

**TRAINING OF FUTURE SPEECH THERAPISTS FOR  
THE USE OF COMPUTER TECHNOLOGIES  
IN PROFESSIONAL ACTIVITIES**

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**Abstract**

The article describes the methodology of professional training of future future speech therapists for the use of computer technologies in professional activities, which involves a consistency of stages, where the content of educational disciplines from the cycle of professional and practical training is adjusted at the preparatory stage; activation of independent search of students; at the theoretical level - the introduction of an additional special course "Computer games in the work of a speech therapist"; the practical stage provides the transfer of acquired knowledge, practical abilities and skills to various types of pedagogical practice throughout the entire period of study in high school, as well as the productive stage.

**Keywords:** *digitalization, computer game, training of students of specialty 016 Special education, speech therapy activity.*

## **1.Introduction**

Modernization of the education system in Ukraine in accordance with political, socio-economic, cultural transformations, world trends of globalization and integration, changes in worldview paradigm requires a highly qualified, competitive teacher. In this regard, the requirements for the professional training of future teachers of preschool education institutions are increasing, which must ensure the harmonious development of children, creating a strong foundation for their further education and upbringing.

Topicality of this problem is confirmed by legislative documents at the state level: "Digital Agenda of Ukraine - 2020", "Concept of Development of the Digital Economy and Society of Ukraine for 2018-2020", "Ukraine 2030E - a country with a developed digital economy", etc.

The Ministry of Education and Science of Ukraine (MES of Ukraine) presented for public discussion the project of the Concept of the Digital Transformation of Education and Science for the period until 2026, which is a complex strategic vision of the digital transformation of the sphere of education and science and is aimed at overcoming a number of problems: the low level of digital competences of the participants of the educational process; outdated content of education in IT subjects; absence of broadband access to the Internet in the field of education and science and high-quality digital educational content for obtaining an education, etc.

## **2. Literature Review**

Training of high-quality teaching staff, able to optimally adapt to rapid changes in the content of professional activity, to acquire skills to independently master professional knowledge, enrich professional experience, using innovative technologies in a real pedagogical process recognized as a priority in the fundamental researches of Ukrainian scientists (O. Bondar, I. Zyazyuna, N. Nychkalo, S. Sysoeva, K. Shcherbakova, etc.).

Based on the results of the analysis of scientific sources, it was found that the training of speech therapists for the use of computer technologies in their professional activities has not yet become the subject of a special scientific study.

In the dissertation works, the preparation of pedagogical personnel for the use of innovative pedagogical technologies was considered by A. Budas, L. Vashchenko, T. Demydenko, O. Komar, L. Mashkina, O. Sukhovirskyi, I. Chorney, O. Shapran and others.

Formation of professional competence of future speech therapist teachers was studied by O. Abdulina, Z. Vasylieva, O. Dubynchuk, A. Kirsanov, N. Kuzmina, I. Prokopenko, V. Slastyonin, M. Shkil and others; the problem of methodology and theory of content construction of the professional training of a speech therapist are highlighted in the works of H. Volkova, N. Zhinkin, E. Mastjukova, G. Chirkina, V. Tarasun, M. Sheremet and others. In the studies of N. Sinopolska, L. Fedorovych, N. Savinova and I. Samoiloa, certain aspects of the professional qualities of a speech therapist teacher are considered.

The item of organizing classes in a playful form, in order to improve the quality of speech correction in speech therapy work, was investigated in the works of A.K. Bondarenko, A.I. Maksakov, V.I. Seliverstova, G.A. Tumakova, G. S. Shvayko and others. There are numerous general classifications of games, as well as the author's division of them into separate subspecies in the psychological and pedagogical research (K.K. Gros, N.S. Karpinska, P.F. Lesgaft, D. V. Mendzherytska, S. L. Novosyolova, S. F. Rusova, F.V. Froebel, L. S. Furmina, V.-L. Stern, etc.), but a single final classification in preschool didactics was never formed.

