PROSPECTS FOR THE APPLICATION OF ACTIVE LEARNING METHODS IN MODERN EDUCATION

PERSPECTIVAS PARA A APLICAÇÃO DE MÉTODOS ATIVOS DE APRENDIZAGEM NA EDUCAÇÃO MODERNA

PERSPECTIVAS PARA LA APLICACIÓN DE MÉTODOS DE APRENDIZAJE ACTIVO EN LA EDUCACIÓN MODERNA

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ABSTRACT: The article examines the prospects for the application of active learning methods in modern education. The survey shows that the prospects for the application of active learning methods in modern education are conditioned by the influence of different factors. These factors can be divided into several groups: comprehensive organization of teaching, building adequate communication, the use of new learning technologies, organization of personality-oriented education and teamwork. The survey showed that there are real and potential barriers for teachers to use innovative teaching methods, but there is no serious paradox. There is no doubt that there is an intensive interest in the prospects and future of the application of active learning methods in modern education and their application in education. When choosing a teaching method, teachers' ability to use this method and local conditions should be considered.

KEYWORDS: Modern education. Active learning methods. Innovative approaches. Prospects of application.

***RESUMO**: O artigo examina as perspectivas de aplicação de métodos ativos de aprendizagem na educação moderna. A pesquisa mostra que as perspectivas de aplicação de métodos ativos de aprendizagem na educação moderna são condicionados pela influência de diversos fatores. Esses fatores podem ser divididos em vários grupos: organização abrangente do ensino, construção de uma comunicação adequada, uso de novas tecnologias de aprendizagem, organização da educação voltada para a personalidade e trabalho em equipe. A pesquisa mostrou que existem barreiras reais e potenciais para os professores usarem métodos de ensino inovadores, mas não existe um paradoxo sério. Não há dúvida de que existe um intenso interesse nas perspectivas e no futuro da aplicação de métodos ativos de aprendizagem na educação moderna e sua aplicação na educação. Ao escolher um método de ensino, deve-se levar em consideração a capacidade dos professores de usar esse método e as condições locais.*

***PALAVRAS-CHAVE**: Educação moderna. Métodos ativos de aprendizagem. Abordagens inovadoras. Perspectivas de aplicação.*

***RESUMEN**: El artículo examina las perspectivas de la aplicación de métodos de aprendizaje activo en la educación moderna. La encuesta muestra que las perspectivas de aplicación de*

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métodos de aprendizaje activo en la educación moderna están condicionadas por la influencia de diferentes factores. Estos factores se pueden dividir en varios grupos: organización integral de la enseñanza, construcción de una comunicación adecuada, uso de nuevas tecnologías de aprendizaje, organización de la educación orientada a la personalidad y trabajo en equipo. La encuesta mostró que existen barreras reales y potenciales para que los profesores utilicen métodos de enseñanza innovadores, pero no existe una paradoja seria. No hay duda de que existe un gran interés en las perspectivas y el futuro de la aplicación de los métodos de aprendizaje activo en la educación moderna y su aplicación en la educación. Al elegir un método de enseñanza, se deben tener en cuenta la capacidad de los profesores para utilizar este método y las condiciones locales.

***PALABRAS CLAVE**: Educación moderna. Métodos de aprendizaje activo. Enfoques inovadores. Perspectivas de aplicación.*

Introduction

The action plan for the implementation of the "State Strategy for the Development of Education in the Republic of Azerbaijan" states that innovative training, assessment methodology and resource development aimed at the development of thinking and personality, considering the individual characteristics of students should be implemented. This is not only a problem that needs to be implemented at the national level, but also one of the perspective issues of modern world education. Building the learning process on interactive or active learning methods and the possibilities of its application create the basis for having multifaceted educational effects, developing emotional and intellectual characteristics of the individual. At a time when the optimal organization of learning is relevant in modern conditions, one of the main tasks of education and educators is to attract the attention of students and create conditions for them to engage in interesting activities. Active learning methods place students at the center of this process and make them not only passive learners, but heroes of the discovery of certain information. There are different teaching strategies to create an active learning environment and involve students in this field. Such active learning methods are very diverse in different education systems.

