A LOOK AT DISTANCE LEARNING FOR FUTURE AND ALREADY WORKING TEACHERS THROUGH THE PRISM OF SPATIAL PERCEPTION WITH AND WITHOUT THE USE OF AN AVATAR

UM OLHAR SOBRE O ENSINO A DISTÂNCIA FUTUROS PROFESSORES E DOS QUE JÁ TRABALHAM PELO PRISMA DA PERCEÇÃO ESPACIAL COM E SEM AVATAR

Tetiana Miyer
ORCID 0000-0002-2874-2925
Borys Grinchenko Kyiv Metropolitan University
Kyiv, Ukraine
t.miyer@kubg.edu.ua

Larysa Holodiuk
ORCID 0000-0002-5064-0968
Municipal Institution "Kirovograd Regional IN-Service Teacher Training Institute named after Vasyl Sukhomlynsky"
Kropyvnytskyi, Ukraine
golodiuk_larysa@ukr.net

Lyubov Kanishevska
ORCID 0000-0002-4190-1601
Scientific and Experimental Work
Institute of Problems on Education
of the National Academy of Educational Sciences of Ukraine
Kyiv, Ukraine
mazila060192@ukr.net

Alina Martin
ORCID 0000-0001-8886-2585
Volodymyr Vynnychenko Central Ukrainian State University
Kropyvnytskyi, Ukraine
tarapakamartin@gmail.com

Oleksandra Shkurenko
ORCID 0000-0003-2774-6294
Borys Grinchenko Kyiv Metropolitan University,
Kyiv, Ukraine
o.shkurenko@kubg.edu.ua

Nina Rudenko
ORCID 0000-0002-6274-9311
Borys Grinchenko Kyiv Metropolitan University
Kyiv, Ukraine
n.rudenko@kubg.edu.ua

Iryna Sukhopara
ORCID 0000-0001-6330-7825
Borys Grinchenko Kyiv Metropolitan University
Kyiv, Ukraine
i.sukhopara@kubg.edu.ua

Abstract. Distance learning is a necessary attribute of the digital era and the noospheric existence of humanity with objective and virtual realities. The effectiveness of distance learning depends on a positive attitude towards this process, the manifestation of cognitive activity, and the effectiveness of perception in general and spatial perception in particular. The purpose of this research was to establish or refute the impact of spatial perception with and without the use of an avatar on the perception of the distance learning process by future and already working teachers. The conducted research helped us to accomplish a number of tasks to identify differences in the placement of social objects, situations, and events in space during face-to-face and distance learning of future and already working teachers, to find out the differences in the effectiveness of the process of spatial perception with zonal dispersion in a regular classroom and presentation on one plane of the monitor screen in distance learning conditions. We summarized data on modern research of using an avatar during distance learning, and determined the methods and functions of using an avatar that future and already working teachers choose to present themselves during distance learning. Also, we summarized data on the feelings of future and already working teachers during distance learning using an avatar and with the camera turned on, and summarized data on the use of an avatar during distance learning of future teachers who combine study with work, and teachers who combine professional pedagogical activity with study at a postgraduate pedagogical education institution. As a result of the research, we identified two groups of respondents with different attitudes towards distance learning. Taking into account the conclusions we have formulated when organizing distance learning will help increase the efficiency of spatial perception, which, in turn, will affect the effectiveness of distance learning as a whole.

Keywords: distance learning, face-to-face learning, perception, spatial perception, classroom zoning, monitor screen plane, future elementary school teachers, teachers.

Resumo. A educação a distância é um atributo necessário da era digital e da existência noosférica da humanidade, com realidades objetivas e virtuais. A eficácia da educação a distância depende de uma atitude positiva em relação a esse processo, da manifestação da atividade cognitiva e da eficácia da percepção em geral, e da percepção espacial em particular. O objetivo desta pesquisa foi estabelecer ou refutar o impacto da percepção espacial, com e sem o uso de um avatar, na percepção do processo de educação a distância por parte de futuros professores e professores em exercício. A pesquisa realizada nos ajudou a cumprir uma série de tarefas para identificar as diferenças na colocação de objetos sociais, situações e eventos no espaço durante o ensino presencial e a distância para os futuros professores e os professores em exercício; para descobrir as diferenças na eficácia do processo de percepção espacial com dispersão zonal em uma sala de aula tradicional e a apresentação em um plano de tela de monitor em condições de ensino a distância. Resumimos os dados sobre pesquisas modernas sobre o uso de avatar durante o ensino a distância e determinamos os métodos e funções do uso de avatar que os futuros professores e os professores em exercício escolhem para se apresentarem durante o ensino a distância. Além disso, resumimos os dados sobre os sentimentos dos futuros professores e daqueles já atuando durante o ensino a distância, tanto com o uso de avatar quanto com a câmera ligada, e também os dados sobre o uso de avatar por futuros professores que conciliam estudo e trabalho, bem como por professores que conciliam a atividade pedagógica com estudos em uma instituição de formação pedagógica de pós-graduação. Como resultado da pesquisa, identificamos dois grupos de respondentes com atitudes diferentes em relação ao ensino a distância. Levar em consideração as conclusões que formulamos ao organizar o ensino a distância ajudará a aumentar a eficácia da percepção espacial, o que, por sua vez, influenciará na eficácia do ensino a distância como um todo.