The scientific research mentioned above are an undoubted contribution to solving the research problem, but they did not justify the process of preparing of future speech therapists for the use of computer technologies in professional activity, taking into account its specificity.

### **3. Purpose and aims of the study**

The purpose of this article is to theoretically study the problem of using of computer technologies in the work of speech therapists and propose a method of training future educators to use computer games in their professional activities.

### **4. Results of research**

Historically, speech therapy as an independent field occurs at the end of the 19th century in Germany, a little later in countries such as Bulgaria, Denmark, and Switzerland. Before this, it was formed and developed as a part of medical and pedagogical sciences, as experts in these fields considered the etiopatho-genetic nature and correction of speech defects almost equally. The social demand for a specialist competent in speech therapy correction is gradually increasing. In Germany, the main slogan was the phrase of the director

of the Berlin School for the Deaf, A. Gutzman: "Education of correct speech is a national task of education, which is gaining special importance" (Mytsyk, 2017)

Specialists in speech therapy were trained at special courses (Belgium, Netherlands, Sweden). People who already had a pedagogical education predominated among those who wished to do so. In the early 1930s, the University of Zurich became one of the first in the Western Europe where the lectures on speech therapy began.

The formation of the system of professional training of speech therapists in the countries of Western Europe in time correlates with what happened in the USSR. Thus, the first speech therapy courses were organized in 1918 for teachers and doctors of preschool institutions in Moscow. At the same time, faculties of defectology with departments of deaf pedagogy and speech therapy were opened at the pedagogical institutes of Leningrad, Moscow and Kyiv. In 1926, a compulsory course in speech therapy was introduced in the Leningrad State Institute of Improvement, in 1932 - in Moscow University at the Department of Psychiatry. In 1939-1940, annual courses for the training of speech therapists were opened in Kharkiv (Kuzava, 2015).

Speech therapy as a field of training reached its greatest development in the post-war period. Thus, since 1956, the training of speech therapists at the Faculty of Philosophy of the Sofia University of St. Kliment Ohridski has been started in Bulgaria. In Poland, the profession of "speech therapist" was officially entered into the register of professions and specialties only in 1995 with such specializations: general speech therapist, deaf-speech therapist, neuro-speech therapist [3]. However, only two universities in this country (in Lublin and Gdansk) can offer students professional education in the specialty "Speech therapist" (Kuzava, 2015). In Greece, the development of speech therapy education begins in 1996. The main attention in professional training is focused on the study of speech defects and their etiopathogenetic nature. Therefore, all students undergo practice in private or state medical clinics (Tsymbal-Slatvinska, 2019).

Today, there is a quite extensive system of professional training of speech therapists abroad: in Belgium - 13 educational institutions, in Germany - 32 (together with speech therapy schools), in Great Britain and Spain – 15, in Italy – 14, in Greece (Athens) and Ireland – one educational institution, in Holland – 7, in Portugal – 2. Unfortunately, only Denmark and Luxembourg have not yet opened universities which would train specialists of the named specialty (Kuzava, 2015).

Modern Ukrainian speech therapy has a rich historical heritage of training specialists in special education, in particular, teachers, speech therapists.

Currently, it implements the latest concepts of education and upbringing of children with different levels of functioning and improves the theory and practice of training qualified speech therapists, based on domestic and international experience.

Thus, in 2020, a new Standard of Higher Education of Ukraine for the training of specialists in the specialty 016 Special Education for the first (bachelor) level, and in 2021 – for the second (master) level was approved. The goal of training specialists is the formation of future specialists "the ability to solve complex problems and practical problems of special education for the purpose of correcting and compensating for violations of the psychophysical development of persons with special educational needs of different age groups" at the first (bachelor's) level and "solving complex problems of a research and/or innovative character in the field of special and inclusive education" at the second (master's) level (Ministerstva osvity i nauky Ukrainy, 2020; Ministerstva osvity i nauky Ukrainy, 2021).