The available facts show that active learning methods, unlike other methods, open up a wide range of opportunities to better understand information, work as a process of thinking, remember and apply them in practice. This system not only develops personality qualities in students, but also is effective in developing high-level cognitive skills, forming creative behavior.

Research shows that this process is increasingly being imitated around the world instead of being fully implemented, the ways and means of its application are discussed. At the same time, the adoption of active methodologies is still low due to various factors.

In the long run, the use of traditional learning methods encourages thinking about methods of applying new teaching methods to learning and suggests that active teaching methods should be an educational option for secondary and higher education courses to meet modern educational needs. This is also required by the megatrends of modern education.

Luckesi (1994), discusses teaching procedures in school's daily routines and claims that: do we teachers think about it when creating our curriculum or deciding what to do in the classroom? (BEICHNER, 2014: BOEKAERTS, 2012). Indeed, in the application of new learning methods, it is important for the teacher to develop daily lesson plans, as well as to formulate a separate form and content for each lesson. Without it, it is impossible to raise young people who have the knowledge and who can think, create or discover the future prospects of education. The main purpose of this study is to discuss the prospects for the application of active learning methods, as well as to identify ways to implement the teaching techniques used in accordance with pedagogical requirements and to determine how teachers follow this process. What tasks should be implemented here?

Working with teachers, training with them, implementing the application of new active methods, or looking for innovative ways to organize teaching in accordance with local conditions - in this research we will try to find answers to these questions.

Literature review

It should be noted that the first universities were opened in Western Europe 900 years ago, and traditional teacher-centered classes have since been used as the dominant educational strategy (BROCKISS, 1996). However, recent research has questioned the effectiveness of this teaching model, while highlighting the growing need for active learning methods for students to build knowledge on their own. Thus, active-based strategies have ensured that methodologies are directed to the mainstream (FREEMAN *et al.,* 2014).

Various studies show that students get the best results in the learning process when their reports are related to the lesson material and actively participate in the learning process. (ALİYEV *et al.,* 2008).

When we compare modern or active learning methods with traditional ones, we see that the various indicators that emerge are in favor of active learning methods. It is important to look at traditional learning strategies, to identify the root causes of these points.

In the traditional view, the transfer of educational information is a leading strategy. A teacher is like a radio transmitter that transmits information that will be received by any student whose receiver is tuned to the right frequency. True or false information is recorded by the student's recipient so that it can be returned later as proof of admission. The transition from a simple transmitter to a learner requires a change in both the philosophy and practice of education. It does not seem easy to overcome these problems without the application of active learning methods. Here are a few aspects to consider. The first is to have the best methods to help students develop as a holistic personality. More importantly:

> Academically weak students understand the benefits of being taught by stronger classmates. Stronger students acquire a deeper way of thinking that comes from teaching one thing to another. Students who successfully complete the task have some knowledge. Unsuccessful students note that they do not know what they need to know, so when they answer shortly after, they will focus on these issues in a way they have never done in traditional lectures (FELDER *et al*., 2003).

Unlike traditional learning, active learning is a broad learning strategy that engages students as active participants in learning with the teacher. Typically, these strategies involve some students working together during class, but may also involve individual work or reflection. These teaching approaches have a broad pedagogical framework ranging from short situations such as journal writing, problem solving, and joint discussions to simple activities such as engaging in longer-term activities or events, role-playing, and structured team-based learning.

In a "traditional" lesson, it is common for some students to take part in asking or answering questions in a specific course. In contrast, a classroom with successful active learning activities provides opportunities for all students in a class to think and engage with the lesson material and practice skills to learn, apply, synthesize, or generalize this material.

