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The Role of Human Communicative Competence in Post-Industrial Society

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Abstract: The article considers the scientific category of "educational neuroscience" as a promising interdisciplinary field of research that studies relationship between education and the sciences of higher nervous activity. The role of theoretical research in the field of neuroscience for creation of modern distance educational technologies is determined. It is established that use of neuroscience in learning process expands and enhances competency characteristics of higher education students in research, diagnostic and professional activities. The problem of obtaining neuroscientific knowledge by higher education students, which will help provide future specialists with a sufficient communicative level of skills in everyday life and work environment, has been brought up to date. Evaluation of large-scale application of the distance learning system in the process of formation of communicative competencies of higher education students is carried out. The main problems that arise in higher education students and teaching staff when working in the distance learning system are analyzed. Possibilities of application of mobile devices and applications in educational process at a distance form of training are considered. The effectiveness of application of information and communication technologies in the process of formation of communicative competencies in higher education students is clarified. The positive and negative impact, advantages and disadvantages of distance learning for both higher education students and the academic teaching staff of higher education establishments, including in the context of neuroscience, have been identified and generalized.

Keywords: *Educational neuroscience; communication; information and communication technologies; educational process; case method; professional activity; neural networks.*

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Introduction

In the focus of attention of current scientists of different specialties, for the last several decades, there are many directions that help to better understand the peculiarities of the functioning of the human brain and, accordingly, the capabilities of the human body. These studies give impetus to development of a whole complex of neuroscience, including neurobiology, neuropsychology, neuroeconomics, neurolinguistics, neurocommunication, as well as educational neuroscience.

Currently, leading domestic and foreign teachers of higher education establishments use in their practice the results of research in neurobiology, neurophysiology, neuropsychology and areas that study intelligence, communication skills and features of their development. It turned out to be obvious and scientifically substantiated that successful organization of educational and research work of higher education students requires deep and systematic knowledge about the brain functioning and its participation in human cognitive activity. The central concepts of cognitive neurobiological research became the mechanisms of perception of the external world, memory, language, thinking, intelligence, higher forms of consciousness, emotions, motivation, Teslyuk (2019). Such processes and phenomena led to the emergence of an interdisciplinary field of scientific knowledge, a new branch of neuroscience – the educational neuroscience.

The educational neuroscience is a young, multifaceted field of research, the task of which is to establish a link between learning and the sciences of higher nervous activity (Tandon & Singh, 2016). This connection manifests itself in two directions:

1) in terms of understanding how the learning process affects the structure and features of brain function;

2) in defining structures that are responsible for development of higher mental functions in the process of learning (memory, attention, imagination, thinking, etc.).

Accordingly to Albert Galaburda, Professor of Neurology and Neuroscience, Harvard Medical School, "Neuroscience knowledge can also be applied to higher education, and I would suggest that the predictive value of neuroscience data for education should be greater than, for example, for genetics,", Galaburda (2010).

According to Verbitskaya (2018), natural neural networks are the best indicator of what a student gains or loses when confronted with a digital learning environment. Training proper thinking and behavior in distance learning is something a young person can learn. At the same time, while studying remotely, students lose face-to-face communication, so

building communication skills can become more difficult. The results of the professor's research allow the implementation of practical recommendations to improve the quality of education in higher education institutions and increase its effectiveness.

According to Hymes (1971), communicative competence includes four degrees: 1) possibility (knowledge and ability to use the generative base of language); 2) feasibility (knowledge of whether and to what extent something is possible and ability to be practical or feasible); 3) appropriateness (knowledge of speech behavior and its contextual features, ability to use language appropriately); 4) performance (knowledge of whether and to what extent actions with language are taken and ability to use language to take that action).

Results of neuropedagogical research cannot always be used in mass learning, because they determine in the learning process priority of individual approach to students, necessity to take into account many factors that are often lost or ignored in group learning. However, in the process of organization of research activities of higher education students, formation of their communicative competencies, which often involve individual or micro group format, the neuropedagogical approach is very relevant, Kananchuk (2019, pp. 127-128).

Applying discoveries of educational neuroscience at a regular lecture or practical lesson at university develops scientific knowledge. The task of the teacher is to present a course of discipline trained by him or her within the curriculum so as to neutralize the already existing with the higher education students intuitive, fragmentary, obsolete ideas about the subject, and to apply new, scientific knowledge. Therefore, one of the skills that enables higher education students to learn, successfully form communicative competencies, quickly adapt to the professional environment is the skill of suppressing unnecessary information. A positive example of application of such skill is the ability of successful people in the profession to control suppression of irrelevant information, which allows them to cut off intuitive, everyday knowledge that is not related to their field of activity, Thomas (2018).

