EDUCATION AS AN OPEN SYSTEM AND EDUCATION AS A PROCESS OF ORGANIZING E-LEARNING IN THE ONLINE SPACE IN THE CONTEXT OF A VARIABLE DEFINITION OF THE PHENOMENON "QUALITY"

[a]TETIANA MIYER, [b]SERHII OMELCHUK, [c]OLHA BILYAKOVSKA, [d]NINA RUDENKO, [e]LYUDMILA ROMANENKO, [f]ZHANNA FEDIRKO, [g]KATERYNA ROMANENKO

[a,d,e,f] *Borys Grinchenko Kyiv University, 18/2, Bulvarno-Kudriavska Str., 04053, Kyiv, Ukraine*
[b] *Kherson State University, 14, Shevchenko Str., 73018, Ivano-Frankivsk, Ukraine*
[c] *Ivan Franko National University of Lviv, 1, Universytetska Str., Lviv, 79000, Ukraine*
[g] *Municipal Institution "Kirovograd Regional IN-Service Teacher Training Institute named after Vasyl Sukhomlynsky", 39/63, Velyka Perspectivna Str., 25006, Kropyvnytskyi, Ukraine*
email: [a]t.miyer@kubg.edu.ua, [b]omegas1975@gmail.com, [c]olha.bilyakovska@lnu.edu.ua, [d]n.rudenko@kubg.edu.ua [e]l.romanenko@kubg.edu.ua, [f]jeannefedirko@gmail.com [g]k.romanenko@kubg.edu.ua

Abstract: The article presents the theoretical and empirical results of the study of variability of the "quality" phenomenon definitions. This is an understanding of the essence of quality as: the achievement of certain perfection (excellence) in education, educational process, results; ensuring efficiency, which is established on the basis of comparison of training results with costs; achieving the degree of compliance of the provided educational services with the requirements of the recipients of educational services; introducing changes that lead to the achievement of excellence or efficiency in education, educational process, results. The following was analyzed: 1) education as an open system functioning in the environment of other systems (the definition of the "quality" phenomenon was chosen for analysis as the introduction of changes that lead to the achievement of excellence or efficiency in education); 2) education as an open system, separated from other systems as a whole structure, the components of which are pedagogical systems (for analysis, such a definition of the phenomenon "quality" was chosen as ensuring efficiency, which is established on the basis of comparing the results of training with costs (time, mental, emotional, material, technological, technical)); 3) education as a process of organizing e-learning in the online space. The pedagogical experiment was carried out in order to find out the attitude of those who study to learning in the online space, distinguishing between the online space of e-learning and the real space of classroom learning, which attract the attention of those who study, as well as identifying the opinions of learners about the quality indicators that the online e-learning space should meet. Master's students of Borys Grinchenko Kyiv University, Kherson State University, Ivan Franko National University of Lviv and teachers who studied advanced training courses at the Municipal Institution "Kirovograd Regional IN-Service Teacher Training Institute named after Vasyl Sukhomlynsky" were involved in the pedagogical experiment.

Keywords: education; education as an open system; online space; e-learning; quality; educational services; students; lecturers; teachers.

1 Introduction

Education is a multifaceted concept. This concept can refer to the following:

- Sociocultural institute (in the sense of specially organized targeted socialization and inculturation of individuals);
- System (in the sense of a system of educational (state and non-state) institutions of different levels and profiles, interconnected in a single, integral set);
- Process (in the sense of the integral unity of education, upbringing, development, self-development of the individual, preservation of cultural norms with an orientation to the future state of culture, creation of conditions for the full realization of the internal potential of the individual and his formation as an integrated member of society, and performing the function of ensuring the succession of generations);
- Result (in the sense of the final result of learning at each level of education, a fixed fact generating all values by the state, society and individual in the process of social activity).

This article presents the results of research on education broader - in the sense of an open system and the process of organizing e-learning in the online space.