Using active learning strategies does not require giving up the lecture format. On the contrary, adding small active learning strategies can make a lecture more effective for student learning. These activities only give students a minute or two to test their understanding of the final material, apply a skill, or highlight gaps in their knowledge before giving explanations.

It should be borne in mind that the changes in the learning process under the influence of social changes require higher education to meet the requirements or messages of the

organization of training in a dynamic and complex scheme of reality, dictates the development of students' ability to apply knowledge in practice (APEL, 2003).

The first step in the application of active learning methods is to transfer the methodology of education from teacher to student. In other words, a teacher should be brought to the forefront not as a profession that carries knowledge to students, but as a person who makes them think and motivate them.

In the perspective of the application of active learning methods, the student acts not as a party that receives passive information, but as a party that can influence events and express its attitude. He is an active researcher. In this case, the creation of feedback is also a key perspective indicator of active learning. Such an approach to training leads to effective learning of young people and their self-confidence in society, the ability to build business relationships and find a place in accordance with their potential.

Prince (2004) believes that active learning can be achieved through various methods that lead students to authentic learning. This method eliminates mechanical memory and repetition. The content of such a study is that the process is always accompanied by intellectual tension.

Zanchin (2002) believes that the active learning process reflects the involvement of students in teaching, their interest, the attractive presentation of the curriculum, which ensures the development of their procedural knowledge and their integration into declarative and metacognition.

Different learning models present different aspects of active learning strategies. However, it should be borne in mind that active learning should include the following strategies:

- To combine thoughts and practical activities;
- To allow the use of different learning styles;
- To build the content of the curriculum on separate subjects in a methodologically correct way
- To encourage cognitive interaction with adults or peers and other people;
- To develop higher level cognitive processes;
- To promote metacognitive activity and reflection;
- Support assignments and motivational readiness;
- Provide observation and monitoring of students (for example, to determine their basic knowledge and learning styles) (MOCİNİC, 2012)

Instead of passive listening to the class teacher, active methods involve students in the learning process through activities or debates, activate them, stimulate creative behavior, and create a basis for thinking. At the same time, active learning methods form a higher level of thinking and cover the organization of teamwork. (FREEMAN *et al*., 2014).

Research has shown that active learning strategies require more time than the teacher uses in traditional lectures, and this can disrupt the discipline program. However, performance tests showed an increase in learning ratios and interactions when the teacher took three short breaks (three minutes) during class, allowing for active student-student relationships (ROWE, 1980). Not only this research, but also research in various fields confirms this fact. The fact of mastery, which manifests itself in the application of active learning methods, as well as creative thinking becomes the leitmotif of learning.

The use of long-term traditional training methods creates special barriers to the application of active learning methods, which makes it difficult to implement new strategies. Research shows that one of the main obstacles to the application of active methodologies is the resistance of students to be more active in learning. This resistance is generally observed in any approach that is not based on discursive lectures. Because active methods completely differentiate the passive listener role of students (DOYLE, 2008).

However, in addition to practical obstacles, there are obstacles associated with student-teacher binomials, which may limit the use of active learning strategies (BONWEL; EISON, 1991).

Obstacles in the relationship between students and teachers in the learning process are somewhat difficult to overcome and these include students not actively participating in the process, not learning the content, not using higher-level reasoning and abstracts, not being inclined to practice, and not enjoying positively. Of course, the spontaneous application of active learning strategies in the transition process can lead to the emergence of these obstacles. The issue does not end there. Not only the students are exposed to stress in the implementation of new learning strategies. On the other hand, improving the emotional state during the application of active learning methods does not lead to the student's relaxation. At this time, intellectual tension increases. Issues such as the focus of thought and the processing of information can also be a concern for students at first.

Also, when it comes to the teacher during the application of active learning methods, they fear losing control of the classroom, not believing in the new method, and not being able to use this methodology effectively.

