

**LEARNING: WHAT MATTERS MORE –  
THE PROCESS OR THE RESULT?**

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**CZU: 37.01=111**

**DOI: 10.46727/c.15-11-2024.p27-33**

**Abstract**

Against the background of the passion for activating the educational process in schools and higher education institutions, the author suggests considering how we teach and develop a child taking into account his psychology. At the same time, he even refers to the technical model of data transfer from one storage device to another, each of which has its own way of connecting to a computer and its own data transfer speed. Here he draws the reader's attention to the fact that this speed cannot exceed the data transfer speed of those of the named technical devices that have the worst characteristics in this regard. Such a comparison is sufficient to understand teaching, which is focused only on the fact that the teacher imparts knowledge to students in 'ready-made form. At the same time, reproductive education does not allow us to solve the problems that the younger generation faces. Modern society, science and production need people with developed research and creative abilities, leadership qualities. This is the problem that the modern education system must solve.

**Keywords:** educational process, teaching methods, educational process optimization, innovations, learning outcomes.

**Theoretical framework**

The theme of this conference, "Active Learning for Sustainable Development," stems from the expectations of society. Everyone wants sustainable development and has sought ways to achieve it. But how can you achieve something good if not through active work, you ask? Of course, yes - through active work! Many different slogans and sayings were created for this purpose, such as "work and labor will grind everything down!" Or: "We will complete the five-year plan in three years!" This meant that the development plan for industry, agriculture, energy and other sectors of the national

economy was called for to be completed not in five, but in three years. Later, the word "acceleration" appeared, which made it possible to create equally meaningful expressions such as "acceleration of scientific and technological progress." Although all of this reflected the same idea: it is necessary to work more actively. Some other expressions containing the word "intensification" deserve attention from this series. It is a synonym for the word "activation" and enriched the speech of ideological theorists in their speeches. Everywhere one could hear the expressions "intensification of industrial development", "intensification of mineral fertilizer production" and so on. The education system should not have fallen behind. But the organizers of education, supporting all the existing initiatives, chose the easy-to-pronounce and more understandable word "activization", which, as is known, is a synonym for the word "intensification". It quickly took its place in theoretical pedagogy and among the organizers of education.

The expression "cognitive activity" is directly related to students, because they are the ones who learn. In pedagogical books and articles, the issues of its activation are discussed and the necessary methods are proposed. The author of the text gives examples of such works [5,10]. All this was easily supported by the formation of cognitive interest, which was also devoted to a sufficient number of works on pedagogy and psychology. I am not writing about the special research that was carried out, which can be used in subsequent works of the same level (dissertations), but about hundreds of articles that were written and rewritten at such a speed that it was not always possible to keep track of them.

Over time, the expression "activation of the educational process" dissolved into "individualization and differentiation of teaching", the introduction of "non-standard lessons" into pedagogical practice, "personally oriented teaching", "development of key competencies in students", "development of subject competencies in them", etc. At the same time, it is necessary to take into account that the introduction of information and communication technologies into the educational process began, for which it was necessary to prepare future teachers in pedagogical universities, and to improve the qualifications of teachers in educational institutions of postgraduate pedagogical (additional) education.

## **Research questions and objectives**

But what about the teacher? - you ask. I will answer that the teacher easily mastered the proposed methods of activating the cognitive activity of students. At the same time, he aroused their interest in the educational material in various ways. He demonstrated interesting experiments, accompanied the presentation of new material with interesting stories about the history of the discovery of a certain phenomenon, showed educational films, etc. But, as it turned out, all this did not affect the students as effectively as the demand by society for people capable of effective and highly paid work in various sectors of the national economy of the country could have had. And in all this there were certain problems that did not always depend on people.

However, it should be noted that the processes of globalization taking place in the world, which consist of the integration of production and economy, the exchange of goods and products, scientific knowledge and other information, lead us to the need to make changes in the education system. Development does not exclude a return to previous useful experience, the ideas of which can contain much that is useful for the present and the future. At the same time, everything must be approached from a scientific point of view, tracking, of course, the results of the introduction of theory into pedagogical practice.

It is obvious that the problem raised by the conference requires research. Moreover, research in the modern conditions of development of education and society, taking into account domestic and foreign experience. Is there a substitution of concepts, is there a transfer of activity from students to teachers? Is there a well-known imitation of active activity here that does not bring positive results?

## **Research methodology**

In the course of any scientific research, we always refer to similar studies that have already been completed. In doing so, we pay attention not only to the results obtained, but also to the methods and equipment used. This is easier to understand in the case of referring to the work of the inventor. He cannot file an application for a proposed invention unless he specifies several (at least two) analogues and a prototype in its description. Based on this, the author analyzed this problem and possible solutions in

scientific and methodological literature. Of particular interest are works that present various pedagogical innovations or their analysis [2,3,4,5,6,8,9,10]. There was even an appeal to the "Great Didactics" of J.A. Komensky, who drew attention to the need to evaluate the teaching method from the point of view of its simplicity and effectiveness. All the classics of pedagogy call for this, for example, the same Ya.A. Komensky, K.D. Ushisky, V.A. Sukhomlinsky and others. Due to the limitation of the text of the article, their works are not included in the bibliography.

