IMPORTANCE AND NECESSITY OF USING INFORMATION COMMUNICATION TECHNOLOGIES IN THE EDUCATION SYSTEM

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Abstract. *This article discusses traditional and non-traditional teaching methods, as well as the advantages and historical necessity of teaching non-traditional methods.*

Keywords: *physical process; computer animation; traditional method; non-traditional method; information communication technology; software; multimedia; electronic computer; remote control.*

It is known that the science of "Physics", its various departments, covered very long years (about 20-25 centuries) for its full formation. As a result, a lot of information was collected on each section and chapter of this science. Physics, like any other subject, has collected so much information that the amount of time allocated for teaching is limited when it comes to bringing this information into the educational system. It is a very urgent task to select the most important and general information from the point of view of consistency and to teach them effectively. Before considering how to achieve effectiveness in teaching physics, let's talk about the historical roots of traditional teaching, traditional and non-traditional methods of teaching, and their advantages and disadvantages.

In the traditional method, information is delivered sequentially from beginning to end by the teacher, and students listen and summarize in this sequence. The most useful aspect of traditional teaching is that the sequence of information is systematically stored by the students, and solid knowledge is formed in them. However, in the last 50-60 years, some shortcomings of this method of teaching have become visible. For example, the teacher displays graphs, drawings and pictures related to the topic on pre-prepared posters and stands, or draws them one by one on the blackboard. Drawn on the board drawings cannot be used again during the optional time of the lesson. It is impossible to enlarge posters and stands to make them look good to the whole audience. In addition, drawing drawings and graphs one by one on the blackboard or showing the poster and stand to students one by one takes a certain part of the class time. This leads to not being able to deliver the information intended for the lesson to the end and causes students to develop incomplete knowledge and skills.

Due to the listed shortcomings, the traditional way of teaching students is not a very effective way to cover a wide range of information, especially when visualizing additional information on the topic in parallel. There are no such possibilities as delivery and reuse. For this purpose, it is advisable to use a non-traditional method, that is, to use the possibilities of information communication technologies and software tools, to increase the productivity of the

lesson, to convey as much information as possible to the students during each lesson. Before talking about the advantages of teaching on the basis of information and communication technologies, let's talk about the history of when the need for such a method of teaching began to be felt.

The oldest method of teaching is the traditional method. People of the whole world have been using this method for centuries and thousands of years. Whether we take the schools of Epicurus and Aristotle in the ancient Greek renaissance, the academies of Baghdad and Ma'mun in the early renaissance of the Arab Muslim world, or the medieval European renaissance that opened in Cordova, Italy, Paris and London if we take universities, almost all of them were taught in the traditional way. While the lessons of ancient Greece taught only the information gathered in arguments and debates and daily observations (which were not confirmed by any fundamental experience), the information taught in the Baghdad and Ma'mun Academy was based on the information. Proven evidence and scientific foundations lay. In the first universities opened in Europe, only religious information was taught, Aristotelian and Ptolemaic theories, which were only partially mastered by the monks, but after the XV th and XVI th centuries, the situation changed radically (some western countries declared the Catholic Church getting rid of its secret), secular sciences began to take the place of religious sciences. In the XVII th and XVIII th centuries, many sciences emerged as sciences based on irrefutable evidence, and the teaching of these sciences in universities became popular.

In the XIX th and XX th centuries, several revolutions occurred in science and technology, and many new sciences were formed. As an example of a revolution in science and technology, as a result of the discovery of the phenomenon of electromagnetic induction, the introduction of alternating current into the national economy, as a result of the appearance of internal combustion engines, since 160-170 years, railways, industry and factories, seas and rivers it is possible to cite the suppression of steam engines, which are the main drivers of transportation, and the creation of completely new types of energy sources and weapons of destruction as a result of the opening of the path to nuclear power. These revolutionary changes are only in the field of physics: "Thermodynamics and statistical physics", "Heat engineering", "Electrical engineering", "Magnetism", "Electrodynamics and theory of relativity", "Atomic physics", "Nucleus and particle physics", " Quantum electrodynamics", "Quant mechanics" and "Quantum statistical physics" were the reason for the emergence of new sciences. The increase in the number of subjects and the information related to subjects, first of all, created the difficulty of choosing what information should be given at which stage of the continuous education system, and secondly, the number of class hours was limited and all information was delivered in the scheduled hours. due to the impossibility of giving, it imposes the task of increasing the effectiveness of lessons and conveying as much information as possible to students as a result of making effective use of every hour and increasing the effectiveness and presentation of lessons. For similar reasons, some of the disadvantages of using the traditional method in teaching have become apparent. Since the 60s and 70s of the XXth century, the use of various pedagogical technologies began to enter the educational process in order to increase the effectiveness of teaching. This first happened in the western countries, but later it began to enter the countries of the former union.