New requirements in current conditions are put forward to higher education on the basis of the competence approach which provides orientation of educational process on mastering of the general cultural, general professional competences put in the National framework of qualifications (Yulinetskaya, Babii, Hloviuk, Stepanenko, et al, 2021, pp. 310-326), which ensures successful implementation of professional activities of future graduates of higher education establishments in broad social, cultural,

economic contexts. Therefore, the level of success in professional activity of modern higher education students depends largely on their mastery of communicative competence, which is part of the structure of general cultural competencies, and provides opportunities for productive contacts with people, live information exchange, strategy development in a professional team, teamwork, partners, including foreign ones.

However, as practice shows, higher education students often experience significant difficulties in communication, which is a consequence of insufficiently systematic work on formation of communicative competence by educational establishments of different levels of accreditation, the dominance of traditional teaching methods that do not cause emotional response, independence, creative activity, interaction in students, Kasemsap (2017).

The pandemic of coronavirus infection COVID-19, which spread throughout the world in 2020, has become a challenge to the work of the entire education system not only in Ukraine but also around the world. Quarantine measures, the introduction of which affected absolutely all aspects of life, including organization of the educational process, became a catalyst for large-scale application of the distance learning system in the educational process, effective implementation of which in a short period of time is only possible with the involvement of such new technologies as educational neuroscience (Brain – Targeted Teaching Model).

The theory and practice of applying distance learning and the achievements of the information society have been investigated in the scientific works of many scholars. For example, Holmberg, focusing on the concept of "guided didactic conversation" (Holmberg, 1989, p. 43). The emphasis here is on virtual conversation. It is embedded in the content of "well-designed self-study (written course) materials (that lead to) a sense of personal relationship and intellectual satisfaction, (and) motivation to learn" (Holmberg, 1989, p. 43). Recognizing that students' communication remotely with the instructor has significant challenges, he suggests that this conversation by economic necessity is supplemented by a pretraining course.

Traxler (2007) notes that mobile, personal, and wireless devices have radically changed social perceptions of discourse and knowledge, and have assumed responsibility for new forms of educational provision. With increasing public access to information and knowledge anywhere and anytime, the role of higher education, especially formal education, has been questioned, and the relationship between education, society, and technology is now more dynamic than ever.

In more recent research, Fu & Hwang (2018) notes that the use of mobile technology, especially the latest handheld devices, allows students to perform a variety of activities. The Internet is accessed through browsers and many mobile applications, and mobile technology is seen as a potential teaching and learning tool.

In his scientific works Harasim (2011) provides a detailed overview of the current state of the theory of learning and online technology, in the perspective of online learning, analyzes its historical origins, as well as the main approaches to it.

Picciano (2017), considering the theoretical foundations and models that focus on the pedagogical aspects of online education, after in-depth research on the application of digital technology in general learning theory, has developed and proposed an integrated multimodal model of online education.

Alla Veremchuk (2013) believes that one of the leading challenges facing teachers and staff of HEI is not only the implementation of distance education, but also ensuring the favorable impact of new technologies on the educational process, that is, the need to develop strengths and minimize the negative.

In her article Andrusenko (2017) argues that distance learning provides applicants for higher education access to non-traditional sources of information, increases the efficiency of independent work, gives completely new opportunities for creative self-expression, finding and consolidating various professional skills, and teachers, in turn, allows to implement completely new forms and methods of learning on the application of conceptual and mathematical modeling of phenomena and processes.

At the same time, Ivanchenko (2017) in his research identifies six main world directions of development of distance education, namely: information and technological, legal and regulatory, financial and economic, institutional, scientific and methodological and organizational and pedagogical.

Bosch (2016) believes that when using online technologies, classical learning strategies should be adapted to the new opportunities offered by such technologies. However, the author notes that the use of distance technology does not necessarily improve the quality of courses. When planning an educational experience, the instructor must help students identify their learning needs and take responsibility for their own learning.

It is also necessary to investigate the formation of communicative competence of education applicants in the conditions of distance learning in the era of postmodernism.