Similar to what was observed among students, some teachers oppose these strategies, because there is a natural tendency, especially among secondary and higher education teachers, to teach all learners in the same way, to work with data-based methods, and to limit the learning environment to traditional ones (HALPERN; HAKEL, 2003; MAZUR, 2009).

Active participation of students in the learning process is one of the most important indicators of academic success, and the four components of mastery: perception, information processing, memory and application in practice are combined. In this sense, the more effective the activity, the higher the participation and perception of students in mastering the content to be studied (ASTIN, 1993).

In such situations, students must make and discover everything for themselves. Therefore, they are always active and motivated. Therefore, the teacher should encourage students to search for information in libraries and on the Internet, to discuss their ideas with colleagues, to develop new approaches to solving problems, and to constantly question their level of understanding (HAKE, 1998).

In one study, a survey was conducted among 6,000 students in higher education in physics. After the application of students' interactive marking methods, it was found that their performance was twice as good as traditional classroom methods. Other studies have reported that modern teaching methods give students about two to three times better understanding of basic physics concepts such as "power and speed" than traditional teaching methods. (LAWS *et al*., 1999).

Freeman *et al.* (2014, p. 8410), compared the performance of primary and secondary school students taught with active methods in subjects such as science, technology, engineering, and mathematics with traditional class students. The comparison showed that active methods of teaching are more effective than traditional ones in any way.

Freeman *et al.* (2014), published the largest meta-analysis to date. They collected data from 225 studies that compared their scores on final exams or student failure rates between 1942 and 2010. Their analysis showed that students participating in active learning courses scored 6% higher than passive learning courses (traditional). In addition, the failure rate of traditional classroom students is 1,542 higher than that of 55% active methodology students. The benefits of active learning were effective on a class scale. However, it was higher in classes of less than 50 students. According to the study, active methodologies should be integrated into all levels of education in one way or another (CLOVIS *et al*., 2015).

Of course, such research increases the prospects for the application of active learning methods and stimulates its more widespread application in the future. However, it cannot be

said that active learning methods solve the psychological and pedagogical problems of the learning process as a whole. The problem is that most studies on the problem do not appear to be convinced that active learning methods will be entirely successful. However, there are enough facts that show the advantages over traditional methods.

It is unsystematic to prioritize issues such as the organization of lessons, teacher communication, application of new learning models, or the establishment of teacher-student relations on a humanistic basis in the application of modern teaching methods. Methodological issues are not fully resolved here.

As can be seen, the prospects for the application of active learning methods are not as easy as one might think. Factors such as the development trends of society, the degree of dominance of tradition can influence this process. At the same time, research in various fields shows that the strongest and most positive learning outcomes occur when students' knowledge and interests are well aligned with the nature of the learning task and students are actively involved in the lesson.

Methodology

The questionnaires were conducted with students to study the prospects for the application of active learning methods in modern education. The aim was to find out the level of students' familiarity with the new learning methods and to determine which active method they prefer.

The survey was conducted online with 126 students studying at various faculties of Baku State University, Azerbaijan State Pedagogical University, Odlar Yurdu University. 42 students were selected from each University. In addition, three courses (II course, III course, IV course) were selected. 12 people were taken from each course. Students were asked online questions and required to answer them. The anonymity of students' names was ensured. Students were asked 5 questions to answer:

1. Do teachers correctly apply active learning methods in their teaching?

A) apply correctly; B) do not apply correctly; c) present a mixture.

2. What teaching strategies do teachers use the most?

3. What are the main obstacles to the use of active learning methods at the university?

a) Lack of proper organization of learning; b) Improper communication style; c) not teaching the skills; d) Insufficient practical application; e) teachers’ unwillingness.

4. What issues should be given priority in the application of active learning methods?

a) the method of communication; b) teacher-student relations; c) perception of knowledge; d) to the self-affirmation of identity e) the formation of creative behavior and independence.

5. What active learning method do you consider necessary?

a) games; b) brainstorming; c) problem situation; d) imitation methods

Each question has a scale that reflects different aspects, which allows you to specify the questions and compare methodological issues with the problems posed in the theoretical plan. Quantitative and qualitative analysis was used in the study.