At the same time, the author used the results of observations of the activities of domestic teachers, in particular, teachers of the Chernigov region (northern Ukraine). The author's personal experience as a physics teacher at school was also taken into account, as well as his experience in choosing the topic of his PhD dissertation. Initially, a topic was chosen that was directly related to the issue under discussion.

The results of observations of the pedagogical activity carried out by teachers allow us to come to the conclusion that each of them uses those techniques and methods that give a positive effect in their practice. A teacher should not be offered something that does not correspond to his psychology, his style of communication with students. The worst mistake would be forcing him to use the method that he does not accept. Therefore, the publication of the book by Yu.K. Babansky "Optimization of the educational process: methodological principles" [4] was perceived very positively. He wrote that each teacher has the right to build the educational process based on the level of the class (group of students), the material base of the school, for example, physics or chemistry classrooms, the level of his training, mastery of specific methods, etc. The process must be optimized. Less material, physical and psychological costs to achieve a positive effect.

### **Research results**

In carrying out this study, we obtained results that indicate that this problem does not lose its significance in the conditions of further development of society. Education should be active at the present time. At the same time, in the relations of the interacting parties of the educational process during such education, negative phenomena are observed.

First of all, they consist in the teacher being overloaded with preparation for conducting classes, which leads to rapid fatigue with subsequent professional burnout. How difficult is it, for example, to shoot an educational video film for the implementation of the so-called "flipped learning"? [3]. It is proposed for higher education, but we are discussing general issues for all education. In this case, the activity is mainly shown by the teacher. The role of students is reduced to watching the film and then discussing it in the seminar. We will not talk about the effectiveness of this approach.

Active learning is sometimes understood as students listening to lectures. In this regard, I will cite a case described in the book by the famous physicist A. I. Abraham, "Time Back, or Physicist, Physicist, Where Have You Been" [2]. During a visit to Moscow State University named after M. V. Lomonosov, - writes A. I. Abraham, - a certain professor I., who was obviously an important person at the university, told those present about their system of higher education, about large student stipends and teaching salaries. Here I. reported that students listen to thirty-five hours of lectures a week. This caused delight among the "believers", and the author of the book could not resist asking: "When do they think?" This question, - the author continued, - was met with disapproving silence.

The real activity of students can be seen during their creative work in groups. They pursue one goal, independently distribute roles in the group, and work to achieve the set goal. This takes place during the All-Ukrainian tournaments of young inventors and innovators [7].

Discussing the issues of active learning, I would like to separately comment on the implementation of STEM/STEAM projects by students [1]. If we are talking about research and creative projects, then they are carried out mainly outside of school hours, and we cannot always draw a conclusion about the level of activity of the student who is carrying out this project. Moreover, research and creative activity of a person is not always manifested externally. A creator, for example, shows his activity to the maximum during inspiration [7].

When organizing the educational process, it should be borne in mind that not all

students can be equally active. Our observations have shown that some of them do not want to take part in "brainstorming". At the same time, they cope well with solving complex Olympiad problems or show themselves in research or inventive activities.

It seems to me that new challenges will arise with the introduction of artificial intelligence into the educational process [6,9]. In this case, it is necessary to choose the right approach to its use. Obviously, we will lose if we use it to perform training exercises in physics, mathematics, chemistry. Students simply will not be able to solve them independently. In this regard, the first results of its use in school have already been published [6].

And another side of active learning. Requirements for teachers regarding their use of information and communication technologies and other introduced innovations in the classroom led to a demonstration of the learning process, that is, to a demonstration of the activities of the teacher himself. The teacher adapts and does what those who control this process want from him. And then everyone forgets about the students. About the effectiveness of their learning. And this is what is important!

### **Conclusions**

In the educational process, the activity of students is important. However, their external activity does not always bring positive results.

The cognitive, research and creative activities of students have their own characteristics and are not always manifested externally. Therefore, the true activity of research and creative activities of students can be concluded only taking into account the results obtained.

In connection with the introduction into the educational process of innovations that are not fully understood by them, teachers demonstrate only the process of their application, and not their effectiveness. In this case, we see not the activity of the educational process, but the external activity of the teacher.

The use of any methods of teaching and developing students, as well as the didactic tools necessary for this, must be subject to the principle of optimization.

In all cases, it is necessary to strive to use the simplest methods and didactic means.

It is always necessary to take into account that not all students can demonstrate the

same level of activity. This is their individual feature. They often work slower than their peers, with a "break", but can achieve high results in cognitive, research and creative activities.

In the educational process, it is not the process itself that is important, but the result obtained.

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