Palavras-chave: ensino a distância, ensino presencial, percepção, percepção espacial, zonificação da sala de aula, plano da tela do monitor, futuros professores do ensino fundamental, professores.

1. INTRODUCTION

The modern functioning of humanity is characterized by various processes. In scientific research, attention is focused on the transition to a noospheric existence of humanity with objective and virtual realities. In this context, scientists focus on the processes that affect the organization of effective education. These are (da Silva et al., 2024; Miyer et al., 2022): 1) a change in the value system; 2) a change in values throughout a person's life; 3) a change in the pace of knowledge growth in the modern world; 4) a change in the context of the noospheric vision of the essence of man and the affirmation of his understanding as a noospheric and cosmoplanetary being.

According to the authors of the article, effective education should be organized as: a transition to learning based on thinking and knowledge oriented to the future; a transition to an educational route with an individual trajectory of creativity; transition to the perception of the student as a subject of pedagogical influence, who uses external pedagogical influence and exercises self-influence; transition to the mechanism of joint generation of knowledge in the process of creative cognition of the noospheric existence of humanity with objective and virtual realities.

The organization of education in the digital era has information and communication technologies as an invariable attribute. Their use in education is simultaneously perceived as a typical phenomenon (Miyer et al., 2021b) (since it is observed in the activities of every lecturer, teacher, without exception); and as an individual phenomenon (since each of them, organizing the learning process, brings innovation to the use of information and communication technologies).

Providing individuality, uniqueness and innovation to education in the digital era is based on lifelong learning, which is effectively carried out on the basis of targeted and thematic FIN-modeling, that is a combination of formal (F), informal (I), and non-formal (N) education in accordance with the formulated goal or topic of the learning process. It also involves the creation of one's own information and educational space for self-development based on face-to-face and distance learning (Miyer et al., 2021a).

Research into learning in the context of Russia's full-scale invasion of Ukraine (2022 – present) contributed to the identification of eight groups of factors influencing the effectiveness

of distance learning in the context of military operations. These factors are: 1) political-socio-economic; 2) psycho-physiological; 3) dominant direction; 4) technological direction; 5) didactic direction; 6) limiting direction; 7) subjective factors of negative impact on the personality and results of distance learning (self-restriction; orientation on the learning outcome; avoidance of tasks; pessimistic behavior; low general level of self-esteem; low level of involvement in educational work); 8) subjective factors of positive influence on personality and distance learning outcomes (task and skill orientation; optimistic behavior; expectation of success; high overall level of self-esteem; high level of involvement in learning work) (Rudenko et al., 2024).

Continuing our research on learning in the context of Russo-Ukrainian war, we defined the goal of our research as follows: to establish or refute the impact of spatial perception with and without the use of an avatar on the perception of the distance learning process by future and already working teachers.

2. METHODS

The following methods were used in the research: general scientific (analysis, comparison, systematization, generalization) and empirical (observation, individual interviews, questionnaires, open observation).

To identify scientific developments on perception, spatial perception and the use of avatars in virtual space in general and in education in particular, modern scientific works of scientists were analyzed.

To conduct the pedagogical research, students and lecturers of the Borys Grinchenko Kyiv Metropolitan University (Kyiv, Ukraine), the Volodymyr Vynnychenko Central Ukrainian State University (Kropyvnytskyi, Ukraine), as well as primary school teachers and lecturers of the Municipal Institution “Kirovograd Regional IN-Service Teacher Training Institute named after Vasyl Sukhomlynsky” (Kropyvnytskyi, Ukraine) were included as participants.

The total number of respondents was 1,985. These were future teachers who combine university studies with work (the first category of respondents), and already working teachers who combine professional pedagogical work with training in advanced training courses (the second category of respondents). The number of the first category of respondents was 685 people, and the second – 1,300 people.

The pedagogical research was conducted in the period 2022 – 2024, that is, during the full-scale invasion of Russian troops into the territory of Ukraine with the massive deployment of armed aggression against the Ukrainian people. The introduction of distance learning during 2022 and 2023 made it possible not only to continue studying in war conditions, but also to gain invaluable experience for lecturers and students.