Scientific studies of postmodernism argue that it is a heterogeneous and complex phenomenon, whose development takes place in the direction of the formation of a qualitatively new state of society and its system of higher education. Therefore, we agree with the statement of Bekh et al. (Bekh, Vashkevych, Kravchenko, Yaroshenko, Akopian, & Antonenko, 2021) that the purpose of postmodern education is not so much the transfer of knowledge and postulates to students as the formation of their worldview values, the spiritual world of personality, determining its position, role and behavior in postmodern. society. After all, human consciousness is formed through the acquisition of certain social experiences, largely through higher education.

Turyahikayo (2021) believes that postmodernism contributes to the renewal of higher education in light of globalization and individualization, the formation of a global environment of intercultural interaction, and the development of communication skills and personality in general. The philosophy of the previous era was based on a scientific and materialistic understanding of the world around us. The model of current postmodern society is formed around the idea of progress in all areas and forms of human activity, including education.

Researchers of postmodern education, in particular Burbules (2002) and Cooper (2005) emphasize that the following cardinal issues existing in the system of postmodern higher education should be addressed:

1) to improve national educational legislation with mandatory discussion of projects by representatives of all sectors of society in order to reconcile the interests of the state, scientific and pedagogical teams, employers, etc.;

2) change the image of scientific and pedagogical staff in a positive direction;

3) to preserve classical universities with the right of autonomy and the opportunity to determine the form of education;

4) to soften the taxation of business, if it supports science and education;

5) primarily to ensure the technical and technological needs of the higher education system in the information society.

Students' postmodern experiences may encourage them to search for identity among different sources of identity, seeing education as a driver of flexibility, "learning," and communication. However, vocational education trains people for structured managerial organizations and the accumulation of general professional knowledge. Communication skills training needs to be reimagined as a process of emergence, where teachers and students work

together to create knowledge and identity in their professional field. To operate in a more complex and fluid society, students need to create a strong professional identity and learn how to transfer knowledge, communication, and values from one situation to another (Askeland & Payne, 2008).

Glans K. argues that postmodernism does not always lead to generational differences in worldviews between students and teachers. Because teachers can also be flexible, open, fragmented, globalizing, oriented to the use in the educational process of the achievements of the information society, including distance learning. Academics also enjoy experiencing new technologies, being artistic performers of their lectures with them. They can compete in the higher education market and become academic tourists. An aging population in many Western countries means that many faculty members have different experiences from postmodern students (Glans, 2003).

Farzaneh (2011) believes that the development of critical thinking, communication skills, and an emphasis on constructive dialogue is an educational goal of postmodern curricula and is of practical value to students as well as employers and other consumers.

Even the world scientific community pays attention to the fact that in the postmodern era a qualitatively new, virtual reality in human existence is being formed - distance education. At the same time, this form of the virtual world creates limitless possibilities for the realization of each student's desires.

Farahani (2004) argues that the concept of postmodernity, based on the achievements of the information society, is breaking down the boundaries of the structure of classical education, and the gradual application of digital technologies in universities is forming new social fields, but despite these massive changes the role of the teacher in the coordination of learning and the formation of communication skills is only increasing. Also, the scholar believes that in present-day institutions of higher education, postmodern curricula consist of an emphasis on communication and discussion, which leads to an increased awareness of cultural, historical, political, environmental, aesthetic and theological essences. The author argues that since the goal of higher education in different countries is to develop students' communication skills, originality, resourcefulness, and application of non-standard approaches, the use of media education systems should occupy a special place in the educational process and strengthen the acquisition of knowledge and skills.

Specific research on the relationship between modernism, postmodernism, and communication studies was undertaken at the end of

the last century by Mumby (1997). He explored theories whose essence ranged from a complete rejection of critical, postmodern approaches to communication (Burgoon & Bailey, 1992) and to the communication theory tradition of communication studies (Stewart, 1991).

Higgs (2000) in his writings rethinks educational discourse, which he believes has its roots in the development of twentieth-century philosophy, and especially in the discourse of postmodernism. He draws attention to the pluralistic problem-centered approach to educational philosophy.

At the same time, the problem of forming communicative competence in the conditions of distance education system application in the context of neuroscience in the postmodern era has been insufficiently researched. There are many contradictions and disagreements of views on this problem.

The purpose of the article is to identify effective ways to form the communicative competence of education applicants in a distance learning environment by means of educational neuroscience; grouping their advantages and disadvantages both for higher education applicants and for higher education faculty.