2 Materials and Methods

The formation and development of digital civilization, the development and improvement of digital technologies contributed to the formation of the world educational space, the improvement of the education systems of various states, the organization of education using online spaces, etc. Of course, each country has its own experience in the development of education, but the vision of this development through the prism of quality is common.

Taking into account the qualitative aspect of the organization of training in the online space and the determining role of education in the socio-economic development of countries, the theoretical part of the study was aimed at the following tasks:

1. To investigate and summarize data on the variability of definitions of the phenomenon "quality".
2. To analyze education as an open system in the context of variable definitions of the "quality" phenomenon.
3. To analyze education as a process of organizing e-learning in the online space, taking into account variable definitions of the "quality" phenomenon.

The experimental part of the study was aimed at performing the following tasks:

1. To find out the attitude of students to studying in the online space.
2. To establish the differences between the online space of e-learning and the real space of classroom learning, which attract the attention of students.
3. To identify the considerations of those who study, regarding the quality indicators that the online e-learning space should meet.

The research used theoretical methods (analysis, ordering, systematization, generalization) and empirical methods (observation in the online space of e-learning, questionnaires, conversations). Master's students of Borys Grinchenko Kyiv University, Kherson State University, Ivan Franko National University of Lviv, a total of 950 full-time and part-time students (hereinafter we will use the term "master's students") and teachers who studied at advanced training courses were involved in the pedagogical experiment conducted in municipal Institution "Kirovograd Regional IN-Service Teacher Training Institute named after Vasyl Sukhomlynsky", numbering 200 people (hereinafter - student-teachers).

3 Results and Discussion

Variability of definitions of the phenomenon "quality"

The phenomenon "quality" denotes the presence of essential signs, properties, features that distinguish one object from another, as well as the degree of cost, value, suitability of something for its intended use [9]. The use of the term "quality" in relation to education indicates a certain balanced compliance of a specific educational level with numerous needs, goals, conditions, approved educational norms and standards, which is established to identify the causes of violations of this compliance and manage the process of improving the established quality [15]. It can also refer to:

- Achievement of certain perfection (excellence) in education, educational process, results [11, 20];
- Ensuring efficiency, which is established on the basis of comparison of training results with costs (time, mental, emotional, material, technological, technical) [5];
- Achieving the degree of compliance of the provided educational services with the requirements of the recipients of educational services [24];

- Introduction of changes that lead to the achievement of excellence or efficiency in education, educational process, results [5];
- Fulfillment of the requirements for the implementation of the educational process and its results, which are determined by interested parties (stakeholders) taking into account internal and external conditions [6].

There are two approaches to defining the essence of the concept of "quality of education" [15]:

- Normative (satisfaction of needs and achievement of certain norms, standards, goals (individuals, society, state), which are normatively approved by relevant documents);
- Managerial (an object of managerial influence, which is simultaneously considered from the positions of: the quality of the education system; the quality of the educational process (the process of provided educational services); the quality of the personality of the graduate as a result of the activity of the educational system according to the indicators of his education and the formation of socially significant values).

The quality of education as an object of management is one of the most important indicators by which, in international practice, it is customary to determine the effectiveness of the education system of any state and the effectiveness of its management.

A. Szopa [30] singles out the following features of the quality of education: 1) uniqueness (implementation of strategic goals and organization of the process, which distinguish the institution from other educational institutions); 2) excellence (constant improvement of the qualifications of teaching staff, improvement of teaching methods and forms, approaches to assessment, modernization of educational programs); 3) fulfillment of declared functions (satisfaction of educational expectations of interested parties); 4) effective activity (ratio of costs and investments); 5) transformation (introduction of changes that contribute to the improvement of the quality of educational services provision).

The quality of the provision of educational services is considered, in particular, in the context of the economy. Education is a specific field of activity, and educational services are a public good with consumer value (Biliakovska, O. (2018) [2]). Also, the educational service is considered as a specific product, which is a set of educational and scientific information that is transferred to the student in the form of a system of knowledge and practical abilities and skills. If they are successfully mastered, the student receives the appropriate qualification [34].