Results

We considered it expedient to study the attitude of students to modern teaching methods in order to investigate the prospects for the application of active learning methods in modern education. Based on this, we analyzed each questionnaire separately.

The ideas reflected in the 5 questions given to the students to determine the directions of the application of active learning methods are reflected in the tables accordingly. As the analysis of the questions expands the quantitative features, we have paid special attention to the attitude here. The main criteria in the study were the course of the students and the dynamic change of opinion. First of all, we tried to clarify the attitude to the question - do teachers correctly apply active learning methods in their teaching?

Table 1 – Indicators of the answer to the question- Do teachers correctly apply active learning methods in their teaching? (expressed in %)

Direction of application	Number of students N =126		
	II course	III course	IV course
Adequate presentation	42.82	36.13	31.44
Inadequate presentation	24.18	22.15	28.52
Mixed presentation	33.00	41.72	40.04

Source: Prepared by the authors

As can be seen from Table 1, the teacher's use of the active learning method varies according to the course in the students' relationship. This difference is mainly due to the fact that in the lower-class courses, students perceive each interesting lesson as a new teaching method. Worldview and acquaintance with new teachers explain to students the content of active lessons, which is also understood in upper-class courses. In fact, although there is a dynamic in the application of new learning methods or active learning methods by teachers, in the opinion of students, this is not enough. On the other hand, teachers still apply the traditional

and modern learning methods together. This creates certain difficulties from a methodological point of view. For comparison, we can see that the adequacy of the application of active learning methods in the second courses is 42.82%, and in the fourth courses - 31.44%. The dynamics are more pronounced in the mixed presentation. Thus, it is 33.00% in the second course and 40.04% in the fourth course. Although assessment is an indicator of subjective attitudes, the level of application of active learning methods is not dominant.

Table 2 – Indicators of the answer to the question -What teaching strategies do teachers use the most? (expressed in %)

Teaching strategies	Number of students N =126		
	II course	III course	IV course
Making continuous changes	18.12	19.15	20.42
Understanding the existence of the problem	14.16	13.32	12.30
Creating horizontal relationships and working group	13.08	14.12	16.18
Improving the process through small steps	16.02	18.03	17.89
Development of supportive relationships	18.00	18.38	19.23
Development of self-education	20.62	17.00	13.98

Source: Prepared by the authors

As can be seen from Table 2, making continuous changes and the development of self-education have more dynamics in the courses. At the same time, the average is 44.08 for continuous changes and 42.28 for the development of self-education.

At the same time, the average is 44.08 for continuous changes and 42.28 for the development of self-education. This fact confirms that the application of active learning methods is closely related to the different teaching strategies. The application of new teaching strategies for various courses creates the basis for the practical application of active methods.

Table 3 – Indicators of the answer to the question -What are the main obstacles to the use of active learning methods at the university?

Barriers to active learning methods	Number of students N =126		
	II course	III course	IV course
Lack of proper organization of learning	25.02	28.13	21.18
Improper communication style	24.68	22.54	16.85
Lack of teaching skills	17.12	25.00	28.00
Insufficient practical application	26.56	21.00	26.23
Teacher’s unwillingness	6.62	3.33	7.72

Source: Prepared by the authors

As can be seen from Table 3, the average was 24.77 for incorrect organization of training in different courses, 21.35 for incorrect communication, 23.37 for lack of teaching skills, 24.59 for insufficient practical application, and 5.89 for teacher`s unwillingness. With this in mind, the application of active learning methods can be expanded.

Table 4 – Indicators of answers to the question - What issues should be prioritized when applying active learning methods?

