World Bulletin of Social Sciences (WBSS)
Available Online at: https://www.scholarexpress.net
Vol. 18, January,2023
ISSN: 2749-361X

PEDAGOGICAL AND PSYCHOLOGICAL FEATURES OF INTEGRATIVE DEVELOPMENT OF PROFESSIONAL COMPETENCE OF FUTURE TEACHERS BASED ON DIGITAL TECHNOLOGIES

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Article history:

Received: 11th November 2022
Accepted: 14th December 2022
Published 24th January 2023

Abstract:

This article examines the range of digital competences of teachers by highlighting the key competencies that guarantee their full practical experience. In the empirical study, the self-assessment of the digital competence of the future pedagogues who are being trained in the professional field of pedagogy, as well as the real possibilities of solving specific practical tasks based on the use of information and communication technologies, is distinguished. Some recommendations were given to revise the education of future pedagogical specialists and the professional qualifications of current teachers in the context of the formation and development of their digital competence.

Keywords: digital competence, education, teacher student, practical experience, pedagogy, communication technology,

If the society appeared on the basis of the natural needs of people to live as a group, then the development of modern society itself its peculiarity is seen in its connection with the process of informatization, including education, which has a global character. The main goal of informatization of education in the sources is the participants of the education system in the conditions of the information society (pedagogical staff, students, technical-engineering staff, administrative-management staff, etc.) full and effective participation in the domestic, social and professional spheres of life activities is to prepare for the development of information and communication technologies (ICT) educational development problems and it is emphasized that the complex solution is to fill the personnel structure with highly qualified specialists, to ensure the improvement of the professional level of the employees. From this, it can be concluded that in order to effectively introduce ICT into the educational process, it is necessary to direct it to the needs of the subjects of the process, including professors and teachers.This is the last opportunity shown to professional future primary school teachers a strong emphasis on integrating training into activities from an early stage is required. To the professional activity of the future elementary school teacher Blocks of subjects in preparation have directed goals and tasks you have to find out if it is enough to solve the problem. Opportunities and conditions in the studied State documents are forthcoming and education of elementary school teachers is carried out on the basis of an integrative approach are the initial opportunities for growth. That's why it's here the results of our preliminary research in the direction of the future primary class preparation of teachers for intellectual activity on the basis of an integrative approach shows that it can be done. And this is the future primary class teacher training is integrative, taking into account the requirements of the time. It increases the importance of implementation on the basis of cooperation and such it also increases the social importance of problems. And it can be noted that the researched problem itself has a social significance of State significance can be an urgent problem for the profession. The creation of electronic computing machines, its main improving its elements from an electronic lamp to a large integrated circuit, becoming increasingly compact, speed of operation, convenience and the increase in the possibilities of information not only to many and many to improve the quality of distribution, storage and transmission of information in the area forming a database and performing various actions on them, made it possible to reduce the physical size of the collected information. Analyzing the history of the development of computing techniques that can be seen that the development has both theoretical and practical basis. The practical basis is the technical achievements of that period, while the theoretical basis is the results obtained in the field of sciences, the positional number system is a theory of development, strict procedure and logic. In turn, the development of computing technology can be divided into the period before mechanical machines,