A modern speech therapist must possess flexible critical thinking, have a thorough theoretical base that can be skillfully used in professional activities, be able to quickly adapt to new conditions, be stress-resistant, communicative, with an understanding of the need to learn throughout life. Speech therapists who possess non-standard thinking, have creative abilities, are creative, quickly master innovations and are able to implement acquired skills in professional activities are especially valued.

Next to the indicated, one of the main directions of the transformation of the education system, which aims to use digital technologies in the educational process, is the digitalization of all processes in the educational institution. Digitization of education should be seen as a process of transformation of the content, forms and methods of educational activity to prepare an individual for a full-fledged life and successful work in a digital society.

In the 2020s, the Ministry of Digital Transformation of Ukraine was created in Ukraine (2019), whose functions in questions of informatization of society and the economy are deeply integrated with the tasks of the Ministry of Education and Science of Ukraine; the Concept for the Development of Digital Competences and a plan of measures for its implementation was adopted (2021), a number of standards were approved, including the basic component of preschool education (2021), which clearly defines the place and role of

digital skills in the key and professional competencies and program learning outcomes (Anishchenko and other, 2021).

In order to obtain the expected positive impact of digitalization of the educational process on the quality of life of people, on the formation of new progressive social relations, the wide implementation and effective application of digital transformation products in the educational process must be ensured. Digitization of education is an imperative. This, in turn, puts forward new, innovative tasks for the national system of education and science. Digitization of education can be represented by various models, which, depending on the purpose of consideration and further use of the built models, reflect both the certain specified aspects of its consideration and their totality, thereby determining essential objects and relationships (including – system-forming), which characterize them in each specific case.

Digitization of education is a modern stage of its informatization, which involves the saturation of the information and educational environment with electronic and digital devices, means, systems and the setting up of electronic communication exchange between them, which actually enables the integral interaction of the virtual and physical, that is, creates a cyber-physical educational space. Thus, the digitalization of the educational process is a counter transformation: on the one hand, of the educational process itself and the pedagogical technologies used in it; on the other – digital technologies and teaching aids.

In our study, digital technology will be understood as the technology of creating, transmitting and saving information messages, which involves encoding their content using numbers (mostly often – using zeros and ones). We emphasize that any technology, implemented on a computer and computer devices is digital: computer programs and applications, web pages and websites, computer games, electronic social networks, etc.

We believe that the training of future speech therapists for the use of computer technologies in professional activities should be aimed at forming a speech therapist, who is able to effectively use computer games in the assessment, diagnostics and correction of speech disorders.

Specifying the purpose of the named training, we identified the following tasks:

- formation of internal positive motivation for educational and cognitive activities aimed at mastering and using of computer games in the organization of speech therapy work;
- communication of the totality of knowledge and development of skills regarding the use of computer games in speech therapy work;

- formation skills of effective use of computer games in professional activities; analysis and self-analysis of its results.

In the context of our research, we believe that among the principles of training of future speech therapists for the use of computer technologies in professional activities, it is necessary to distinguish general pedagogical ones (characterizing the content and organization of training in general) and specific ones (characterizing the content and organization of the specified training).

The generalization of approaches to substantiating the principles of education and upbringing made possible to determine the following principles of training of future speech therapists for the use of computer technologies in professional activities: the principle of pedagogization of student training, the principle of innovation, the principle of the relationship of practice with tradition, the principles of practical orientation, the principle of subject-subject interaction, the principle of predictability, the principle of flexibility, the principle of anticipatory training, the principle of socio-economic conditioning of the content of training, the principle of formation of creative potential, the principle of developing students' abilities and skills in the organization of speech therapy work, the principle of organizing self-education and self-discipline of students.

The generalization of scientific investigations made it possible to establish the main organizational and pedagogical conditions. Let's consider them in more detail.