To conduct the experimental part of the research, a questionnaire was developed, which included the following questions:

1. Do you perceive the regular audience and the distance learning “audience” in the same way?
2. Why, in your opinion, do you perceive the regular audience and the distance learning “audience” in the same way?
3. Why, in your opinion, do you perceive the regular audience and the distance learning “audience” differently?
4. What ways do you use to design an avatar for distance learning?
5. What object do you most often use to create an avatar?
6. What functions do you think an avatar performs during distance learning?
7. What feelings (positive / negative) arise in you when you have the camera constantly turned-on during distance learning?

8. When do you use an avatar during distance learning?
9. What should bother you so that you turn off the camera and use an avatar?

The generalization of data from the theoretical and experimental parts of the research allowed the researchers to identify trends in spatial perception in face-to-face and distance learning, and to form an idea of the use of avatars during distance learning, which is organized in wartime conditions.

3. THEURETICAL FRAMEWORK

In this research, we operate with the leading ideas of the structural-functional concept of perception. The theoretical core of this concept is the modern understanding, firstly, of perception as a sensory and intellectual process, which is realized through thinking, memory, apperception, categorization. Secondly, of social perception, which we explain as the perception, understanding and evaluation of social objects (other people, themselves, the collective as a whole) by the subject of perception.

A holistic reflection of any objects (including social objects), situations and events occur in the subject of perception when stimuli directly affect the receptor surfaces of his sensory organs during face-to-face and distance learning (Antonov, 1999; Kanakh, 1990). The sensations that arise in the subject of perception, including social perception during face-to-face and distance learning, are the result of the interpretation of stimuli in the context of his previously acquired experience, that is, with the involvement of apperception (Napreienko & Petrov, 1998; Zhurov, 2002; Zhurov & Biienko, 2021). Apperceptive images and information acquired in the process of perception and social perception are used by the subject during face-to-face or distance learning for development, decision-making, and regulation of his behavior.

During the research, we took into account that perceptual and apperceptive processes are determined by external and internal factors. External factors include (Hrynova, 2008; Zhurov, 2002; Zhurov & Biienko, 2021):

1. Physical factors are indicators of temperature, humidity, air velocity, noise, vibration, barometric pressure, etc. These factors determine the microclimate of the classroom for face-to-face learning or the microclimate of the room in which each student self-organizes for distance learning.
2. Chemical factors that indicate a change in the composition of the air in the place of face-to-face or distance learning, i.e., they relate to the amount of oxygen, nitrogen and carbon, the presence of harmful chemicals emitted by technical means, by equipment, synthetic materials, as well as the lecturer and students working in the same classroom during face-to-face learning, or in different rooms in the case of distance learning.
3. The placement of any objects (including social objects), situations, and events in space, which is radically different during face-to-face and distance learning. In this research, we focus our attention on the placement of social objects, situations and events in space during face-to-face and distance learning. We understand the process of spatial perception as the process of reflecting the nervous system of subjects of face-to-face and distance learning of the shape, size, distance and relationship of social objects, situations and events and themselves relative to other social objects through the parallel or sequential activity of analyzers. We also take into account that the process of spatial perception manifests itself at three levels:
    a. Functional (perception of other social objects through the prism of performing their functions during educational activities);
    b. Operational (perception of other social objects through the prism of their actions);

c. Apperceptive (perception of other social objects through the prism of previously acquired experience and the continuation of the formation of the experience bank).

The increase in the informativeness of the primary image, which is formed as a result of the process of spatial perception, depends on the way of processing information. The process of apperceptive informativeness largely depends on the informativeness of the primary images that come into the disposal of apperception.

We have included the following as internal factors of perceptual and apperceptive processes during face-to-face and distance learning (Hrynova, 2008; Zhurov, 2002; Zhurov & Biienko, 2021):

- Motivation (In the research, we consider it as an incentive that, arising on the basis of need, causes the activity of social objects and determines the direction of their perception during face-to-face and distance learning).
- Activity (in the research, we assume that the activity of the subject of perception can manifest itself as the following type of activity: 1) biological (inherent in all living things; considered as a lower level of activity); 2) mental (characterized by the intensity and breadth of interaction of the subject of perception with social objects of face-to-face and distance learning); 3) search, cognitive (aimed at obtaining new information); 4) supra-situational (activity that goes beyond the learning situation); 5) personal (activity that is aimed at manifesting one's own "Self" during face-to-face and distance learning).
- Attitude (in the research, we proceed from the fact that the attitudes of the subject of perception indicate his readiness to react and act in a certain way in specific situations of face-to-face and distance learning. We also take into account that two conditions are necessary for the emergence of an attitude, namely: a need that is perceived by the subject of perception as an incentive to certain actions, and a situation for the implementation of these actions. The need arises from lower levels of activity, based on them, and through the attitude it implements higher forms of activity. In turn, the situation for the implementation of actions caused by a perceived need may arise or be specially created during face-to-face and distance learning).

