials, clear control methods, and interactivity [9].

The spread of COVID-19 has revealed certain peculiarities in the provision of educational services in all countries of the world, as evidenced by numerous international conferences, which discussed the problems and progressive experience of online learning obtained in the context of the pandemic. Scientists acknowledge that:

- 1) Previous experience of distance learning implementation was mostly fragmentary and experimental, and since 2020 such training has become widespread;
- 2) If earlier, among the problems of online learning, they called the quality of the Internet, the lack of / proprietary software and hardware, today there is a problem of "humanization" of distance learning, the difficulties of its psychological and emotional perception by all participants in the educational process.
- 3) Among the ways to improve the effectiveness of distance learning - the experience of using massive online courses, the social network Twitter and the platform for organizing online conferences Zoom;
- 4) The use of the YouTube channel is promising for the formation of professional skills of students;
- 5) A promising area of pedagogical research is pedagogical design, the development of mobile applications for training courses, etc.

The generalization of scientific research indicates the effectiveness of online teaching of students under the following conditions: provision of cognitive activity, which is expressed in the desire of students to learn; providing an emotional perception of the online learning environment by students and teachers; students developed the skills of self-discipline, responsibility, independence; sufficient preliminary training of students in the field of information technology and online communication skills.

### 4.2. Comparative Analysis of the Results of Traditional Learning and Online Learning

For a more correct perception of the results of the study, we compared the overall learning outcomes in 2018, 2019, 2020 by individual disciplines: Higher Mathematics, Physics, Computer science (ICT), Economics, Pedagogy, and English for professional purposes. The results are presented in Table 2 and Figure 1 (a-f).

Table 2. Results of students' academic achievements in 2018, 2019, 2010,%

Discipline	Assessment of the student's preparation quality	2018	2019	2020	Discipline	Assessment of the student's preparation quality	2018	2019	2020
Computer science	A	13	12	21	Pedagogy	A	7	8	8
	B-C	37	38	41		B-C	47	42	50
	D-E	44	46	28		D-E	40	46	32
	F-FX	6	4	10		F-FX	6	4	10
Higher Mathematics	A	5	7	10	English language	A	2	3	8
	B-C	45	41	41		B-C	41	41	56
	D-E	43	48	42		D-E	52	48	32
	F-FX	7	4	7		F-FX	5	8	4
Physics	A	4	5	9	Economics	A	6	8	9
	B-C	44	46	42		B-C	42	46	45
	D-E	49	43	48		D-E	48	40	41
	F-FX	3	6	1		F-FX	4	6	5