1. Interdisciplinary integration of disciplines in order to ensure the unity and compatibility of the training of future speech therapists for the use of computer technologies in professional activities.

2. Staff support.

3. Material and technical equipment, which consists in the full application of available technical resources (computer equipment, multimedia tools) and the use of new forms of presentation, processing, storage and use of information in traditional (paper) and non-traditional (electronic) forms.

4. Positive motivation for studying and using of modern technologies in educational activities for personal and future professional growth.

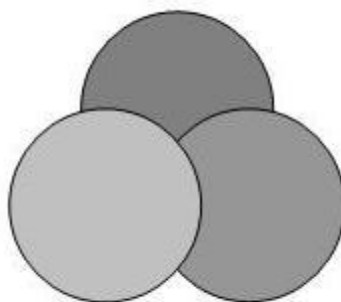
5. Provision of informational support to students.

6. Use of computer games in the process of professional training.

7. Taking into account the structural components of the game. The game environment is a set of objects and connections in the game and the rules for their application. The basis of the game program is its logical structure (Fig. 1), in which three hierarchical levels are distinguished: operational, tactical, strategic (Kyrylenko, 2010).

**OPERATIONAL LEVEL**

**a set of game actions  
between participants**



**STRATEGICAL LEVEL**

**reflects the plan of the  
entire game, achieving the  
goal and winning**

**TACTICAL LEVEL**

**a set of game actions  
leading to the achievement  
of a certain local goal**

**Fig. 1. Logical structure of a computer game**

The formed pedagogical conditions for training of students – future speech therapists for the use of computer technologies in professional activities represent integrity, which is aimed at ensuring the effective training of future speech therapists for the use of computer technologies in professional activities, taking into account the requirements of market relations.

Therefore, the preparation of future speech therapists for the use of computer technologies in professional activities we considered as a holistic process that has a goal and tasks and is a set of constituent components which are gradually implemented when creating and observing organizational and pedagogical conditions.

The conducted research allows us to assume that the training of future speech therapists for the use of computer games in professional activities should be carried out during the entire period of study in higher school. In order to implement this requirement, we consider it necessary to structure the training of students.

Phased preparation of a teacher involves:

- The I-st stage is preparatory: content correction of educational disciplines from the cycle of professional and practical training; activation of independent search of students;
- II stage – theoretical: introduction of an additional special course "Computer games in the work of a speech therapist";
- III stage – practical: transfer of acquired knowledge, practical abilities and skills to various types of pedagogical practice throughout the entire period of study in higher school.
- IV stage is resultant.

Adjustment of the content of educational disciplines from the cycle of professional and practical training is considered in the study as a certain restructuring of the content of the educational subject, which is a means of managing the educational and cognitive activity of students in the process of its assimilation.

In the context of mentioned above, we consider it necessary to supplement the components of the educational and professional program with topics and questions that orient, motivate and stimulate students to use computer games in their professional activities. In particular, when mastering the mandatory components of the educational and professional program, it is worth working out questions related to the digitalization of society in general and the educational sphere in particular; computerization of all professional processes, the effectiveness of computer technology in professional activities and methods of their use during assessment, diagnostics and correction of speech disorders, etc.

An important aspect of work organization at the next stage was the introduction of the special course "Computer games in the work of a speech therapist".

The structure of the educational discipline involves acquaintance of students with the concept of a computer game, types and forms of computer games, the advantages of using computer games in speech therapy work, and the requirements for computer games in the context of the work of a speech therapist; students mastering the technology of creating interactive didactic games in the Microsoft Power Point program using switches; designing

games in the Microsoft Power Point program; technology for creating interactive didactic games in the learningapps.org program.