The theoretical core of the structural-functional concept of perception, which we described above, was used to perform the following tasks:

- To identify differences in the placement of social objects, situations, and events in space during face-to-face and distance learning of future and already working teachers.
- To identify differences in the effectiveness of the process of spatial perception with zonal dispersion in a regular classroom and presentation on one plane in distance learning conditions.
- To summarize data on modern research on the ways of using an avatar during distance learning.
- To identify the ways and functions of using an avatar that future and already working teachers choose to present themselves during distance learning.
- To summarize data on the feelings of future and already working teachers during distance learning using an avatar and with the camera turned on.
- To summarize data on the use of avatars during distance learning of future teachers who combine study with work, and teachers who combine professional pedagogical activity with study at a postgraduate pedagogical education institution.

4. RESULTS

Face-to-face learning of future and those already working teachers is organized in specially equipped classrooms. Zoning options in such classrooms are different, but the placement of social objects, situations, and events in space during this form of learning has common properties. Let us consider this with real examples.

Zoning of classrooms is carried out as follows (see Photo 1, Photo 2, Photo 3):

- According to the subjects taught in them.
- With an orientation towards the convenience of introducing individual, pair, and group work of future teachers and already working ones.
- Given the demand for the implementation of an individual learning trajectory.



Photo 1. General view of the classroom with zoning: computer equipment zone, educational material presentation zone, educational material and equipment storage zone; independent work zone, interaction zones.



Photo 2. Part of the classroom where an individual learning trajectory can be implemented



Photo 3. Part of the classroom where individual, pair, and group learning activities can be quickly and conveniently organized

Having analyzed the classrooms of the educational institutions that participated in this research and the peculiarities of organizing face-to-face learning for future and those already working teachers, we can draw the following conclusions: face-to-face learning is organized in specially equipped classrooms with different zoning, which significantly affects both the placement of social objects, situations, and events in space and the course of perceptual and apperceptive processes in each subject of perception. Being in the same classroom, future and those already working teachers form primary images of different informativeness, which are shaped as a result of the process of spatial perception, since their formation is influenced by:

- The way information is processed by a particular subject of perception;
- Remoteness / proximity to the source of information;
- Level of involvement in educational activities;
- Presence of internal / external motivation to display search / cognitive activity;
- Presence / absence of an attitude towards self-realization in individual, pair and group educational activities, etc.

We also paid attention to the effectiveness of the process of spatial perception. At the functional level, the perception of other social objects through the prism of their performance of certain functions during educational activities is characterized by us as partially limited, since social objects are zonally dispersed. The simultaneous perception of all social objects becomes impossible for the subject of perception without multiple head movements in different directions.

We add that during the pedagogical experiment, multiple head movements were observed only in two cases. Instead, it was typical for future and already working teachers to direct their heads towards the lecturer, or towards demonstrating a presentation with new information, or towards a member of the pair/group to perceive their actions and interact with them.

During the global spread of the COVID-19 pandemic (2019 – 2020) and during the full-scale invasion of the territory of Ukraine by Russian troops with the massive deployment of armed aggression against the Ukrainian people (2022 – present), a distance learning was introduced for future and those already working teachers with the use of various tools, in particular, the Moodle platform and the Google Classroom web service.

The scientific articles present the advantages of using these tools (Tryus et al., 2012; Vyshnivskyi et al., 2014; Pienkin et al., 2014; Volkonska, 2017; Chumak, 2018; Babalich, 2019; Konstankevych et al., 2020; Zhernovnikova & Piatysotska, 2020): simple setup, the ability to create classes, organize training in various academic disciplines, upload educational materials to the classroom, create individual tasks, organize distance learning based on communication, exchange educational material, attach completed work, monitor and check the performance of work, accessibility, security, etc.

The developers of the Moodle platform practically implemented the principle of "social constructivism". The essence of this principle is as follows: all platform participants are simultaneously potential teachers and students; those who create something or explain educational material to other platform participants are successful in learning; observing the work of others makes a significant contribution to learning; understanding others makes it possible to implement an individual approach and meet educational needs (Demyda et al., 2011).

The placement of social objects, situations, and events in space during face-to-face and distance learning of future and those already working teachers is significant. Face-to-face learning is organized taking into account a certain zoning of the classroom, while during distance learning all participants in the learning process are placed in the same plane, which is correlated with the monitor screen.

The dictionary edition "English-Ukrainian Explanatory Dictionary of Computing, Internet and Programming" provides the following definition of the term "avatar" – it is a synthetic (animated) interactive object that represents the user in virtual space (Proidakov et al., 2006). Scientific articles provide other definitions of this term, namely: a photograph or graphic image that helps identify the user in virtual space (Castro et al., 2024). The function of an avatar is to represent the user, identify him, personalize him, draw attention to him, and promote his self-expression.