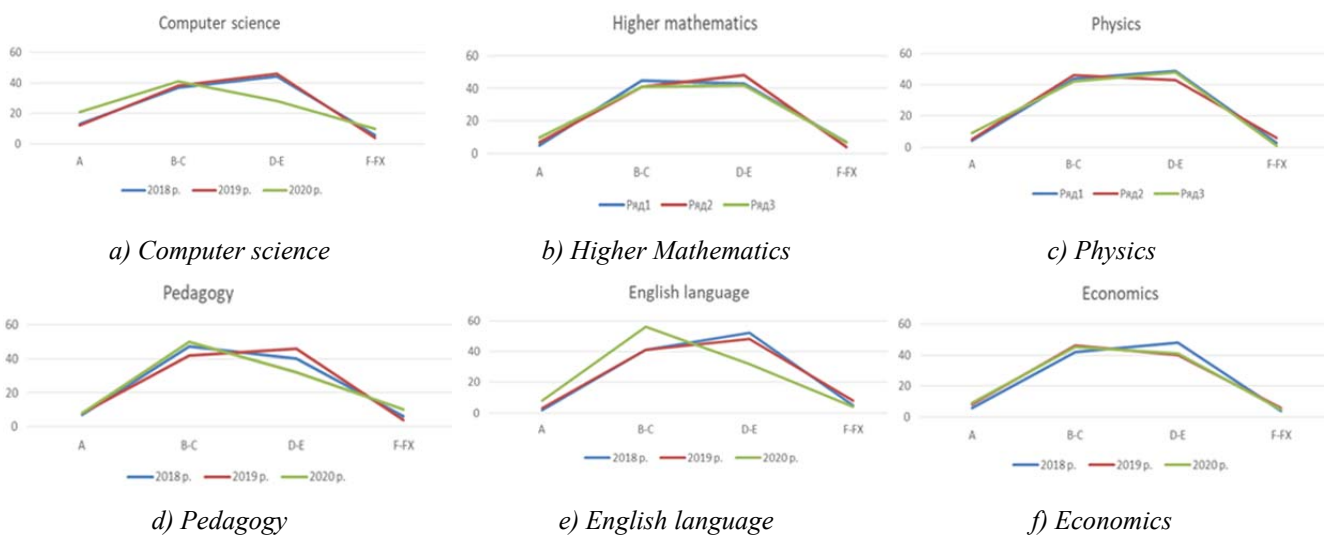


Figure 1. Distribution of student achievement results for disciplines: Computer science (a), Higher mathematics (b), Physics (c), Pedagogy (d), English (e), Economics (f)

If following the trend the similarity of the distribution of grades in Higher Mathematics, Physics, Economics, and Pedagogy is obvious. But the distribution of grades in Computer science and English in 2020 is qualitatively different: there is a sharp redistribution of grades BC, A, and F-FX, which is confirmed by statistical analysis results using the chi-square test [10], which is shown in Table 3.

Table 3. Distribution of estimates (%) and value of the chi -square criterion ( $T_{cr} = 7,815$ )

Discipline	Assessment of the student's preparation quality	2018	2019	2020	Empirical value of the criterion	
					2018-2019	2019-2020
Computer science	A	13	12	21	0,50	9,52
	B-C	37	38	41		
	D-E	44	46	28		
	F-FX	6	4	10		
Higher Mathematics	A	5	7	10	1,61	1,75
	B-C	45	41	41		
	D-E	43	48	42		
	F-FX	7	4	7		
Physics	A	4	5	9	1,55	5,17
	B-C	44	46	42		
	D-E	49	43	48		
	F-FX	3	6	1		

Pedagogy	A	7	8	8	1,17	5,78
	B-C	47	42	50		
	D-E	40	46	32		
	F-FX	6	4	10		
English language	A	2	3	8	1,05	9,12
	B-C	41	41	56		
	D-E	52	48	32		
	F-FX	5	8	4		
Economics	A	6	8	9	1,59	0,17
	B-C	42	46	45		
	D-E	48	40	41		
	F-FX	4	6	5		

We explain the statistically significant change by the introduction of online learning, which in general had a positive effect on the level of knowledge and skills in Computer science and English, the successful mastery of which is difficult without the use of digital technologies and services today.

### 4.3. Analysis of Survey Results

The most common educational platforms for distance learning in educational institutions during quarantine (question 1) were "Na urok" (<https://naurok.com.ua/>), Classtime (<https://www.classtime.com/uk/>) - for assessment of students' knowledge, in particular, testing, Google Class (<https://classroom.google.com/u/0/h?hl=en>) - for creating classes, student registration, placement of educational materials, organization of feedback, Zoom (<https://zoom.us/>) - for video lectures, seminars, oral interviews (Figure 2).

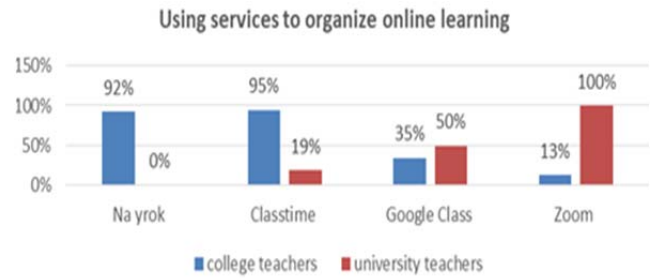


Figure 2. Using services to organize online learning

Most often used devices in training (question 2) are: computer, smartphone, and tablet. Moreover, the teaching staff almost 100% preferred computers, and students mostly used smartphones.