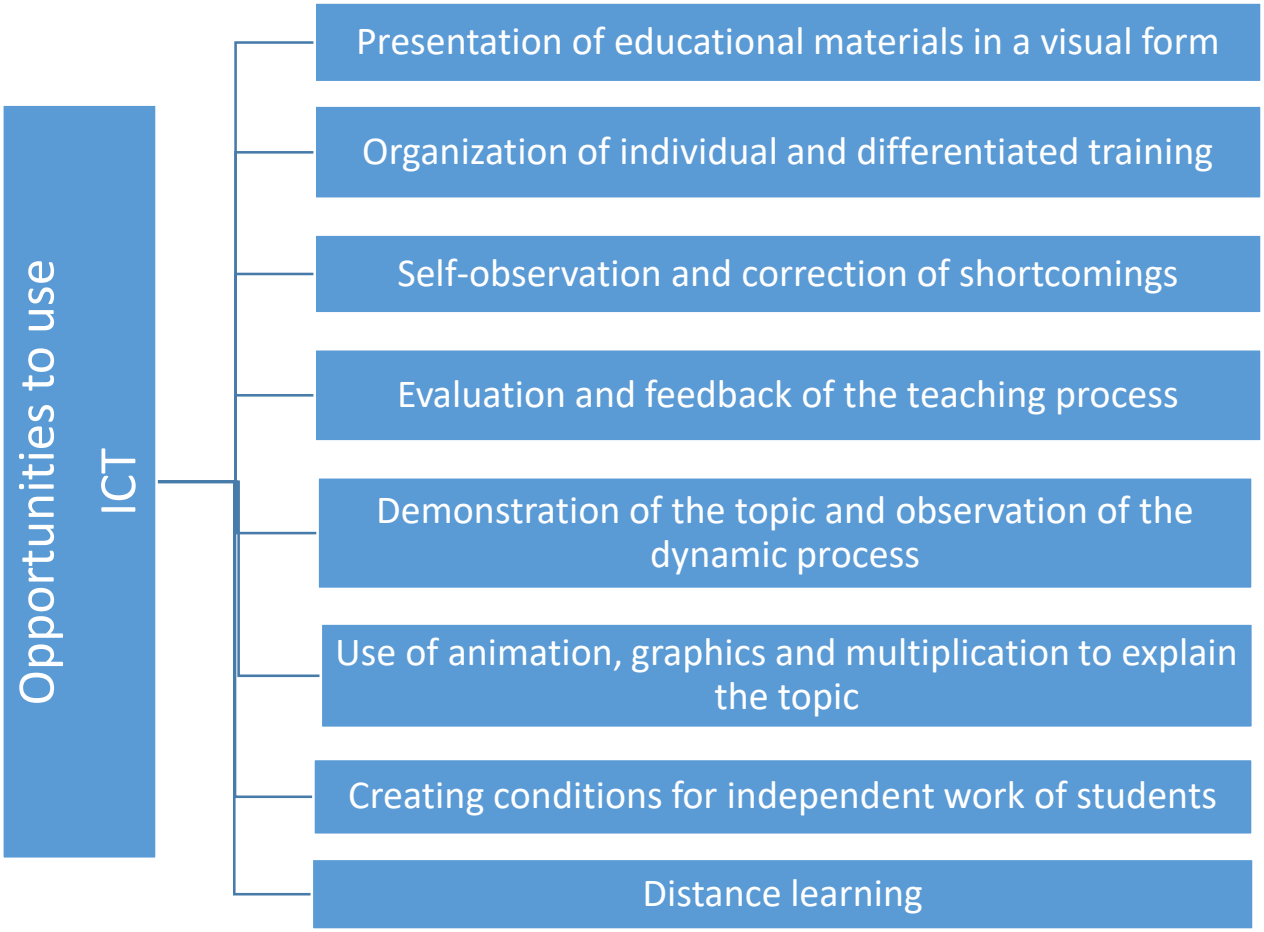
Computers, which appeared in the 60s of the last century, were initially used in special scientific research institutes for calculating large projects and for military purposes, but as a result of their introduction into the educational process from the 70s and 80s, "Informatics" and "EHM"

courses were included in the educational programs of education and higher education institutions, and in these classes computer calculation methods and the creation of various algorithms were taught. After the 90s of the last century and the beginning of the present century, drastic changes took place in the field of information technologies, and the terms "Informatics" and "EHM" were replaced by new "Information and communication technologies", "Computer technologies" and "Software tools". "terms began to take over. By now, information and communication technologies are deeply embedded in all (industry, science, education, production, television, communications, etc.) sectors of the national economy. Its capabilities are becoming an integral part of our life as well as simplifying our lives. In the current XXI st century, a person who does not know information technologies and the language can be compared to an illiterate person who does not know how to read and write in the last XIXth and XXth centuries.

Today, the capabilities of information technologies have reached such a level that, with the help of special software, physical processes that are invisible or difficult to observe and can only be imagined (for example, processes related to the microworld, atomic physics, processes of electric and magnetic fields, energy production in periodic processes) It became possible to visualize and demonstrate processes using three-dimensional graphics, animations, virtual laboratories and presentations. It is significant that such opportunities have never been observed in the history of human development.

The method of organizing the teaching process based on multimedia tools of computer technologies is fundamentally different from the traditional teaching method, and we can list the opportunities it provides for the pedagogue teacher in diagram 1.

1-diagram



Today, the use of modern information technologies, which differs from the traditional way of teaching, provides an opportunity to achieve high efficiency. In terms of teaching physics, it is important to develop effective methods of forming ideas about theories in the minds of students, introducing them to phenomena and processes. 3500 years ago, the Chinese philosopher Confucius put forward the idea that "I forget what I hear, I remember what I see, and I understand if I do it independently." For this reason, it is necessary to have multimedia electronic educational literature, virtual laboratory work, lectures, various animation programs and special programs needed for creating electronic versions and slides. Based on the above-mentioned ideas, it is advisable to apply such teaching methods in the course of academic lyceums, which ultimately lead students to independent reading, thinking, to their own thinking, to imagine abstract concepts. Let him develop his self-esteem, increase his interest in learning independently, develop a critical approach to his work, and develop competence.

Thus, research and statistical data in the field of education during the last decades show that the use of information technologies in teaching the laws of physics and physical phenomena, in the animation of dynamic processes, and in increasing the effectiveness of education, have the expected results. is giving Modern information technology helps students to understand topics that are difficult for them to master, expand their imaginations about invisible processes and, of course, increase students' knowledge and the use of various software tools is considered the most convenient tool and effective method today.

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