Scientific articles have revealed various aspects of virtual avatar research and the use of avatars in education. Ku et al. (2005) proposed the following definition of a virtual avatar: it is a virtual character, the creation of which is based on the image of a person and is implemented using computer technologies.

Zhang & Wu (2024) investigated the use of virtual avatars in educational videos. Scientists drew attention to the possibility of using a realistic or anime style when creating the appearance of a virtual avatar, as well as the possibility of controlling the behavioral characteristics of a virtual avatar by both humans and artificial intelligence. They also concluded that the use of an expressive virtual avatar has a positive impact on the involvement of students in the learning process and on its effectiveness. According to scientists, the expressiveness of a virtual avatar is determined by its ability to imitate facial expressions, posture and voice of real people, enhance the feeling of "immersion" of users in the learning process and promote their active learning using video content. During the study, Zhang & Wu (2024) found that students can easily associate the facial expressions of a virtual avatar with certain emotions, but these emotions do not affect students, that is, they are not viral.

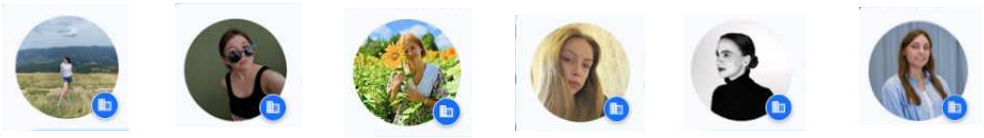
Zhang (2023) researching avatar design in education, found that the attitude of different age groups to avatars not only reflects their needs and values, but also depends on factors such as: economic considerations, human nature, sensory experience, and efficiency.

Based on the analysis of the questionnaires filled out by the first and second categories of respondents, it was revealed that future teachers and those already working use three ways of designing an avatar (see Photo 4):

- Using a photograph;
- Using an animated image;
- Using an abbreviation formed by shortening the name.

Analysis of the use of avatar photos by future teachers and those already working revealed a preference for different ways of presenting oneself, including:

- presenting oneself as a distant silhouette against a background of nature (1);
- presenting oneself in a certain image (2);
- presenting oneself with a favorite object (3);
- presenting oneself with an emphasis on a certain angle (4, 5);
- presenting oneself with an emphasis on a certain familiar image (6).

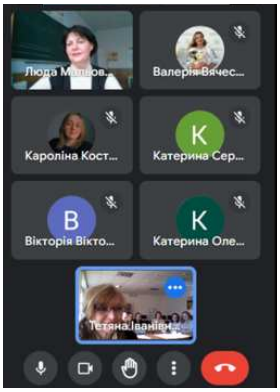


1 2 3 4 5 6

Photo 4. Examples of avatars of future teachers and those already working

Future and those already working teachers use animated images for avatars when creating educational games in which they participate with their students. Comparing the use of a "human

face" avatar with a "picture" or "animated object" avatar, both categories of respondents noted that the "human face" avatar looks more serious and even official, while the "picture" or "animated object" avatar looks more informal (see Screenshot 1).



Screenshot 1. Distance learning of future teachers of primary school

Analyzing the use of photos for the avatar of distance learning, it was found that two ways are preferred:

1) Future and already working teachers use their photos;
2) Future and already working teachers use an abbreviation of their name.

Analysis of the answers of future and already working teachers to the questionnaire questions revealed that in all cases, without exception, they used their favorite photo for the avatar, in which they like themselves, and also believe that such a photo will be pleasant for others to look at.

Future and already working teachers explain the choice of their photo for the avatar as follows:

- Others should understand who they are communicating with;
- Students, their parents, colleagues and my teachers should know what I look like;
- It is a self-presentation of myself to those who communicate with me in virtual space.

Figure 1 shows the opinions of future teachers and those already working about the functions of an avatar during distance learning. We drew attention to the fact that completing studies at an institution of higher pedagogical education and switching to distance learning at an institution of postgraduate pedagogical education affects the change in the functional purpose of the avatar. After completing studies at the university, the percentage of teachers who believe that the right choice of an avatar helps to draw attention to them as professionals increases, and the avatar also performs the function of self-presentation to future students and their parents before the start of a personal meeting.