The study of opinions on the quality of distance learning on a ten-point scale (Figure 3a, b) showed that mainly students and teachers rated it at 6-7 points representatives of colleges and 5-7 points representatives of universities (question 3).

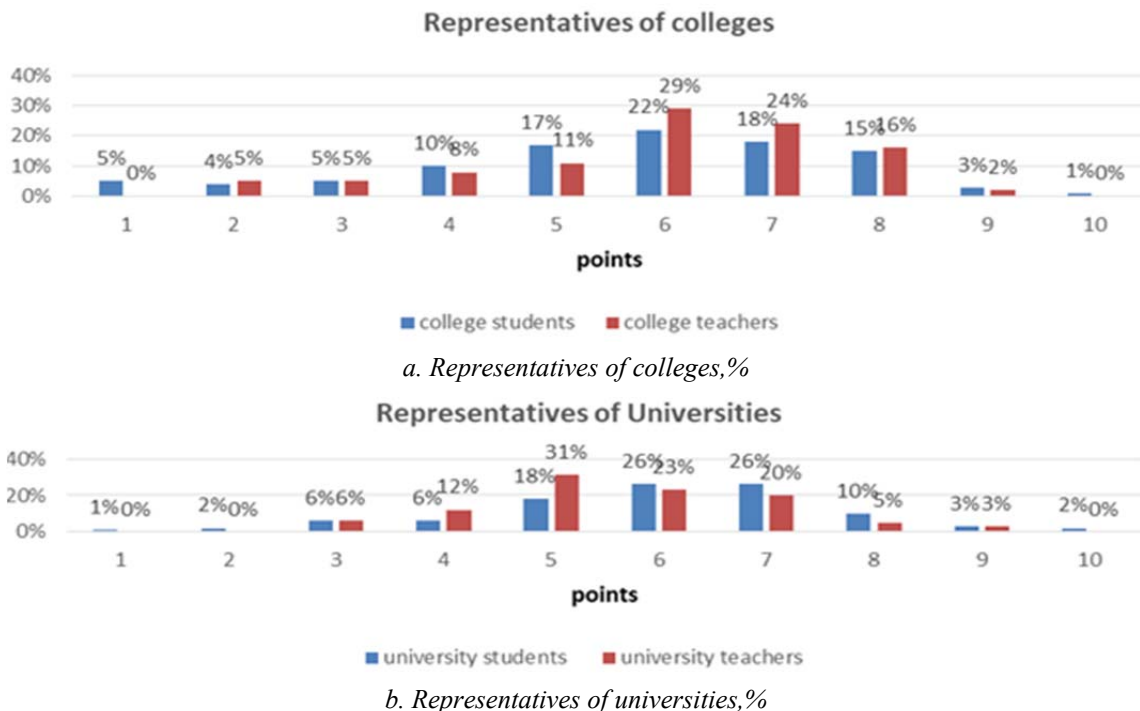


Figure 3. Distribution of opinions on the quality of distance learning on a 10-point scale

At the same time, the quality of traditional education was rated 1-2 points higher by both students and teachers (question 4). At the same time, there were almost no scores of 1-3 points (Figure 4).