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the era of mechanical machines, the era of electromechanical machines and the era of electronic computing machines are separated. It is suitable for the development of electronic computing machines formation of various information flows in nature, operation, storage, transmission, automation of information processes the study of the patterns associated with methods, environments, and technology a special science - informatics emerged. Electronic computing machines are a variety of human practical activities. Due to its application in the fields, the user (a person who uses a computer) requires further expansion of its capabilities went Therefore, the technical structure of electronic computing machines. As a logical continuation, the software was also improved. As a result, processing information at a high speed based on the program. The use of a universal automatic device - a personal computer (PC - Personal Computer) has become popular. Computer technical means (Hardware: ing. hard, ware - product, «hard development as a unit of "products") and software tools (Software: ing. soft - soft, ware - product, especially software operating systems and shell programs, programming systems, hardware systems, integrated programs package, machine graphics systems, database management systems, practical programs, the convenience of working on a computer increased and revealed its pedagogical possibilities. Enhancing digital skills as part of the learning process as well as their promotion through retraining programs is becoming a top priority today. Technological development of the industry outpaces the conservative education system considerably. Although there is a significant penetration of digitization in the education system, it is still partial, and most often the barriers to the spread of new technologies in education are: lack of school equipment, lack of student interest, and distrust of new and untested practices. Enhancing digital skills as part of the learning process as well as their promotion through retraining programs is becoming a top priority today. Technological development of the industry outpaces the conservative education system considerably. Although there is a significant penetration of digitization in the education system, it is still partial, and most often the barriers to the spread of new technologies in education are: lack of school equipment, lack of student interest, and distrust of new and untested practices. Enhancing digital skills as part of the learning process as well as their promotion through retraining programs is becoming a top priority today. Technological development of the industry outpaces the conservative education system considerably. Although there is a significant penetration of digitization in the education system, it is still partial, and most often the barriers to the spread of new technologies in education are: lack of school equipment, lack of student interest, and distrust of new and untested practices. This is due to the fact that augmented reality technology (AR-technology), as a powerful visualization tool and an effective way to provide educational information to students, modernizes the education technologies themselves, enriching them with new tools and methods, expanding their didactic and cognitive capabilities. Placing virtual objects in a specific environment, in which they are initially absent, allows us to simulate unusual educational practices. The study of augmented reality technologies will provide the future teacher with an opportunity to identify the advantages and disadvantages of these pedagogical tools, master them and determine the degree of their effective use in professional pedagogical activity . The possibility of teaching physics using augmented reality was previously considered by scientists, for example, conducting virtual laboratory work in physics with pupils. Visualization, using augmented reality, phase diagrams, solving equations of mathematical physics, according to researchers, allows students to look deep into the processes, motivating them to a deeper study of physical theories. A number of scientists believe that the use of augmented reality in the study of physical phenomena by pupils increases the visibility and enhances interest in the subject. Therefore, how to use augmented reality technologies in the educational process for future physics teachers is currently an urgent task. The approach we used to develop the digital competence of the future physics teacher has a certain unification and is considered by us as a pedagogical technology. By this technology we understand the purposeful and personality-oriented process of subject-subject interaction between the teacher and the student, during which the teacher, taking into account the level of students' readiness to use augmented reality technologies, motivational-value relationships, applies modern teaching methods and tools, activates students' productive cognitive activity. The formation of the digital competence of the future physics teacher begins with studying the discipline

"Digital Technologies in Science and Education", which is aimed at developing ideas about educational opportunities and hardware-software technology of augmented reality. Currently, the development of

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engineering education is declared one of the priorities of government policy in the field of education. On the one hand, measures are being taken to popularize engineering education, attracting young people to the field of science, the formation of motivation for a conscious choice of engineering and technical professions, the demonstration of the latest scientific developments and achievements in the field of breakthrough technologies of science and technology. On the other hand, there is a decrease in the motivation of high school pupils to study natural sciences and physics in particular. In the framework of the overall study, there are a number of contradictions between the self-assessment of the digital competencies of the students at the beginning of their education in the pedagogical specialties and their actual knowledge and skills registered during the study Information and Communication Technologies in Learning and Working in the Digital Environment. Obviously, there is a discrepancy of student self-assessment based on the digital competence self-assessment matrix and their actual knowledge and skills as basic level at the entrance to university education for Bachelor's degree program or its continuation for acquiring a professional qualification teacher at Master's degree, verified through a series of practical tasks in the course of training. All this necessitates a thorough rethinking of the placement of the subjects in the curriculum of the students who study to become teachers, and its workload, as well as the possibilities for developing the digital competencies in subsequent courses taking into account the requirements of the European Framework for the Digital Competence of Teachers, and the possibilities to cover at least the B1 level after graduation, ensuring opportunities for the integrated use of information and communication technologies in the teacher's activities, to be sensible in pedagogical and methodological terms, as well as to open up opportunities for a full vocational qualification subsequently to upgrade it to B2 level, which should be considered as mandatory in the activity of the existing teachers in the system of pre-school and school education. In order to create an environment that allows us to shape and develop the information competence of the future pedagogical specialist, we need to know this system of competencies, apply it to relevant knowledge, skills and attitudes. The methodological analysis of the competence approach in education directs us towards the search for a cognitive, active, creative, personal and axiological component in the digital competence of future pedagogical specialists. This is the reason to seek specific technological solutions and opportunities for the formation and development of digital competence. These technological solutions can be successfully found on the basis of technological variants of the project-invariant for the formation and development of digital competence, which takes into account the following key determinants. At the level of common understanding, human support is a social interaction with other people whose functions of influence are the development of that person in the life path, in a variety of personal and social situations. Such support may be of a different nature. Pedagogical support, first, contains the features of social interaction, secondly, it has its specificity. This specificity is the nature of support, the purpose of which is purposeful the development of the person being accompanied and carried out by means of special pedagogical systems (education, upbringing, training) in their institutional (structural) design. We distinguish the main points of the concept of student support: the complexity of the approach to solving problems posed to students (individual trajectories, interaction student and teacher in remote mode); the need to accompany, not to guide the student's development, reinforcing his or her ability to make decisions independently; improving information support by solving the problem. The current situation of a teacher's professional activity is defined as the set of internal and external factors that influence the logic of the activity and its results. The internal changes include the personal and professional development of the employee, external characteristics of the political, economic, social, environmental environment. The intensive development and implementation of ICT in the educational process creates some difficulties for their timely mastering by future teachers, so the method of guiding is a necessary component of supporting all innovation processes as it emerged as a method of providing help and solving tasks for an employee. During the research, it was found that the process of individual support involves an active position of the student in obtaining the required amount of knowledge, skills, and methods gaining experience of independent cognitive activity. The next pedagogical condition is the creation and support of individual educational institutions student trajectories. Research on issues related to the individualization of education in educational institutions of different types and levels has been going on for a long time .But the question of introducing individual educational trajectories in them remains insufficiently disclosed.