The role of human communicative competence in post-industrial society

The current labour market requires from higher education establishments a competitive graduate who is able to master new technologies, adapt to changing working conditions, and the idea of competency-oriented education meets this requirement. In addition, the communicative competence of a graduate is one of the main components of the specialist model.

The most important resource in the context of globalization is the communicative component, which is gradually becoming a new reality, which focuses on various forms of trans- and multinational cooperation in implementation of projects at different levels (Toffler, Futurshok, 1997). Trust in people, the ability to communicate, work in teams, networks, willingness to change roles characterize the communicative competence of a person living in a post-industrial society. Therefore, an important condition for professional and social success of each individual is a sufficient level of communication skills, much of which is formed in the process of education.

The results of mastering the basic educational programs of universities by higher education students should be formation of general cultural and professional competencies in the field of communication, which are manifested in the readiness to logically correct, reasoned and clearly build

oral and written language; in the ability to use the skills of public speaking, discussion; in mastering the basics of language culture (Raven & Stephenson, 2001).

In order to form communicative competence in higher education students, it is not enough to fill lessons with communicative exercises that enable to solve communicative tasks. It is necessary to create conditions under which future professionals would have the opportunity to think creatively, solve problems, think about possible ways to solve problem situations, focus attention on the content of their statements. It is important to improve communicative speaking skills and the ability to express one's thoughts (Tasbolat & Dalbergenova, 2019).

Thus, the purpose of learning should be language activities and the ability to communicate. Also, the indicator of formed communicative competence is the communicative culture, which in the pedagogical aspect is determined by a phenomenon that represents the position of an individual and the level of his or her professional development (Selevko, 2006).

Formation of communicative competence involves formation of basic knowledge, skills, abilities in the three areas of language communication: professional language culture, communicative culture, communicative behaviour. Communicative competence is implemented through communicative skills, which involve mastery of mental and practical actions aimed at establishing and maintaining appropriate relationships with people in the process of educational and then professional activities (Ashikhmina, 2012).

Insufficient formation of important qualities related to business communication, inconsistency of the level of their development with the requirements to the activities of a future specialist, lead to long-term professional adaptation of such a specialist in the production environment.

The success of formation of communicative competence of future professionals can be achieved by solving the following tasks (Karavanova, 2011, pp. 117-123):

1) formation of motivational and value attitude to communication;

2) formation of the system of knowledge about the main functions and strategies of language communication, communicative activity;

3) development of communicative competencies.

The specificity of competence as a certain type of professional readiness resides in the fact that it is mostly obtained in situations of real solution of professional problems. As a result, the method of specific situations, the so-called case method, or case technology is becoming more common.

Case method is a method of active problem-situational analysis, based on learning by solving specific problems-situations. The purpose of this method is to analyse the situation and develop a practical, optimal solution by joint efforts of a group of students. Higher education students are invited to comprehend the situations of professional activity that require solution to a problem. In the process of solving a specific problem, higher education students use all the necessary set of acquired knowledge and skills (Ilyashenko, Gladkova, Kutepov, Vaganova, et al, 2019, pp. 313-322).

The case method promotes development of the ability to listen and take into account an alternative point of view, argue one's own, convince others, present to the group one's solution, discuss ways to solve the problem in a group, participate in discussions and develop one's thinking style and behaviour in higher education students (Ilyina, 2009, pp. 253-261).

It should be noted that the use of case-technology and updating of already acquired knowledge and skills in solving the problem is an effective method of developing professional communicative competence in higher education students (Klak, 2015). Thus, communication skills are the key to the successful professional activity of a student, and to a successful life in general. And their formation in the present-day process of training higher education students is impossible without the use of distance learning.

Distance educational activity in formation of communicative competence

There are intensive processes of informatization of education, introduction of new information technologies, development on their basis of new ways of distance educational activity. At the present stage of development of society, when the world has faced COVID - 19 pandemic, the widespread introduction of distance education is becoming even more relevant; the problem of development of distance technologies in education, modernization of the existing educational standards and programs, search of new ways of interaction of teachers and students is acute.

Holmberg (1989) states that in recent years the use of distance learning in the educational process has spread all over the world. It has become an integral part of all national educational systems and an academic discipline in its own right. This author's research in the field of distance learning created the basis of theory, which is now used as a basis for improving the practice of distance learning.

Postmodernism is one of the key paradigms in educational philosophy that has received less scholarly attention but relates well to knowledge management. Unlike most paradigms, postmodernism argues

that prior knowledge is generated through the dynamic discourse of information space formation. Therefore, postmodernism encourages educators to step out of their comfort zone and reflectively self-evaluate in light of current knowledge management policies and practices in the digital environment and make extensive use of distance education tools (Turyahikayo, 2021).