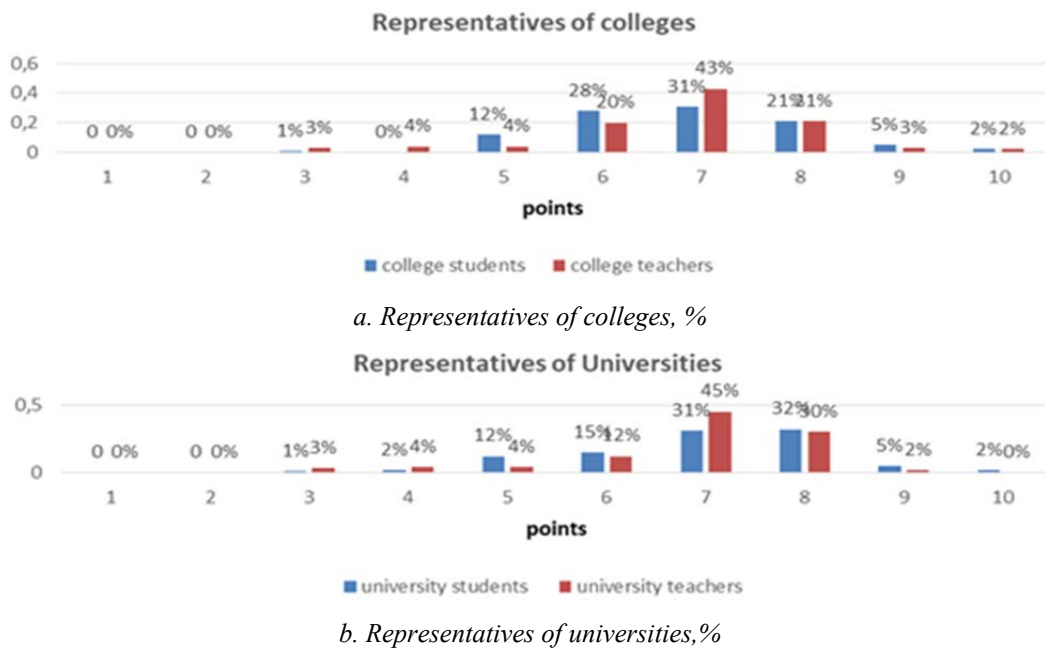


Figure 4. Distribution of opinions on the quality of traditional education on a 10-point scale, %

No one was strongly against online learning (question 5). 24% of teachers and 41% of students expressed a desire to continue their studies online. The rest of the respondents favored blended learning.

However, the answers to question 6 about the type of learning that appears to be more promising showed that the vast majority of respondents (93% of teachers and 91% of students) consider online learning to be promising, due to the lack of confidence in overcoming COVID-19 in the world.

The online learning schedule (question 7) was positively received by the majority of participants in the educational process (85% of teachers and 82% of students). Dissatisfied (about 15%) indicated the need for high-quality Internet connection and insufficiently modern technical devices.

Analysis of the responses to question 8 on learning intensity showed that online learning was challenging for both teachers and students. At the same time, 49% of teachers and 48% of students considered training to be intensive, while 9% of teachers and 22% of students considered training to be very intensive. At the same time, this load was moderate and insignificant for about 30% of students and 40% of teachers. It should be noted that teachers and students are ambivalent about the intensity of the workload in online learning, it seems more intense to students for whom traditional learning is also stressful.

The distribution of answers to questions from 9 questionnaires about feelings during online learning is shown in Figure 5.

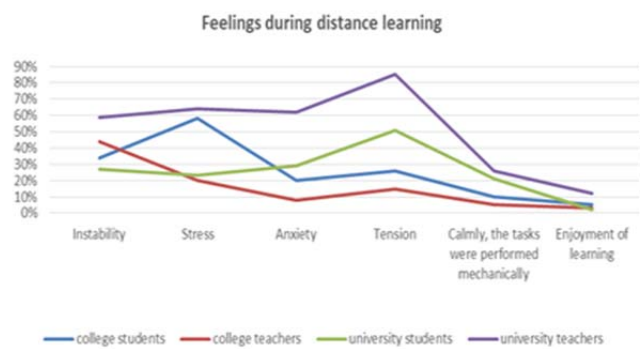


Figure 5. Distribution of answers to questions "How can you describe your feelings during distance learning?", %

The chart clearly shows the instability of feelings in most participants in the educational process and a very low percentage of those who enjoyed learning (from 2% to 12% of participants in the educational process, and it should be noted greater stress resistance for college teachers versus university teachers, and vice versa, more stressful university students against the state of college students). It is worrying that only 10% of college students and 21% of university students felt calm; one in five college students and one in two university students experienced constant tension. The analysis of the answers shows that a small number of students relate to learning without emotions and often mechanically perform the tasks, while the emotional state was not stable for most participants in the educational process.

Online learning also affected the motivation to learn (Figure 6).

