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Creative use of progressive teaching technologies and modern pedagogical techniques in the process of teaching computer science

Education is undoubtedly an important sphere of modern society, which sets the vector for its development. Therefore, it deserves proper attention and modernisation not only in theoretical aspects, but, to a greater extent, in practical ones. New directions in education are not only ideas, approaches, methods and technologies that have not been used before, but also a set of effective components of the pedagogical process that allow for the effective solution of educational and upbringing tasks. Their solution is possible with the introduction of modern pedagogical techniques and innovative teaching technologies. Innovation in education is a process of improving the theory and practice of education, which optimises the achievement of its goals and the results of the creative search for original, non-standard solutions to various pedagogical problems. Educational innovations, technologies, pedagogical skills and creativity are closely interrelated. Pedagogical skills are understood as a set of personal qualities of a teacher that ensure the self-organisation of a high level of professional activity on a reflective basis.

In the educational process, an important means of transmitting culture and spiritual values is the individuality of the teacher as a bearer of culture. For successful interaction with students, teachers should adequately assess their personality. Particular attention should be paid to the ability to manage emotional states. Pedagogically appropriate relationships are based on mutual respect between teacher and student. For

successful teaching and education, in addition to professional knowledge and skills, a teacher must also be able to control themselves, their language, and have many other personal qualities. In other words, a good teacher is a bright personality who has their own system of techniques for influence, interaction, communication, and self-regulation. Pedagogical technique is seen as a set of rational means, skills, and behavioural characteristics of a teacher aimed at the effective implementation of their chosen methods and techniques of educational work with a group of students to achieve effective pedagogical results. The main components of pedagogical techniques include the ability to communicate verbally (culture and technique of speech) and non-verbally (facial expressions, pantomime, appearance), as well as the ability to control one's psychophysical state (breathing, muscle tension, emotions, attention, imagination, observation).

The creation of an advanced educational environment is influenced by globalisation and integration processes with the European Union, with the aim of adhering to international professional standards. This creates an urgent need not only to improve existing pedagogical methods, but also to introduce innovative approaches to the educational process. Researchers are actively analysing how artificial intelligence can improve dual teaching methods for undergraduate vocational education students. The importance of such research increases in the context of rapid changes in the field of education, which adapts to the needs of modern students and the requirements of their educational environment. The development of technology contributes to these changes, especially in the field of education, where innovation activity is particularly intense. The current need for distance education, actualised by the pandemic and other global challenges, points to the importance of flexible learning systems that can function effectively in an online format. Digital technologies play a key role in this process, helping to optimise learning and ensure its continuity. Interest in dual education in Ukraine intensified in the early 2010s, when the need to modernise the educational system to increase its competitiveness became obvious. The reforms of 2015, in particular, the introduction of new regulations, contributed to the development of dual education, allowing educational institutions and enterprises to officially cooperate. An

analysis of employers' attitudes towards dual education shows a positive attitude towards this model, as it contributes to the development of practical skills required in the labour market. The importance of artificial intelligence in dual learning lies in its ability to adapt educational materials to the individual needs of students, increasing their motivation and academic results. The integration of academic learning with practical experience is made possible by innovative approaches that consider the requirements of the modern educational and professional environment. The educational process in the context of globalisation and integration with the European Union requires not only updating traditional methods, but also applying advanced approaches, including the use of digital technologies and artificial intelligence. This allows meeting international standards and train specialists who can meet the needs of the modern labour market. Thus, artificial intelligence and digital technologies play a key role in modern education, in particular in dual training programmes, which contributes to the training of highly qualified specialists who are ready for the challenges of the new century.

The technique that allows teachers to conserve their energy and achieve the desired results is called psychonomic (the science of the psychological influence of people on each other and on themselves, and the art of controlling this influence). With the help of psychonomic techniques, teachers can strengthen their mental health without outside help and have a healing effect on others. Thus, psychonomic technique is a system of skills and qualities of the teacher's personality that enables them to exert a psychologically healing influence on the subjects of the pedagogical process, using their psychophysical apparatus consciously and optimally, i.e. with the least expenditure of energy and time. Antoine de Saint-Exupéry called communication the greatest luxury in the world, but for a teacher, communication is a professional duty. Professional-pedagogical communication is a system of techniques for organic socio-psychological interaction between teachers and students, the essence of which is the exchange of information, getting to know each other, organising and stimulating the activities of students, organising relationships within the group, changing roles,

empathy and creating conditions for self-affirmation and changing the roles of students. Pedagogical communication is a special kind of creativity.