The purpose of teaching the educational component "Computer games in the work of a speech therapist" is the formation of a modern scientific worldview, a system of special knowledge and professional competence of future specialists, based on the study of the theoretical and methodological foundations of the use of computer games, development of abilities and skills of implementation computer games in professional activity; formation of the professional competence of the future teacher in the use of computer games during the performance of professional tasks for holders of a bachelor's degree.

The main tasks of studying the educational component "Computer games in the work of a speech therapist" are:

- theoretical-methodological – knowledge of the scientific foundations of construction the process of development, learning and education by means of computer games, their effective use in the educational process, the influence of the educational and informational environment on various aspects of human personality development;
- cognitive - acquaintance of future speech therapists with the methodology of using computer games in professional activities, sanitary and hygienic norms for the use of computer technologies at work;
- practical - formation of knowledge, skills and skills of creating interactive didactic games in students.

Pedagogical practice is one of the important stages of a specialist's professional training. It contributes to the deepening and consolidation of theoretical knowledge, the formation of professional skills and abilities. Just in the course of pedagogical practice that students are convinced of the correctness of their professional choice, they make sure of their pedagogical abilities and inclination to work with preschoolers. Cooperation with experienced teachers-mentors during pedagogical practice lays the foundations of pedagogical mastery, love for the future profession.

According to the curriculum of preparation for students of the specialty 016 Special education of the Department of Pedagogy and Psychology of Preschool and Education of the Yuri Fedkovich Chernivtsi National University, the following main types of student practice are provided: "Volunteer practice" (4 semesters), "Educational (psychological-pedagogical)

practice" (5 semester), "Pedagogical propaedeutic practice (6th semester), "Industrial (speech therapy) practice" (7th semester), "Professionally oriented practice" (8th semester).

The organization of work at this stage was preceded by an analysis of the purpose, tasks, and content of various types of practice in accordance with the goals, tasks, and main stages of training of the future speech therapists for the use of computer technologies in professional activities. In our opinion, the standard list of tasks for practice should contain requirements that will ensure an increase in the level of students' readiness to use computer games:

- review of the technical equipment of the educational institution;
- study of technical equipment (analysis of game materials, visual aids, technical teaching aids and didactic material), design of possible ways of their use in the innovative activities during pedagogical practice;
- observation of the work of a speech therapist-mentor in the implementation of computer games, analysis of the effectiveness of its results;
- diagnostics of the level of individual development of children (self-esteem, development of memory, attention, imagination, thinking, perception) and the children's collective (status position of the child in the group, interpersonal relationships, level of development of social feelings, play activities), the level of children's mastery of program materials;
- development of computer games for assessment, diagnosis and correction of speech disorders.

Summarizing, we note that the stages of using computer games during pedagogical practice and during experimental work basically coincide and contribute to the formation of practical skills, the main mechanism of realization of which is the complex ability to model and carry out speech therapy work based on the use of computer games and the ability to carry out reflective activity. The specificity of this stage is that during practice students learn independently distinguish professional tasks and perceive them as a problematic situation, analyze the specific psychological and pedagogical conditions of their occurrence and find ways to solve them. The importance of such activity at this stage is difficult to overestimate, as it contributes to the development of practical skills to the greatest extent.

#### **4. Summary and conclusions**

This study offers a new methodology of training future speech therapists for using of computer technologies in professional activities. Its consistency implies at the preparatory stage – adjusting the content of educational disciplines from the cycle of professional and practical training; activation of independent search of students; at the theoretical level – the introduction of an additional special course "Computer games in the work of a speech therapist"; the practical stage involves the transfer of acquired knowledge, practical abilities and skills to various types of pedagogical practice throughout the entire period of study in higher education, as well as the resulting stage.

The content and results of the study do not pretend to be a comprehensive solution to the problem under study. We consider the question of updating the technological content of the professional training of future speech therapists in the context of the integration of the higher pedagogical school of Ukraine into the European educational space; implementation of domestic and foreign models, related to the requests of society regarding the professional training of future speech therapists as relevant in further study of researched problem.

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