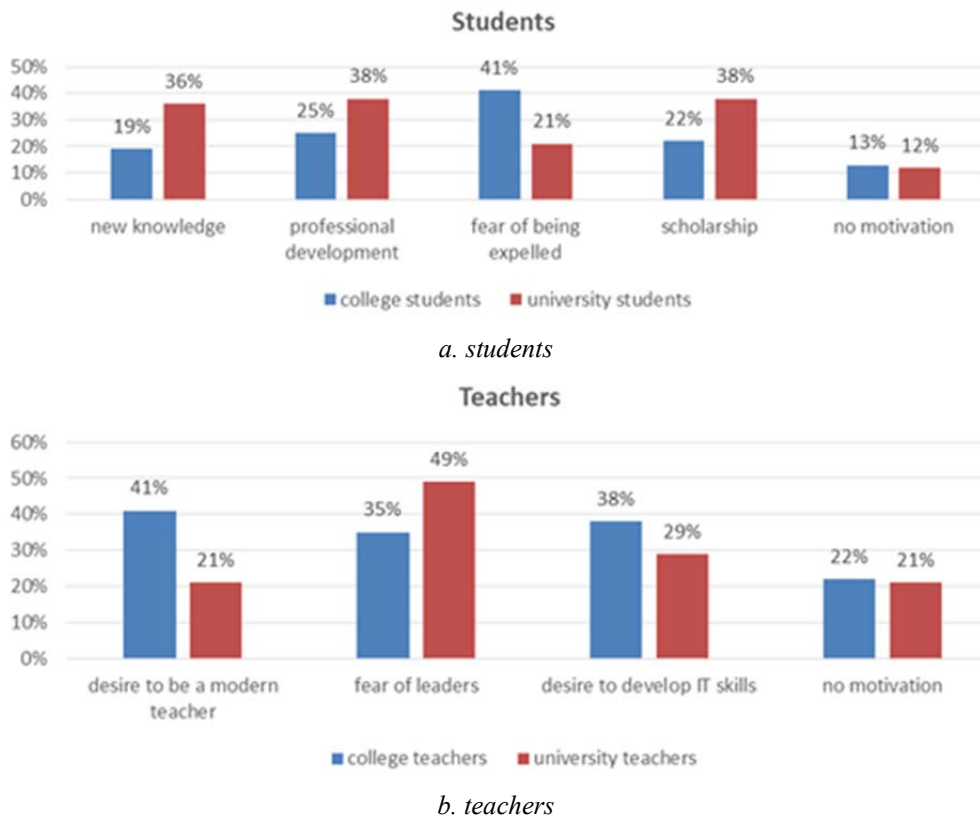


Figure 6. Distribution of answers to questions "What was the main incentive to learn",%

The answers to the questions indicate a low percentage of students seeking new knowledge and skills (19% in colleges and only 36% in universities) inherent in traditional education. We consider the positive result of 41% of college teachers who have shown a desire for professional growth in the absence of material interest. It is also worth noting that 41% of college students are incentivized to learn from the fear of expulsion, and the incentive to conduct online lessons for university teachers is the fear of leaders.

Communication with teachers showed that it is difficult, and sometimes even impossible, to provide/maintain positive motivation for students within online learning.

Communication with students confirmed that studying in colleges, and to some extent in universities, is not often associated with a desire to get an education and a profession (more often it is a requirement of parents or a desire to live in the city, etc.).

Assessment of academic achievement should be adequate and independent of methods and means of control. However, the answers to question 11 about the objectivity of knowledge assessment (Figure 7) were contradictory: only 4% of teachers and 6.62% of students consider knowledge assessment to be objective.