As defined in the order of the Ministry of Education and Science of Ukraine "On approval of the Regulation on distance learning" (Ministry of Education and Science of Ukraine, 2013), distance learning is an individualized process of acquiring knowledge, skills, abilities and ways of human cognitive activity by indirect interaction of distant participants in the learning process in a specialized environment that operates on the basis of modern psychological, pedagogical and information and communication technologies.

Reasons for the introduction of distance education in higher education:

- increase in the number of students;
- free access of students to gadgets and digital technologies;
- the rapid development of the digital industry;
- the need to learn at any time and place;
- synergy of the educational process and professional activity;
- the limited capacity of higher education institutions during the pandemic
- constructive competition between educational institutions and private training centers;
- society's growing need for continuing education (Farzaneh, 2011).

Distance learning involves Internet access, technical support (computer, tablet, smartphone, etc.) for all participants in the educational process, as well as the fact that teachers possess the distance learning technologies.

On the one hand, distance technologies are introduced into the learning process in higher education establishments and further education institutions, which ensures its accessibility, openness and mobility. On the other hand, the purpose of study in higher education establishments is formation of communicative competence, as their graduates should have the ability to communicate orally and in writing to solve problems of interpersonal and intercultural interaction. Accordingly, there is a need to find approaches, tools and methods of teaching under conditions of distance education, which contribute to formation of communicative competence of graduates (Abramenko, 2019, pp. 22-27).

Distance learning is becoming more and more integrated and weighted in higher education. There are a significant number of case studies and pilot trials, analyzing which we can see several types of distance learning and categories of mobile devices:

1. Technological mobile learning. Dedicated technological innovations are deployed in academic institutions to demonstrate technical ability and digital capabilities.
2. Portable eLearning. Mobile, wireless, and portable technologies are used to apply approaches and solutions already in use in the educational process, such as Virtual Learning Environment (VLE).
3. Digital learning in the classroom. The same technologies used in the classroom environment to support collaborative learning, perhaps linked to other technologies such as interactive whiteboards.
4. Informal, personalized, situational mobile learning. The same technology, but with enhanced additional functionality, such as video, to provide additional educational experiences.
5. Mobile learning to maintain effectiveness. Technologies are designed to improve the effectiveness of mobile students by providing information and support in the context of their accomplishments.
6. Distance learning for development. Uses technology designed to meet environmental and infrastructural goals in providing the educational process (Traxler, 2007).

The use of innovative tools and forms of e-learning, online educational platforms, electronic dictionaries and textbooks, participation in webinars and video conferences motivate young people who are open to the use of new interactive technologies to achieve better learning results. Systematic interaction with the teacher and classmates in the classroom or during video conferences activates independent work of higher education students, creates situations of interpersonal live communication, develops communication skills. Collaborative team work, information exchange using various sources, application of computers and Internet for learning with its limitless possibilities and availability of authentic materials gives students a sense of freedom and job satisfaction, and the result is a rich arsenal of knowledge and communication skills required in further life and professional activities (Ainutdinova, 2011).

At the same time, the practice of teachers of higher education establishments and the analysis of responses of higher education students

showed that 71% of future professionals (especially of technical specialties) feel insufficient willingness to cooperate with colleagues in solving educational and professional problems; 69% have poor command of public speaking, working with the text, defending professional position, participating in dialogue, discussion; 67% indicate that they do not fully develop the skills needed for interaction in group work (Fig. 1).