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Firstly, professional training based on individual educational trajectories allows implementing the personal approach in the education of students which most efficiently takes into account their intellectual abilities, and, secondly, determines the personal trajectory of development education in the process of mastering the educational program. In this case, the personal educational process is implemented as an individual educational trajectory when using functional opportunities for pedagogical support. The teacher's authority is created at the expense of his personal qualities and self-development of professional and personal competences, thus the goals are: focus on mastering the foundations of human culture and key competencies: value-meaning, information, cognitive, communicative, etc.; awareness of the student's and master's rights to personal educational goals; positions participants of the educational process:
the teacher creates the conditions for independent learning; mutual partnership between teacher and student forms and methods: democratic, dynamic forms organization of the educational process; emphasis on independent work of students; remedies: traditional textbooks are supplemented with resources of information and telecommunication systems and media; control and assessment: shifting emphasis on student self-control and self-esteem. The process of creating an individual educational trajectory is characterized by three stages:
— psychological and pedagogical study of personal characteristics, needs, interests, requests students, analysis of results. Identification of capable students and students with learning problems. Diagnosis of their ability to work in the individual program mode;
— development of the content of the program by directions, introducing students to it, discussion of forms of work;
— monitoring and correction of the program.
The structure of the individual trajectory contains the components: target (definition of goals education based on state standards, students of pedagogical universities motives and needs); meaningful (content structure and selection, systematization and grouping, cross-domain linking) diagnostic (system definition maintenance diagnostics).In constructing the educational trajectory of students of pedagogical universities in the process study of subjects and passing of educational practices it is possible to use such an algorithm: diagnostics of the level of development and degree of formation students' personal qualities. At this stage, one identifies basic needs and motives of students, their readiness for mobile learning, students' initial level of knowledge and skills. In the second step, each student or group of students presents their learning outcomes, their collective discussion is held. Further work is organized to identify deficiencies, problems faced by students. The analysis of the scientific literature provided a basis for the determination of the essence of the concept competence as a set of knowledge, skills, skills, and experience that together enables a person to effectively carry out activities or perform certain functions, ensuring that one can solve problems and achieve some meaningful results in the future professional activity. The study has found that digital competence has a purposeful use of ICT to create, search, process, share information with virtual space, information and media literacy, security skills in the Internet, understanding the ethics of working with information in the student preparation process of pedagogical universities. Selected competence structure: motivational value (target), cognitive, operational-activity, and personality-reflexive components. Didactic conditions of information-digital formation are defined and substantiated competences of students of pedagogical universities: actualization of motivational value component training of students of pedagogical universities; organization of interaction of educational process subjects in a digital-based learning environment for individual student support; creation and support of individual student education trajectories.We see the prospects for further scientific research in determining ways of implementing didactic conditions of the formation of digital competence of pedagogical university students.

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ISSN: 2749-361X

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