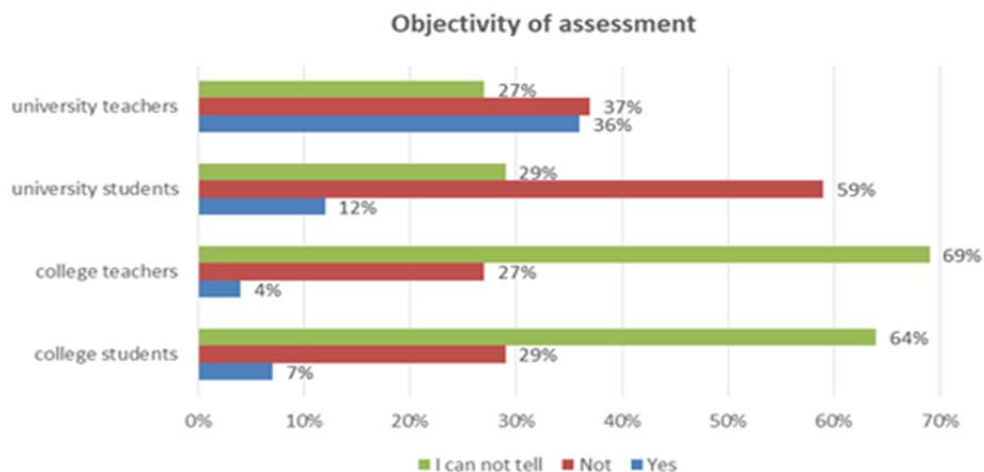


Figure 7. Distribution of answers to questions "Do you consider the assessment of knowledge objective?"

The reason for the bias of teachers was the problem of student identification (the procedure for recognizing a student by his unique identifier without video communication and the procedure for verifying the authenticity of the checked subject). In a virtual environment, it often becomes difficult (and sometimes impossible) to verify who is solving the problem, taking tests, and taking online exams. It is also difficult to track student actions and give an objective assessment of knowledge to a person who can use online resources or help from others during the exam. It was also difficult to communicate with students, who could not always formulate their thoughts orally and in writing.

For students, the reason for dissatisfaction with the assessment was the need to write written answers to questions that in the context of chat communication required the accurate and clear formulation of opinions.

Therefore, the assessment of knowledge and skills for most respondents has become a stress factor in distance learning.

Psychological comfort is manifested in interpersonal relationships. Answers to question 12 about conflicts and disputes were ambiguous (Figure 8).

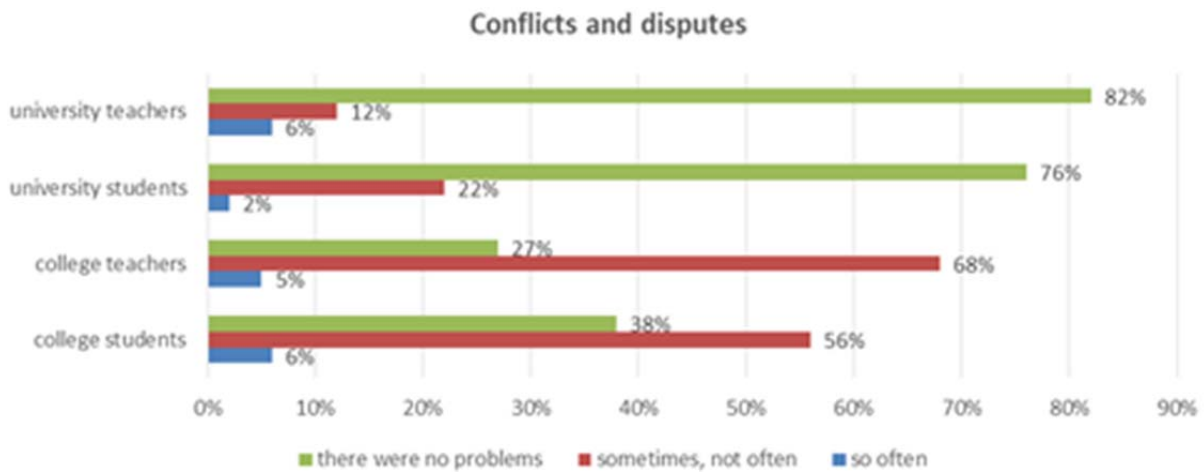


Figure 8. Distribution of answers to questions "Were there conflicts / disputes with teachers (students)?"

Less than 6% of respondents noted the existence of constant conflicts and disputes. 82% of teachers and 76% of university students and only 27% and 38% of teachers and college students indicated the absence of psychological problems during online learning. The data show different perceptions of online learning outcomes in colleges and universities.