Priority issues in the application of active learning methods	Number of students N =126		
	II course	III course	IV course
Communication style	26.05	24.21	20.15
Teacher-student relationships	23.54	20.66	14.76
Perception of knowledge	16.11	23.06	29.18
Personality self-affirmation	25.83	20.12	27.35
Formation of creative behavior and independence	8.47	11.95	8.56

Source: Prepared by the authors

As can be seen from Table 4, communication style, perception of knowledge and personality self-affirmation are among the priorities in the application of active learning methods in different courses. In fact, this confirms that adequate communication and person-centered education reflect the prospects for the application of active learning methods.

Table 5 – Indicators of answers to the question - What active learning method do you consider necessary?

Priority issues in the application of active learning methods	Number of students N =126		
	II course	III course	IV course
Games	27.18	21.38	14.17
Brainstorming	21.52	24.52	28.64
Problem situation	20.65	26.07	30.92
Imitation methods	30.65	28.03	26.27

Source: Prepared by the authors

As can be seen from Table 5, starting from the second year, game methods prevail, and in the fourth year, brainstorming and problem situations prevail. This is legal. However, it should be borne in mind that courses and the content of learning should be taken into account when choosing active learning methods. Summarizing our research, we can note that the prospects for the application of active learning methods in modern education are conditioned by a number of factors. Here we can conclude that the application of active teaching methods depends on the teacher, which is a central element. The fact that the majority of teachers support the implementation of pedagogical innovations is an indicator of their active participation in this process. Students' appreciation of the role of teachers in this process confirms that the application of active learning methods depends on the teacher.

Discussion and Conclusion

Our research has shown that the possibility of applying active learning methods in education is conditioned by a complex of different factors. It was found that teachers use more

imitation methods. One of the main obstacles to the use of active learning methods at the university is the lack of proper organization of learning and practical application. It became clear that in the application of active learning methods, more attention should be paid to the method of communication and self-assertion. When using the active learning method, games, brainstorming, and problem situations predominate.

There is a lot of research that overlaps and contradicts our research. Many consider motivation to be a leading factor in the application of active learning methods (INMALCUADA *et al.,* 2021). According to them, the application of pedagogical innovations activates the motivational component, which creates the basis for effective organization of learning.

There is an intensive interest in the use of active methods in the organization of learning. This interest is highlighted in separate researchers. The research is consistent with many studies, including Jabbarov (2020), Omera (2020), Tagunov, (2016), Steiner-Hamsey (2018), Nazarov, (2012), and others. These researchers also came to relevant conclusions on the issues of increasing the professionalism of teachers in the application of pedagogical innovations, the application of new content, as well as finding new ways to stimulate the work of teachers.

Appropriate results were obtained in research conducted by Junges (2018), Krasnov (1995), Aksarin (2015), Akhmetova (2016) and others. However, the results of our research contradict several studies. In this regard, Gaved *et al.* (2019) showed that it is important to test learning interventions and teaching approaches before applying pedagogical innovations to practice. Improving learning outcomes and considering sustainable expectations is a key requirement for changing society. In this work, the main directions of application of pedagogical innovations are considered in terms of increasing the effectiveness of learning.

According to some researchers, the continuity of education must be provided to ensure pedagogical innovation. Thus, the main thesis revolves around the need for a significant investment in terms of continuing education to show concrete results in terms of teachers participating in these training courses (JUNGES *et al.,* 2018).

In order to overcome a number of difficulties in the application of active learning methods, it is appropriate to make the following recommendations:

- A learning platform should be developed for teachers at the college or school level to use their active learning experiences effectively and to improve their skills in classroom matters.

- There is a need to reconsider the modularity of the module. We must either stick to the old approach, cover the voluminous content, or take reasonable time to master the elements of active learning. We can't afford both. Therefore, it is up to the relevant authorities (from departments to the Ministry of Education) to initiate the necessary adjustments.

- Teachers should understand that traditional methods are no longer accepted as the best choice for our instruction. They should do their best to apply active learning, related to less than the difficulties they face. In other words, students need to move from "voters to supporters" to learn better (OMERA *et al.*, 2020).

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