In general, the quality of educational services is explained by scientists as:

- A set of relevant features and characteristics that are decisive in the ability to satisfy real and expected requests and needs of participants in the educational process [14];
- The degree of satisfaction of students' needs and requests, which is ensured by the didactic and post-didactic activities of the educational institution [22].

As a result of the analysis of variable definitions of the "quality" phenomenon, some of them were singled out, which served as the basis for the analysis of the works of scientists and the conduct of a pedagogical experiment. These are the following variable definitions of the phenomenon "quality":

- Achievement of certain perfection (excellence) in education, educational process, results [11, 20];
- Ensuring efficiency, which is established on the basis of comparison of learning results with costs (time, mental, emotional, material, technological, technical) [5];
- Achieving the degree of compliance of the provided educational services with the requirements of the recipients of educational services [25];
- Introduction of changes that cause the achievement of excellence or efficiency in education, educational process, and results [5].

Education as an open system: analysis in the context of variable definitions of the phenomenon "quality"

Education is an open system that simultaneously functions in the environment of other systems and is separated from them as a whole structure. According to I. Malafiik [17], the presence of relationships with other systems is a necessary condition for preserving the essence and form of the system, which is created and functions to perform a clearly defined dominant function, by which it is distinguished from other systems.

Education as an open system functioning in the environment of other systems acquires the rank of an element of these systems. Between the elements of each of the systems, there are relationships and connections that are, according to Kovalchuk, (2016) [10], of the following nature: 1) objective (the system can be studied as a real object of the surrounding reality); 2) essential (existing relationships and connections form a system representation of the object); 3) having different levels and diverse (relations and connections ensure the functioning of the object as a system); 4) interdependent (relationships and connections ensure the existence of the system as a whole).

According to the results of the research of I. Malafiik [16], the terms "elements" and "components" are used to denote the content components of the system when it comes to the analysis of the object at the subject-content level. However, a well-defined set of formants (from the Latin *formantis* – forming) is also characteristic of a complete system, which provide the system with stable architecture. The scientist refers to such formants:

1. Elements (components) of the system. The role of system elements is to be part of the whole and contribute to the creation of the whole. If a part does not contribute to the creation of the whole, then it simply falls out of this totality.
2. System-forming factor – determines the interaction of system elements, defines and forms their connections.
3. Elemental structure – expresses connections between elements, based on their content, nature, interaction, thus being the carrier of a system property.
4. Hierarchy level – defines the external space in which the system functions, the sphere of its external connections, the filling of this space.
5. Integrative (emergent) property of the system with its relational influence. The process of interaction of elements in each system is explained by the emergent property. An emergent (systemic) property is not inherent to individual elements of the system. This is a property of the entire system. Any element (component) of the system, when it interacts with other elements (components) of the system, it is no longer the element (component) that is in a free state, but it is already an element (component) of the system. An emergent (system) property changes an element (component) in the interests of the system itself.

Formants of the system, united according to a certain principle of subordination, form a functional and morphological model of the system. Each of the named formants has its own field of possibilities, which exerts a narrowly directed effect on all other formants.

In the context of the "quality" phenomenon (in the sense of the introduction of changes that lead to the achievement of excellence or efficiency in education), an emergent (systemic) property changes education as an element of the system "society - state - education - man-subject of economic life – production". In one of our previous works, we define these changes as follows [18]:

1. Changes in the values of education as a basis for changing human roles in society and in production, which in genesis is reflected in the following sequence: a person in the sense of "labor force"→ a person in the sense of " labor potential" → a person in the sense of "human capital".
2. Introduction of lifelong education to enrich the person-subject of economic life with new role expressions. An individual appears as a resource of the production system, as an object (subject) of management, and as a person. The consideration of the human subject of economic life as a resource of the production system actualizes issues related to the level of development of society and the state and factors causing further transformational processes in education for the development of citizens and production. The consideration of a person as a subject of economic life being an individual caused the processes that ensure the functioning of education throughout life.
3. Informatization of education as a result of the transition of the information society to a new level of development in the triad of genesis processes "initiation - formation – development". This new level of development of the information society is commonly referred to as the "knowledge society". The modern information society, enriched with the qualities of a knowledge society, is characterized by an accelerated increase in the volume of information in all areas of human activity without exception, and the growing role of computer communication. This, in turn, leads to the mediated global interaction of the inhabitants of the planet Earth, the global circulation of many information flows, and the availability of fast access to data on one's own request.

In the structure of education as a system, separated as an integral structure, the following are distinguished:

- Levels of education – a clear list of them is defined at the legislative level of each country;
- Various pedagogical systems that describe the structure, organization, main connections and relations regarding particular object of education – at the scientific and pedagogical level.

The components of pedagogical systems develop at different rates; therefore, they differ in quantitative and qualitative characteristics, as A. Kushnir stressed back in 1999 [12]. All pedagogical phenomena that occur in pedagogical systems have a logical explanation in the structural changes of the components of the pedagogical system, their qualities, and the nature of the connections between them.

Components of the pedagogical system that function successfully in some conditions may be ineffective in other conditions. The effectiveness of the functioning of the pedagogical system as a whole depends on optimization (that is, the degree of compliance with the goal for which the system was created). In turn, optimization achieved in some conditions may not occur in others [1].

In the context of the "quality" phenomenon (in the sense of ensuring efficiency, which is established on the basis of comparing learning results with costs (time, mental, emotional, material, technological, technical)), the development of a new pedagogical system is aimed at improving the quality of e-learning. As an example, we cite the following research results [29]. Scientists organized the process of improving the quality of e-learning in three stages:

The first stage is the planning stage. The team of teachers, in the process of discussion, developed the design of the lesson for the e-learning of students.

The II stage is the implementation stage. The lecturer organized training using the developed lesson design.

The third stage is the observation stage. The teaching team reflected on the obtained results in order to identify the weaknesses and strengths of the lesson design during the e-learning of the students in order to further use the strengths and avoid the weaknesses.

The study of improving the quality of e-learning based on the identification of the strengths of the lesson design for e-learning contributed to the formulation of the following conclusion by scientists: the results of students' learning increase their reaction to good learning and to the learning atmosphere, which seemed very interesting to them.

In the context of the "quality" phenomenon (in the sense of the introduction of changes that lead to the achievement of the degree of compliance of the provided educational services with the requirements of the recipients of educational services), we will give an example of the development of another pedagogical system. This pedagogical system concerns the use of innovative e-learning tools (virtual laboratories, virtual reality, etc.) to meet the requirements (requests) of educational services recipients with high and lower levels of success [27] (Table 1).

Table 1: Improving the quality of e-learning based on taking into account the requests of students with high and lower levels of success (compiled on the basis of research by scientists [27]

Category of students	Characteristics of abilities
Highly effective	1) can develop complete, consistent mental models in various situations; 2) can find answers as a result of purposeful research and methodical implementation of multi-stage plans
Moderate performers	1) can control actions of medium complexity, but not always effectively; 2) can handle multiple situations or interrelated properties and manage change
Low effective	1) can determine whether or not one specific restriction is required; 2) partially describe a simple everyday topic

According to this pedagogical system, the introduction of changes that cause the degree of compliance of the provided educational services with the requirements (requests) of the recipients of educational services is determined by observing the five stages of the organization of e-learning based on requests [3, 26]:

Stage I is the stage of orientation and asking questions: the lecturer stimulates students to ask questions, define problems, and formulate ideas.

Stage II is the stage of generation and development of hypotheses: the lecturer directs students to formulate a hypothesis based on their own experience, the ideas formulated by them, taking into account the essence of the problem.