Table 4 describes the causes of conflicts in colleges, based on the results of the questionnaire (question 13).

The teachers did not agree on the time and asked to take tests and tasks in different disciplines at the same time.	123	28
Distance learning was very unnerving for teachers	77	18
They demanded the completion of practical tasks without providing theoretical material and examples.	75	17
Biased assessment of the assignment	23	5

Table 4. Causes of conflicts

	Causes of conflicts	Quantity	%
Teachers	Students try to write off	68	90
	Students ignore the teacher's requirements	57	76
	Complete lack of discipline	50	67
	Lack of motivation and desire to learn	45	60
	Lack of subordination bordering on impudence	15	20
Students	The teachers themselves did not know how to organize training,	311	71
	were inconsistent and inconsiderate	277	63
	The teachers asked many tasks without explaining their solutions	266	61

Comparisons have shown that feedback for an online college education is problematic. There are no key psychological characteristics in online learning, such as empathy and interaction that can motivate students to learn. According to the results of communication with teachers and students, it was found that online learning took place according to a typical scenario: the teacher tries hard to organize the learning process (negotiations in Viber groups, incentive appeals, video conferencing, etc.), and students ignore appeals. Students are only interested in positive (often high) grades, which they strive to obtain with minimal cognitive load, which indicates their low self-awareness and self-discipline. On the other hand, students were outraged by the lack of



comprehensive explanations of the tasks and comments on the solutions they provided. Interviews with students and faculty of colleges and universities revealed the following causal chains:

"Low quality of educational materials → low quality of knowledge → outrage at the unfairness of assessment → reduced motivation to learn" (for students);

"Lack of technical and methodological assistance → problems with timely and quality assessment → conflicts with students → emotional stress and burnout" for teachers.

Through the answers to question 14, we tried to find out the respondents' opinions on ways to improve online learning. The generalization of the received answers allowed allocating needs of participants of the educational process, among which:

- Technical - modern equipment (computer, laptop, tablet, smartphone), licensed software products, high-quality (high-speed) Internet connection;
- Material - compensation for the cost of Internet traffic and communication services, depreciation of own equipment and electricity;
- Psychological - search and implementation of effective methods of motivating students and teachers; maintaining the mental balance of all participants in the educational process;
- Administrative - trust in the teacher, including in the choice of methods and means of teaching; reducing the number of reports and inspections; providing all possible assistance to participants in the educational process (technical, methodological, organizational, psychological); timely retraining (advanced training in the field of IT) of teachers, organization of exchange of progressive experience through webinars, conferences, etc.

## 5. Conclusions and Prospects of Further Research

The study of the features of online learning in educational institutions of Ukraine based on the analysis of the opinions of teachers and students made it possible to identify the main stress factors, including:

- 1) Excessive training intensity;
- 2) Problems with the objectivity of assessing the quality of knowledge;
- 3) Non-acceptance of the online learning format;
- 4) Conflicts and disputes in the relationship between teachers and students.

The following list demonstrates the factors requiring increased attention of scientists and methodologists to improve the psychological state of online learning: the presence of a roadmap that indicates all the timing of control activities and reporting on the results of independent work; clear, objective, and transparent evaluation criteria; the presence of ethical communication skills.

In teaching disciplines, teachers should:

- adhere to academic standards, record the minimum amount of knowledge and skills required for students and describe them in such a way that they are understandable to students and brought to their attention;
- provide multilevel tasks for comfortable training of strong students and strengthening the motivation of the weak;
- develop a road map for the study of the discipline, to publish in advance important deadlines for the implementation of independent/control/credit works;
- provide educational material in small portions and at the same time to provide fast feedback for check of its mastering;
- organize the final control/testing so that it is objective and fixed in time.

Our analysis of the recommendations of scientists on the effective implementation of distance learning has revealed additional problems: 1) in colleges are not always motivated to learn people; 2) the school system is not focused on the formation of young people's skills of e-communication, self-learning, reflection, as well as soft social skills of interaction in cyberspace.

Their solution requires additional scientific research.

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