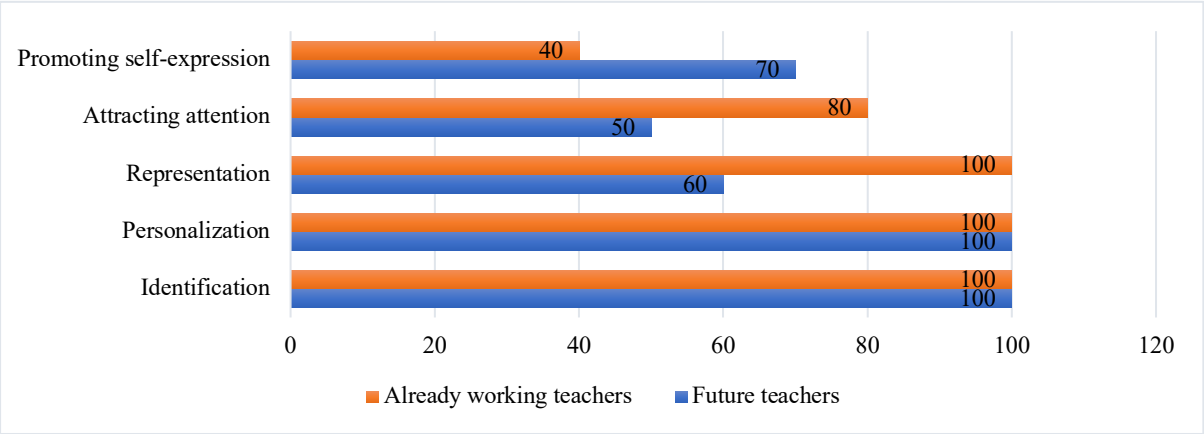


Figure 1. Functions of avatars according to the considerations of future and already working teachers

During the survey, prospective and already working teachers were asked how they felt when the camera was on during distance learning. We analyzed the responses to this question and identified two groups of thinks, which are presented in Table 1.

Table 1. Positive and negative feelings of future and already working teachers during distance learning, which involves constantly turning on the camera

Positive feelings	Negative feelings
Content of the response / (%)	Content of the response / (%)
I'm not paying attention to the camera (in 2% of cases)	I feel uncomfortable showing myself on camera (in 32% of cases)
The camera on doesn't affect my feelings, on the contrary it helps me control appearance and posture (in 5% of cases)	I feel uncertainty (in 28% of cases)
	I don't feel security (in 13% of cases)

Respondents also indicated that the "herd instinct" is triggered:

- During distance learning, several avatars appeared – I also turn on the avatar,
- Everyone's cameras are on – I also turn on my camera.

We paid attention to future teachers who study remotely at the university in the afternoon and work at school in the morning (perform the duties of a teacher's assistant (44% of respondents), a teacher (34% of respondents)), perform other work (18% of respondents), and are not yet working (4% of respondents). After analyzing their answers to the questionnaire questions, we found that combining study with work affects the use of an avatar during distance learning, which is organized in the afternoon. The use of an avatar by future teachers is explained as follows:

- I feel tired from the teaching activities I did in the morning, so I turn on the avatar.
- I replaced the official sitting at the desk during the morning with a comfortable sitting in a soft chair during distance learning in the afternoon, during which it is not convenient to turn on the camera.
- I use the avatar in order to sit more comfortably. I can comfortably sit on the ottoman and listen to the presentation of the educational material.
- I work both in the morning and in the afternoon, so I use the avatar so that other employees are not visible.

Future teachers who combine their studies at the University with work, and already working teachers who combine professional pedagogical work with training in advanced training

courses, are often late at work and do not have time to get home in time for the start of distance learning. In such cases, they connect to distance learning using an avatar and at this time travel in transport or go home and listen to the lecture material.

Also, in 45% of cases, it was noted that before the start of distance learning, future teachers and already working teachers do not have time to eat, so they connect to distance learning using an avatar, listen to the lecturer, and eat a sandwich at the same time.

12% of respondents indicated that they connect to distance learning with an avatar when they are very warmly dressed because they are cold at work or on the way home.

10% of respondents connect to distance learning are using an avatar when they plan to listen to a lecture and do other things at the same time (pour food for children or husband, put things away, wash dishes, etc.).

6% of respondents use an avatar during distance learning when they need to step away from the monitor screen for a few minutes, find an object, and if someone distracts them by asking about something.

4% of respondents use an avatar because it helps them control the content of distance learning, when the camera is on, they constantly monitor other things: whether they are sitting well, how they look, whether the microphone is turned off, etc.

5. DISCUSSION

It is important to analyze the trends in the responses of future teachers and already working teachers to the question: Do you perceive the regular audience and the "audience" of distance learning the same way? Why, in your opinion, do you perceive the regular audience and the "audience" of distance learning the same way? Why, in your opinion, do you perceive the regular audience and the "audience" of distance learning differently?

Taking into account these questionnaires, we identified two groups of respondents whose answers were radically opposite. In the first group, we combined 17% of future teachers and already working teachers who perceive the regular audience and the "audience" of distance learning the same way, since different spatial perception attracts their attention. The placement of students on the same plane of the monitor screen does not cause them discomfort, but is perceived by them as an opportunity to form an opinion about everyone, control the situation and correct their actions in time.