Stage III is the stage of planning and research: the lecturer directs students to plan the work process (order of actions, intermediate goals) taking into account the formulated hypothesis. Also, the emphasis is made on the implementation of the course of action, paying attention to the achievement of intermediate goals.

Stage IV is the stage of analysis and interpretation: the lecturer directs students to process the received data, identify key problems, carry out comparison of the methods of their solution proposed by students and described by experts, analysis of different points of view on problem solving.

Stage V is the stage of conclusion and evaluation: the lecturer directs students to reach a consensus regarding adequate ways to solve the problem, formulating conclusions.

Education as a process of organizing e-learning in the online space: Analysis in the context of variable definitions of the phenomenon "quality"

In the context of the "quality" phenomenon (in the sense of achieving the degree of compliance of the provided educational

services with the requirements of the recipients of educational services), education as a process of organizing e-learning must meet the following requirements of the recipients of educational services:

1. Educational services should be delivered in a flexible learning space that will allow students to access educational opportunities and continue to fulfill their various professional and family responsibilities [21].
2. The provision of educational services should ensure the acceptance of e-learning by students, which, in turn, is determined by the ease of use, the characteristics of the teacher, the quality of the e-learning system, available technical support, as well as the presence of advantages and usefulness of the training program, saving time, the availability of simple educational content corresponding to the tasks of the course [31].
3. The provision of educational services should be carried out as self-regulated learning of students, during which the lecturer only directs their actions in the direction of achieving educational goals. According to the results of research, self-regulation and intrinsic motivation correlate with less slowness during learning, greater efficiency and higher academic achievements [27].
4. The provision of educational services should be based on autonomy, which provides for: 1) choice (the student determines the time when to start and finish studies); 2) control (the lecturer detects, measures and evaluates the results of students' educational activities) [27].

In the context of the "quality" phenomenon (in the sense of ensuring efficiency, which is established on the basis of comparing learning results with costs (time, mental, emotional, material, technological, technical), education as a process of organizing e-learning should be carried out taking into account the following conclusions of scientists:

1. Technical factors (ease of use, flexibility, usefulness) and communication factors (student-student relationship, student-lecturer relationship, and student-non-teaching staff relationship) are significant predictors of student learning success (acquisition of knowledge and skills, persistence and self-efficacy)). The student-lecturer relationship is the strongest predictor of a student's academic success. Building relationships with lecturers is critical to successful student learning in online programs that offer effective technology support, as Lee et al. note [13].
2. The results of e-learning compared to on-campus learning can be significantly lower if:

- Online space is perceived as alien or even threatening for students [4, 32]; 32];
- The student feels anxiety, frustration, and boredom arising as a result of the lack of a sense of belonging to the learning community; this feeling is especially acute in transitional periods and periods of change, in stressful situations, during learning in an unfamiliar environment, such as e-learning [29];
- Students did not develop a sense of belonging, and, therefore, it will be difficult for them to complete the task [29].

3. E-learning results are significantly improved and student attrition rates are reduced if e-students develop a sense of belonging to the e-learning community. A sense of belonging has two dimensions: psychological (person's feeling that he is accepted, respected, valued in the classroom [7]) and social (connection to a group, class, department, subject , institution, or all of these [8]). The formation of students' sense of belonging to the educational community of e-learning is facilitated by the friendliness, willingness to help and enthusiasm of the teacher and the involvement of students in online discussions, organization of group work, availability of feedback, use of discussion boards, organization of the work of discussion groups, joint online sessions, etc. [23].
4. E-learning outcomes are significantly improved when the feeling of isolation during e-learning is reduced as a result of engaging students in interaction and collaboration [33].
5. E-learning results are significantly improved with effective learning, which students associate with the presence of an enthusiastic e-lecturer [25].