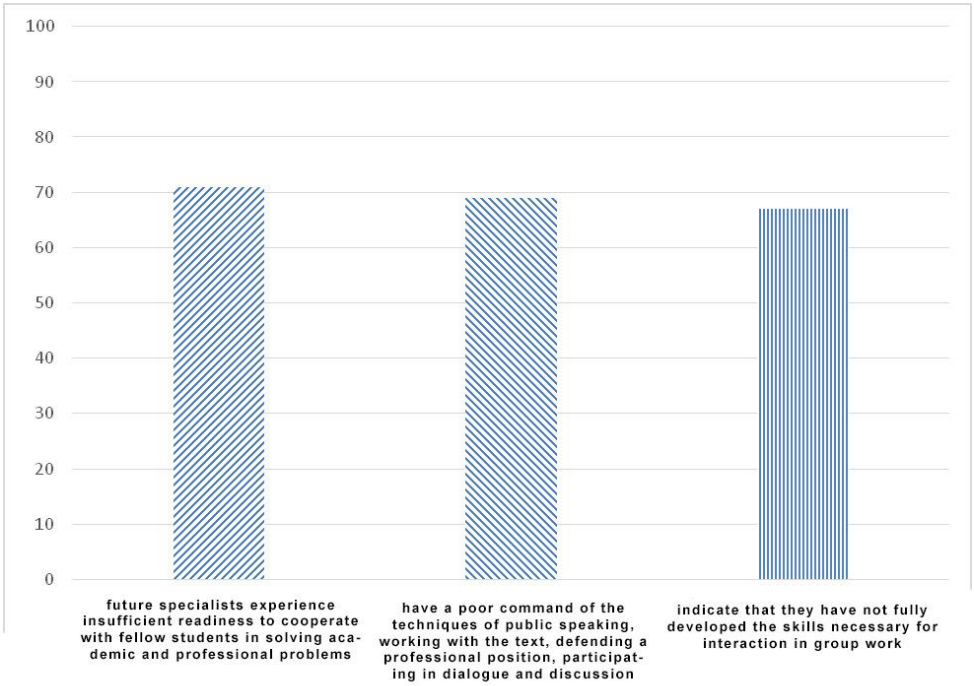

Figure 1 – The main problems that arise in higher education students and the academic teaching staff when working in the distance learning system
*Source: Shulyar (2020)

The biggest problem for teachers of educational institutions during the second semester of 2019-2020 academic year were difficulties in applying distance learning methods in order to form the communicative competence in students.

Chantelle Bosch (2016) suggests that one of the key determinants of successful distance learning for higher education applicants is their intrinsic motivation. Students who are motivated take responsibility for their learning outcomes and have a higher level of focus. Motivated students will identify their own goals and have a desire to succeed in their studies, master topics

more deeply in order to perform better on assignments. Therefore, the faculty of institutions of higher education should consider the formation of highly motivated students when developing curricula. When students have a high level of intrinsic motivation, they will learn that the educational process is enjoyable and they find it interesting.

Distance learning is an educational process strategy that provides highly motivated students with opportunities to maximize their potential through the interaction, support, and confidence they have gained. It promotes these students' academic performance, cognitive and social skills, ability to work in a group, self-confidence, and develops a positive attitude toward learning and courses (Bosch, 2016).

In general, it should be noted that the use of modern ICT in the educational process activates and trains memory, intelligence, observation, concentrates attention of students, helps them evaluate offered information differently. The use of computers in the classroom makes presentation of educational information more diverse. The use of sound, graphics, color, modern video equipment makes it possible to model different situations and environments. All this strengthens motivation of higher education students to the educational process (Bosch, 2016).

However, most modern teachers and students are technically and psychologically ready to use mobile devices and technologies in distance education. Due to mobile devices, education goes beyond the physical boundaries of the audience. Most techniques of traditional pedagogy can be implemented remotely. And mobile devices can become an indispensable tool that helps in learning.

Development and use of special applications for mobile devices will allow one to transfer data from the teacher's device directly to the students' phones. This way of visualization allows the use of demonstration materials in electronic form in classrooms not equipped with projectors and computer equipment. In case projection equipment is available, one can connect a tablet or a smartphone to output data, which will allow to use pre-installed programs (Sarrab, Al-Shihi, Al-Khanjari, & Bourdoucen, 2017).

Mobile phones allow to receive information anywhere, but in accordance with the real training program. Therefore, students can practice anywhere and at convenient time (9 ways in which mobile devices help in learning, 2013).

In addition, mobile devices enable teachers to receive feedback using the distance learning system in the form of electronic responses of students from electronic surveys.

Assignments involving the use of mobile devices contribute to development of communicative, intercultural, informational, cognitive, and also social competencies. Mobile devices combine work and study, enable to collect, evaluate and process information, to learn in a real context at any time and in any place (Fu & Hwang, 2018).

Distance education is based on the integration of digital technologies in teaching and learning, which creates the potential for significant changes in this field. Today it is still developing and will become an alternative to classical education in the future. Accordingly, students who are unable to assimilate into the complex digital space will also be unable to fully participate in the learning, academic, social, and cultural environment that teaches them. In parallel, there is still a phenomenon among educators around the world who seek to maintain a traditional culture of learning. Many teachers continue with classical approaches without using alternative digital teaching methods (Harasim, 2011).