That is, the process of spatial perception of these respondents is implemented at three levels, namely: functional (effective perception of other social objects through the prism of performing their functions during educational activities); operational (effective perception of other social objects through the prism of their actions); apperceptive (perception of other social objects through the prism of previously acquired experience and effective continuation of the formation of a bank of positive experience).

The second group included 83% of prospective and already working teachers who indicated that the change in the spatial arrangement of those who study with them affected their perception of the regular audience and the "audience" of distance learning differently. In 32% of cases, respondents indicated experiencing a feeling of discomfort from showing themselves on camera, a feeling of uncertainty (in 28% of cases), and a feeling of insecurity (in 13% of cases).

Also, 78% of prospective and already working teachers indicated that during distance learning they immediately use an avatar when:

- They worry about their appearance.
- They do not want to be distracted by how they look, but want to concentrate on the educational material, since the conscious perception of it meets their urgent needs (it is necessary to hold an open lesson for the school administration and teachers, it is

necessary to pass certification, it is necessary to resolve a problem that arose during communication with the parents of students, etc.).

- They are not ready to be under the camera lens during distance learning.
- They just do not want to be seen today.

Regarding the second category of respondents, the process of spatial perception is also implemented at three levels, but with different efficiency: at the functional (ineffective perception of other social objects through the prism of performing their functions during educational activities); operational (ineffective perception of other social objects through the prism of their actions); apperceptive (ineffective perception of other social objects through the prism of previously acquired experience and the continuation of the formation of a bank of negative experience).

Therefore, when organizing distance learning for future and already working teachers, it is necessary to take into account that they have different attitudes towards the simultaneous vision of all students in the educational process. They also have different attitudes towards using avatars. They have different motives and show different cognitive activity during distance learning.

6. CONCLUSION

We understand the process of spatial perception as the process of reflection by the nervous system of subjects of face-to-face and distance learning, as well as of the shape, size, remoteness and relationship of social objects, situations and events and themselves in relation to other social objects through the parallel or sequential activity of analyzers.

According to the results of experimental research, the process of spatial perception manifests itself at three levels of process implementation and is characterized by different efficiency of its course and the formation of different experiences. Thus, at the functional level of spatial perception, effective / ineffective perception of other social objects through the prism of performing their functions during educational activities can be observed, at the operational level – effective / ineffective perception of other social objects through the prism of their actions, at the apperceptive level – effective / ineffective perception of other social objects through the prism of previously acquired experience and the continuation of the formation of a bank of positive / negative experience.

It was found that the placement of social objects, situations and events in space is radically different during face-to-face and distance learning. Only for 17% of respondents, changing the usual audience and the "audience" of distance learning did not affect the effectiveness of spatial perception at the functional, operational, and apperceptive levels. For the remaining respondents, ineffective spatial perception and the continued formation of a bank of negative experience were recorded.

It was found that future and already working teachers prefer three ways of designing an avatar. This is using a photograph, using an animated image, using an abbreviation formed by shortening the name. It has been found that after completing their studies at university, the percentage of teachers who believe that the right choice of avatar helps to attract attention to themselves as professionals increases. They also use avatars to self-present themselves to future students and their parents before the start of a personal meeting.

It was found that during distance learning, which involves the constant work of the camera, 7% of respondents experience positive feelings, and the rest experience negative ones (discomfort (in 32% of cases), uncertainty (in 28% of cases), insecurity (in 13% of cases).

It was found that the reasons for using an avatar are different. These are: fatigue caused by combining study with work (for future teachers) and professional pedagogical activity with

training in advanced training courses (for teachers); the desire to comfortably sit in a soft chair; work in the morning and afternoon; being returning home late (the setting for studying while riding in transport, listening to a lecturer while eating a sandwich, parallel performance of other tasks (feeding children, washing dishes, etc.)) is triggered.

REFERENCES

Antonov, A. V. (1999). *Information, perception, and understanding*. Kyiv.

Babalich, V.A. (2019). Experience of using Moodle system during studying the discipline "Theory and methods of teaching swimming". *Scientific and Methodical Foundations of Using Information Technologies in the Field of Physical Culture and Sport, 3*, 19-22.

Castro, E., de Andrade, A., Mota, S., Barreto, M. (2024). Impacts of Gamification on Teacher Training. *Cadernos De Educação Tecnologia E Sociedade*, *17*(3), https://doi.org/10.14571/brajets.v17.n3.%E2%80%AD978-1006%E2%80%AC

Chumak, L. A. (2018). Possibilities of the service Google Classroom for organization of learning process. *Bulletin of Prydniprovska State Academy of Civil Engineering and Architecture, 6*, 65–70

Da Silva, W., da Silva, F., Braz, R., Leta, F. (2024). The teacher facing information and communication technologies. *Cadernos De Educação Tecnologia E Sociedade*, *17*(4), 1240–1259. https://doi.org/10.14571/brajets.v17.n4.1240-1259

Demyda, B., Sahaidak, S., & Kopyl, I. (2011). Systems of distance learning: Review, analysis, choice. *Bulletin of National University "Lviv Polytechnics". Computer Sciences and Information Technology, 694*, 98-107.