In the context of the phenomenon of "quality" (in the sense of achieving certain perfection (excellence) in education, educational process, results [11, 20]); education as a process of organizing e-learning should be arranged taking into account the following achievements of scientists:

1. During the organization of learning, the emergence of a state of disequilibrium with a low level of mental activity (depression, fatigue, sadness, etc.) or a higher level (anxiety, etc.) should be prevented. The state of disequilibrium is characterized by a certain tension, uncomfortable experiences and a certain excess of energy. This state creates the focus of the student's consciousness (thinking) on a specific object, causes certain actions and deeds. Motivated actions of the student lead to interest in the content of the educational material, learning, and also contribute to the formation of new knowledge and skills. On the other hand, the intense, prolonged and unmotivated performance of educational activities with the simultaneous experience of "negatively" colored emotions not only complicates the formation of knowledge and skills, but also creates all the prerequisites for the most likely occurrence of the pre-sick conditions, which are characterized by a significant decrease in the body's functional reserves [19].
2. During the organization of training, the dynamics of students' working capacity should be taken into account, which is manifested in the successive change of such five stages as:

a) The stage of entry into work (the student's body prepares for mental load, its functional capabilities are mobilized, vegetative processes that provide the body's energy are strengthened. As a result, working capacity increases even before the beginning of educational work. A certain emotional background is added to work capacity in case of unpreparedness / readiness for work, unwanted activity / desired communication, previously experienced pleasant / unpleasant events, etc.);
b) The stage of relatively constant working capacity (gradual growth of the functional capabilities of the student's body, increasing the productivity of activities with simultaneous adaptation to the most economical mode of performance of actions). The duration of the stage depends on motivation (internal or external), the intensity of mental actions;
c) The stage of unstable work capacity as the norm of work capacity (the appearance of the first signs of fatigue is recorded). Work efficiency is maintained due to emotional and volitional stress and the use of compensatory mechanisms of the body, if students have internal motivation for cognitive activity in learning. There is a need to increase the time required for performance of the task);
d) The stage of a gradual decrease in working capacity (further development of fatigue and the appearance of overfatigue). Students can make mistakes even when performing simple tasks;
e) Stage of the final rush (it is fixed at the end of the performance of the educational activity, if the time of its completion is clearly defined). The level of work capacity increases due to emotional and volitional stress and the use of physiological reserves of the body. The feeling of fatigue manifests itself later in a more pronounced form [19].

The feeling of fatigue is intensified by experiencing states of dissatisfaction and depression in the case of informing students about a task for independent performance, which is perceived by

them as voluminous, complex, uninteresting and as having no practical significance.

Scientists [19] add that five stages of working capacity, of different durations, take place in the educational process: during one educational session (in lecture, seminar session, etc.), during one academic day, one semester, one academic year or period of study at a higher education institution. Taking into account the stages of the dynamics of working capacity during training will prevent the occurrence of pre-sick conditions in students.

Analysis of the results of a pedagogical experiment

The theoretical consideration of education as an open system and education as a process of organizing e-learning in the online space in the context of a variable definition of the phenomenon "quality" was supplemented with data from a pedagogical experiment. Master's students of Borys Grinchenko Kyiv University, Kherson State University, Ivan Franko National University of Lviv, of full-time and part-time forms of education, and student-teachers who studied at advanced training courses of the municipal Institution "Kirovograd Regional IN-Service Teacher Training Institute named after Vasyl Sukhomlynsky" took part in the experiment. If the description of the results of the pedagogical experiment is about both graduate students and teacher students, then we used the term "respondents" without specifying the category of students.

The experimental work was carried out in the conditions of e-learning of students as a dominant and accessible form of education in view of the introduction of self-isolation in connection with the pandemic processes in 2019-2021 and the threat to the lives of students during Russia's military operations on the territory of Ukraine, which began on February 24 in 2022.