The tool of educational neuroscience in the mechanism of formation of communicative competence of students under distance learning conditions

Analysing consequences of a large-scale application of distance education on formation of communicative skills of higher education students, it is necessary to estimate simultaneously the basic indicators of vital activity of students; to study the change in their physical and chemical, neuro-biological parameters, which occurs under the influence of prolonged contact with the interactive infrastructure. The only possibility to conduct such an estimation, properly and in the shortest possible time, is to use such a group of new technologies as educational neuroscience (Brain-Targeted Teaching Model).

For student success, it is important to know how the human mind and brain work and how genes, distance learning in particular, and the higher education environment, in general, affect brain function and the ultimate educational achievement of higher education applicants (Galaburda, 2010).

Educational neuroscience is an attempt to determine how new knowledge about neural mechanisms of learning can be applied in education to improve results of higher education students' training. There are two main streams of knowledge linking neuroscience to education:

1. Research on the areas of the brain responsible for various educational processes such as reading, attention, memory, computation, communication skills, etc.

2. Research on the tools by which educational processes affect brain structure and function.

Powerful research over the past few years has shown the role of these processes in learning (Tandon & Singh, 2016).

More recent research on the relationship between neuroscience and the educational process of higher education is based on the theory of cognitive load, which suggests that learning occurs best under conditions that correspond to the cognitive architecture of the student. The structure of the human cognitive architecture, although not known precisely, can be traced back to experimental methods of learning, which is distance learning. Cognitive load theory is concerned with methods of reducing working memory load to facilitate changes in long-term memory. While this theory used to be applied mainly in the educational process for technical students, it has now been applied to language and economics majors as well (Teslyuk, 2019).

Application of educational neuroscience implies that understanding functional features of human brain will predict the path for its further development, as well as provide an opportunity with the help of educational technologies of distance learning to influence communicative competencies of students (taking into account individual characteristics of each student). Thus, in the European Union and the United States, one of the components of the active implementation of neuroeducation in distance learning is the use of various educational and game software products (U.S. Department of Education, 2010).

The current breakthrough in the application of neuroscience achievements forces to reconsider organization of educational activities related to formation of communicative competence in distance learning format (Samofalova, 2019).

To understand, from the point of view of educational neuroscience, what acquires and what loses the higher education student at distance learning on the Internet, it is necessary to consider the internal work of the human brain in distance learning not in the classroom, not in a group, but at home conditions: using a laptop, a desktop, a tablet, a phone.

Today's educational neuroscience, which studies the work of the brain, in this case, reveals information about the so-called natural neural networks – natural prototypes of what is called "artificial intelligence". Due

to flexible and plastic natural neural networks of the human brain, people are not only able to learn, but also often demonstrate unique skills or capabilities at any age.

Natural neuronetworks (NNN) is the best indicator of what a higher education student gains or loses, staying alone with the digital learning environment (Verbitskaya, 2018).

What positive effects does a student gain in distance learning? There is a feature of human brain activity, which is genetically embedded in it, it is the speed of mental processes. Due to the current neuroscience, it is known that this is related to the electrobiochemistry of the brain. Even if the student tries to "think faster", he or she simply creates detours with his own consciousness and emotions, which over time will lead to rapid fatigue, or even faster forgetting what he or she has learned. Working at a natural speed of mental processes, which enables distance learning is the advantage that allows natural neuronetworks to become more stable, and higher education students to keep mental processes in a healthy state.

However, there is a serious danger. As soon as a person realizes the comfort of the brain activity, he begins to overload it with the information he needs. For example, in the internet environment where the brain feels comfortable, higher education students try to work with 15-20 different links, posts, stories at the same time. Training for reasonable thinking, behaviour and communication in distance learning is what the teacher should learn himself and to teach higher education students.

There is also a drawback in distance learning for formation of communicative competence of higher education students in terms of educational neuroscience. Thus, one of the ancient mechanisms of formation of natural neural networks, which was discovered in the twentieth century, is mirror neurons. In real-life communication, if a person sees what another person is doing or listens to him, then neural networks appear in his brain that mirror the neurons that work in a person who is actively speaking or acting. This mechanism was necessary to humans to recognize actions. But it is also an ideal learning mechanism that works regardless of the desire of higher education students when they study in a team. The natural neural mechanism of this effect is that studying together, higher education students "mirror" each other, and this enhances the effect of learning new things and facilitates to a stronger formation of their neural networks (Verbitskaya, 2018).