One of the priorities in the development of education is the introduction of modern information technologies that expand students' opportunities for the qualitative formation of a system of knowledge, skills and abilities, their application in practical activities, contribute to the development of intellectual abilities for self-learning, and create favourable conditions for the educational activities of students and teachers. With the increase in the number of computers in educational institutions, their role as an effective means of improving learning outcomes is growing when used as a new teaching tool. Its use allows to raise the intellectual level of students and facilitates the solution of practical problems. It can be used as an information system that helps solve various issues, as a source of information for the development of creative projects, as well as for a significant expansion of the visualisation of learning and operational control over the acquisition of knowledge and skills. The relevance of using innovative technologies in the study of computer science is due to the fact that it offers inexhaustible opportunities for high-quality student learning. It provides ample opportunities for the development of students' personalities and the realisation of their abilities in this digital society.

Interactive learning is a special form of cognitive activity organisation aimed at creating comfortable learning conditions in which every student feels successful and intellectually capable. Interactive learning is learning through dialogue, during which participants in the educational process interact with the aim of mutual understanding, jointly solving educational tasks, and developing students' personal qualities. Personality-oriented learning is a way of organising learning in which the diverse abilities and talents of students are taken into account and the necessary conditions for the development of their individual abilities are created. The goal of such learning is to create conditions for ensuring one's own learning activities and the development of each person's individual characteristics. The theory of problem-based learning is based on the organisation of the learning process, which involves creating a problem situation

and encouraging active independent activity on the part of students in solving it, leading to a thorough assimilation and consolidation of scientific principles, developing creative thinking and the ability to work independently.

Many innovative methods have been developed (working in small groups, discussions, case studies, mini-lessons, business games, tasks, problems, interactive exercises). These methods can be used both for teaching and learning new material and for testing knowledge. Let us consider only those that, in my opinion, correspond to the educational goal of training future skilled workers, which teachers can use to develop technical creativity. One of the most effective forms of presenting educational material is multimedia presentations. This form allows the material to be presented as a system of vivid reference images filled with comprehensive, structured information in an algorithmic order. The purpose of such a presentation of ducational information is to develop a system of visual thinking in students. Presenting educational material in the form of a multimedia presentation reduces the time needed for learning and frees up the students' physical energy and attention. This is made possible by the interactive nature of electronic applications, which are optimally suited to organising students' independent cognitive activity. The use of presentations allows the educational process to be built on the basis of sychologically correct modes of functioning of attention, memory, mental activity, humanisation of the content of learning and pedagogical interactions, reconstruction of the learning process from the perspective of integrity. I use presentations at any stage of studying a topic and at any stage of a lesson: during the explanation of new material, consolidation, generalisation, and control.

Electronic textbooks have a number of advantages over traditional ones: they provide the opportunity to demonstrate processes, phenomena, events; at any stage of the lesson, it is easy to return to the previous moment (lesson) and repeat a specific episode; most software packages contain indexes and dictionaries; vivid images are easily remembered for a long time; the use of educational software makes it possible to synthesise verbal, visual, audio and motor information, combine abstract-logical and concrete-imaginative forms of visualisation, and increase motivation to learn through

the unity of cognition and entertainment, emotionality and imagery in the presentation of educational material. The possibilities for using the Internet in class are as follows : free search of Internet resources on a given topic; study of a specific Internet resource according to the teacher's methodological instructions; use of Internet resources as a teaching aid in class; searching for information on the Internet can accompany such types of educational work as: writing essays, collecting material on a topic, illustrating one's texts with materials from the Internet. It is indisputable that among the above-mentioned methods, information and telecommunications technologies occupy a leading place. The successful use of innovative technologies in combination with traditional teaching methods increases students' interest in studying computer science, increases their activity, and strengthens their desire to acquire knowledge independently.

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