The experimental work was aimed at clarifying the attitude of master's students and student teachers to learning in the online space, establishing the difference between the online space of e-learning and the real space of classroom learning, which attract the attention of master's students and teacher students, identifying quality indicators that, in their opinion, the online e-learning space should meet.

The analysis of experimental data proved that both master's students and student teachers treat online learning as:

- An effective way of organizing learning in conditions where the traditional way of learning in classrooms becomes impossible for various reasons (threats to health (indicated by 100% of respondents), threats to life (indicated by 100% of respondents), various diseases (35% of respondents); problems with by transport (27% of respondents));
- Opportunities for self-realization in new conditions (trying self in the online space (56% of respondents); feeling the influence of the online space (31% of respondents); preparing for effective modeling of student learning in the online space (19% of respondents);
- A challenge that needs to be overcome (7% of student teachers).

Master's students and teacher students pointed out the differences between the online space of e-learning and the real space of classroom learning. We organized the obtained data in Table 2.

Table 2: Differences between the online space of e-learning and the real space of classroom learning in the opinions of master's students and teacher students who studied at advanced training courses

The off-line space of classroom learning	**The online space of e-learning**
It surrounds the training participants from all sides	It is located in relation to each e-learning participant on the plane of the monitor, mobile phone or tablet screen, i.e., always in front
Students have the opportunity to choose a permanent place for studying in the classroom (closer to the lecturer, in the middle of the classroom, behind) or change it (at will)	The place on the plane of the monitor, mobile phone or tablet screen is variable and is determined by the student's speech activity
Each student has face-to-face visual contact with only a limited number of class participants. It is the lecturer and students who are close to each other in the classroom and can whisper to each other during the class	Each e-learning student makes visual contact with other participants (lecturer, master's students (teacher students)) in a face-to-face manner
Eye contact with a limited number of participants in the educational process does not lead to an increase in visual noise	Eye contact with almost all e-learning participants increases the amount of information that enters the brain. Visual noise is the various actions of master's students (student teachers), their emotional reactions, the position of their bodies, clothes, hairstyles, interior (screensaver), etc. Students perceived visual noise, analyze it (37% of respondents); are distracted by it (17% of student teachers); repeat it (12% of respondents); can get tired of it (7% of respondents)
Each student determines the direction of sound propagation; some sounds are perceived as background noise (92% of respondents). Also, each student can feel smells (7% of respondents) and physical contact (for example, shaking hands with each other during greetings (4% of respondents)	Communicative noise is perceived as something to which the respondents have to react, since all sounds have a clear directionality (the sound spreads from the plane of the monitor, mobile phone or tablet screen in the direction of the master's student or teacher student)

According to the respondents, the process of organizing e-learning in the online space is considered high-quality if:

1. Events in the online space support the desire to work in the profession and form everything necessary for competitiveness in the labor market.
2. There is existing partnership and cooperation between e-learning participants.
3. Education is expediently integrated with professional activities, and also focuses on international educational processes and standards.
4. The process of organizing e-learning in the online space contributes to the formation of the necessary professional qualities, knowledge, and skills.
5. The content of the tasks concerns both general developments, the formation of a scientific outlook, and the performance of professional duties.
6. There is an active discussion of the results of tasks that are related to the performance of professional duties, since both master's students and teacher students combine learning with the performance of professional duties. Completing professional-oriented tasks reduces the amount of time one needs to spend in front of the computer to prepare for classes and complete various tasks. And the discussion in the online space will enrich each e-learning participant with various ways of solving current issues of professional activity.
7. The teacher determines the optimally sufficient amount of information content of the online e-learning space, reduces visual noise by using didactic materials (presentations,

knowledge maps, tables, graphs, etc.), manages communicative noise (determines main and secondary information, uses chat, discussion boards; expediently and effectively uses modern IT technologies).