In general, achievements of neuroscience undoubtedly contribute to development of communicative competence of higher education students, their research skills, make the learning process extraordinary.

Conclusions

Given the above, we can conclude that formation of communicative competencies in distance learning conditions is a difficult process. This is due to the fact that during the regular full-time training and interaction of the teacher with higher education students, individual characteristics are taken into account (Picciano, 2017).

As of now, there are no distance programs that take into account certain individual characteristics of each higher education student and, most likely, it is impossible to create such individual programs. Only in traditional education a teacher can influence an individual formation of personality and foster moral qualities of the student. Therefore, it is necessary to develop a distance-learning environment that will be aimed at adapting all students to distance learning and stimulating development of communication skills in general (Kyrychok, Mitina, & Ilchenko, 2017).

For successful formation of communicative competencies of higher education students during distance learning, the distance learning participants should not be restricted in the choice of platforms and rely only on one Internet resource. A free choice and work in different directions are the key to successful learning and formation of communicative competencies of students.

It should also be noted that at distance learning the structural and organizational approaches to learning activities change. Application of the latest computer technology, which is the basis of the educational process in this case, allows not only to properly organize the educational process outside the higher education establishments, but also to enable students to develop their cognitive skills by getting acquainted with various online technologies, which subsequently helps to acquire knowledge of a higher quality.

Thus, due to expansion of education services and insurmountable situations in the world, presently there is a reduction in contact education, but the prospects for development of online and distance education open up, which are based on application of developed information technologies. For the effectiveness of the educational process in these forms, it is certainly important to arrange information and technological support of higher

education students, during which it is necessary to flexibly combine independent cognitive activity of students with different sources of information, teaching materials, fast and systematic interaction with the teacher, group work with classmates online (Olaniran, 2013).

Formation of students' communicative competence should also be carried out through a system of elective disciplines, each of which corresponds to one of the aspects of communication – communicative, perceptual, interactive. The content of each discipline should be developed taking into account the integrative nature of language communication (Ashikhmina, 2012). This will allow the higher education students to master competencies in the following three areas: in the professional culture of language, they will acquire fundamental knowledge in a particular professional field, the ability to conduct professional dialogue and manage it; in the communicative culture – improve language culture, thinking culture, emotional culture; in communicative behavior – master paralinguistic means of communication. Thus, mastering communicative competence will create conditions for a successful career, will allow one to become a competitive person in the profession.

The use of the method of system-structural analysis and synthesis in the performance of scientific abstractions and theoretical generalizations allowed to highlight the following results and conclusions of the study:

1. It was determined that an important condition for professional and social success of each individual is the presence of a sufficient level of communication skills, a significant part of which is formed in the process of obtaining higher education, and the introduction of distance technology in the learning process ensures its accessibility, openness and mobility.
2. It was found that the formation of communicative competence of the student involves the formation of basic knowledge, skills, abilities in three areas of speech communication: professional culture of language, communicative culture, communicative behavior. The success of the formation of communicative competence of future specialists can be achieved by solving the following tasks: - formation of motivational and value attitude to communication; formation of a system of knowledge about the main functions and strategies of speech communication, communicative activity; development of communicative competence.

3. It is determined that the specificity of the formation of communicative competence as a certain type of professional readiness is that it is mainly acquired in situations of real solutions to professional problems. In this regard, the method of concrete situations, the so-called case method, or case-technology is widely used.
4. It was substantiated that systematic interaction with the teacher and fellow students during videoconferences intensifies independent work of higher education applicants, creates situations of interpersonal communication, develops communication skills. It was found that the use of information and communication technologies gives the following positive results: the use of different ways of learning (mentoring, electronic, etc.); increasing the productivity of classes and the level of communication skills; application of a differentiated approach to learning; automation of knowledge control. The disadvantages of distance learning are: excessive isolation of students from personal communication with each other; a minimum of personal contact with the teacher.
5. Analyzing distance learning from a neuropsychological perspective allows us to conclude that working at the natural rate of thought processes, which distance learning provides, is an advantage that allows natural neural networks to become more stable, and higher education applicants to keep their thought processes in a healthy state. At the same time, it has been found that distance learning limits one of the mechanisms of natural neural network formation - mirror neurons. This mechanism of learning primarily and communicative skills works regardless of the desire of higher education applicants, because it is formed when they learn in a team.

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