Hrynova, M. V. (2008). *Self-regulation*. Poltava: ASMI.

Kanakh, F. M. (1990). *Subject-object and physical cognition*. Kyiv.

Konstankevych, L., Boremchuk, L. & Radkevych, M. (2020). Using of service Google Classroom in the process of distance learning. *New Pedagogical Thought, 4*(104), 25–29. DOI: 10.37026/2520-6427-2020-104-4-25-29.

Ku, J. et al. (2005). Experimental results of affective valence and arousal to avatar's facial expressions. *Cyberpsychol. Behav. Impact Internet Multimed. Virtual Real. Behav. Soc., 8,* 493–503.

Miyer, T., Holodiuk, L., Omelchuk, S., Savosh, V., Bondarenko, H., Rudenko, N., & Shpitsa, R. (2021a). ICT as a means of implementing thematic FIN-modeling in the organization of training in institutions of higher pedagogical and adult education. *AD ALTA. Journal of Interdisciplinary Research*, *11*(1), 26–32. ISSN 1804-7890, ISSN 2464-6733 (ONLINE).

Miyer, T., Holodiuk, L., Savosh, V., Bondarenko, H., Dubovyk, S., Romanenko, L., & Romanenko, K. (2021b). Usage of information and communication technologies in foreign and ukrainian practices in continuing pedagogical education of the digital era. *AD ALTA. Journal of Interdisciplinary Research*, *11*(2), 35–39. ISSN 1804-7890, ISSN 2464-6733 (ONLINE).

Miyer, T., Omelchuk, S., Bondarenko, H., Rudenko, N., Romanenko, L., Smolnykova, H., Romanenko, K. (2022). Effective education in the conditions of noosphere existence of mankind with objective and virtual realities. *AD ALTA. Journal of Interdisciplinary Research*, *12*(1), 127–131. ISSN 1804-7890, ISSN 2464-6733 (ONLINE).

Napreienko, O. K., & Petrov K. O. (1998). *Mental self-regulation*. Kyiv: Zdorovia.

Pienkin, Yu. M., & Yatsenko, N. M. (2014). Features of the organization of students distance education form organization in Moodle system. *Actual Issues of Pharmaceutical and Medical Science and Practice, 1,* 105-108.

Proidakov, E. M., & Teplytskyi, L. A. (2006). *English-Ukrainian Dictionary of Computational Technique, Internet, and Software development*. (2nd ed.). Kyiv: Publishing House "SoftPres".

Rudenko, N., Siranchuk, N., Stetsyk, S., Dubovyk S., Sukhopara, I., Romanenko, L., & Shpitsa, R. (2024). Factors influencing the process of organizing distance learning of students in the conditions of military operations on the territory of Ukraine. *AD ALTA. Journal of Interdisciplinary Research*, *14*(1), 33–38. ISSN 1804-7890, ISSN 2464-6733 (ONLINE).

Tryus, Yu. V., Herasymenko, I. V., & Franchuk, V. M. (2012). *System of electronic education in HEI on the base of Moodle*. Cherkasy.

Volkonska, O. D. (2017). Distance education based on Moodle system. Proceedings of inter-HEIs webinar "Distance learning as a contemporary educational technology, Vinnytsia, March 31, pp. 50-53.

Vyshnivskyi, V. V., Hnidenko, M. P., Haidur, H. I., & Ilin, O. O. (2014). *Organization of distance education. Creation of electronic educational courses and electronic tests*. Kyiv: DUT.

Zhang W. (2023). Avatar Design in Education: Realistic vs. Cartoonish Representation and Acceptability. *Communications in Humanities Research, 16*(1), 243–250. DOI:10.54254/2753-7064/16/20230721

Zhang, R., & Wu, Q. Impact of using virtual avatars in educational videos on user experience. *Sci Rep*., *14,* 6592 (2024). https://doi.org/10.1038/s41598-024-56716-9

Zhernovnikova, Ya. V. & Piatysotska, S. S. (2020). Features of using Moodle platform in the process of studying the discipline "Informatics". *Scientific and Methodical Foundations of Using Information Technologies in the Field of Physical Culture and Sport*, 26-29.

Zhurov, V. V. (2002). Development of spatial thinking of adolescents with deep vision impairments. Regional Institute of Postgraduate Pedagogical Education. Department of psychology. Chernihiv.

Zhurov, V. V., & Biienko, N. A. (2021). A phenomenon of psychological self-regulation of states and life activities of a teacher. *Scientific Bulletin of Sivershchyny, Series "Social and Behavioral Sciences", 2*(7), 75–90.