4 Conclusion

1. The variability of the definitions of the phenomenon "quality" is specified in the following contexts: the achievement of a certain perfection (excellence) in education, educational process, results; ensuring efficiency, which is established on the basis of comparison of training results with costs; achieving the degree of compliance of the provided educational services with the requirements of the recipients of educational services; introducing changes that lead to the achievement of excellence or efficiency in education, the educational process, and results.
2. The analysis of education as an open system functioning in the environment of other systems proved that in the context of the phenomenon of "quality" in the sense of the introduction of changes that lead to the achievement of excellence or efficiency in education, education as an element can be part of different systems. As an element of one or another system, education changes in the interests of the system itself. Using the example of the system "society - state - education - a person-a subject of economic life – production", these changes relate to a change in values, the introduction of lifelong education, and the informatization of education.
3. The analysis of education as an open system, separated from other systems as a whole structure, the components of which are pedagogical systems, testified that in the context of the phenomenon "quality" in the sense of ensuring efficiency, which is established on the basis of comparing the results of training with costs (time, mental, emotional, material, technological, technical) the process of e-learning is constantly being improved in two directions: ways of improving the quality of e-learning are being developed; more effective models of e-learning organization are being developed.
4. The analysis of education as a process of organizing e-learning in the online space proved that in the context of the phenomenon of "quality" in the sense of achieving the degree of compliance of the provided educational services with the requirements of the recipients of educational services, the degree of compliance is established at the level of functioning of the online space (convenience, accessibility, technology, content) and at the level of the teacher's activity in the online space (attractive professional qualities, organization of self-regulated learning [26], ensuring autonomy based on choice and control [27]).
5. The analysis of education as a process of organizing e-learning in the online space proved that in the context of the phenomenon of "quality" in the sense of ensuring efficiency, which is established on the basis of comparison of learning results with costs (time, mental, emotional, material, technological, technical), effectiveness is, first of all, negatively affected by students' feeling of isolation during e-learning [33]. This feeling is weakened or does not arise at all under such conditions: the presence of an e-teacher who teaches the educational material with enthusiasm [25]; the formation of students' sense of belonging to the e-learning community [8, 23]).
6. The analysis of education as a process of organizing e-learning in the online space proved that in the context of the phenomenon of "quality" in the sense of achieving a certain perfection (excellence) in education, educational process, results, the following is important:

a) To prevent the emergence of a state of disequilibrium with a low level of mental activity (depression, fatigue, sadness, etc.) and a higher level (anxiety, etc.), since the intense, prolonged and unmotivated performance of educational activities with the simultaneous experience of "negatively" colored emotions complicates the formation of knowledge and ability and creates prerequisites for the most likely occurrence of the pre-sick conditions, which are characterized by a significant decrease in the body's functional reserves [19]:
b) To take into account the dynamics of students' working capacity, which is manifested in the successive change of five stages (the stage of entering work; the stage of relatively stable working capacity; the stage of unstable working capacity as the norm of working capacity; the stage of a gradual decrease in working capacity; the stage of the final rush) that take place in the educational process of different duration: during one educational session (lecture, seminar session, etc.); during one academic day, one semester, one academic year or period of study at a higher education institution [19].

7. We established that master's students and teacher students treat online learning as: 1) an effective way of learning in any conditions; 2) opportunities for self-realization in new conditions; 3) the challenge to be overcome.

Master's students and student teachers establish the following differences between the online space of e-learning and the real space of classroom learning: different location of spaces in relation to the person who studies; different possibilities for choosing a location in spaces; different amount of eye contact, visual and communicative noises.

Master's students and student teachers associate the quality of the process of organizing e-learning in the online space, first of all, with events in the online space, which support the desire to work in the profession and form everything necessary for competitiveness in the labor market. Also, the content of education must be of high quality concerning both general developments (the formation of a scientific worldview, and the fulfillment of professional duties) and the process of education itself (existing partnership and cooperation; appropriate combination of education with professional activity; performance of professionally oriented tasks; optimally sufficient amount of information filling of the online e-learning space).

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Primary Paper Section: A

Secondary Paper Section: AM