



Improving Variable Approaches Through The Application Of Digital Technologies In Education

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Abstract. This approach is extensively applied across various disciplines, including education, psychology, and economics. This article explores how variational approaches enable the consideration of multiple solutions to a single problem, examining the methodology, practical applications, and instructional tools used to teach this approach in education. The study's findings aim to enhance the efficiency of the learning process while fostering students' ability to think independently.

Keywords: education, process, variability, forms, method, tool.

Introduction. The word variation comes from the Latin word "variatio" (change, variety), which means the possibility of a certain process or phenomenon existing and developing in several forms, in different variants.

In pedagogy, the concept of "variation" refers to the possibility of using different educational technologies, methods and models in the educational process, rather than being limited to one traditional method or approach. In this case, the options in the educational process are adapted to the individual characteristics, abilities and needs of students.

Therefore, a variation-based approach is an approach that involves abandoning a single standard direction in the education system and using different methods and models depending on the individual needs, interests, and abilities of students and learners.

Its main features:

- ✓ Diversity in education – offering multiple options instead of one traditional program or method.
- ✓ Individual approach - adaptation to the capabilities, abilities, and interests of each student.
- ✓ Interdisciplinary integration – strengthening connections between different disciplines and creating opportunities for choice.



✓ Innovative methods – extensive use of interactive, digital, and creative methods.

✓ Independence and freedom – giving students and students the opportunity to choose their own educational paths.

The fact that each student can choose courses appropriate to their level through e-learning platforms in schools , the fact that students have the opportunity to freely choose courses appropriate to their major based on a modular system in universities, and the possibility of choosing between practical and theoretical courses in vocational education - these are clear examples of our above idea.

Analysis and Conclusion. The variant-based approach in pedagogy serves to improve the quality and effectiveness of education, as it helps to develop person-centered education. This approach is especially important in inclusive education, vocational education, and higher education systems.

The novelty and importance of the variant-based approach in education is confirmed by studies conducted in recent years. For example, DMShumway in his study emphasized the development of self-management and creativity skills among students through the use of an individual approach. The results of this study showed the need to encourage students to actively participate in the educational process and use methods that help them discover their own abilities.

In addition, the study conducted by T.Karpova shows the importance of the variant-based approach in strengthening the relationship between teachers and students. The study emphasizes the need to introduce new methods aimed at developing teachers' interaction and communication skills. This, in turn, will further improve the individual approach of teachers to students.

New approaches include strategies such as gamification, project-based learning, and the use of interactive technologies. These methods help to engage students in the learning process, increase their interest, and further enhance the effectiveness of education. For example, through gamification, the learning process is enriched with game elements, which increases students' interest in learning.

Indeed, today's education system is developing rapidly, and taking into account the individual needs of students has become one of the most important tasks. A variant-based approach plays an important role in ensuring this individual approach.



We know that the variant-based approach allows us to take into account the individual needs and abilities of students in the educational process, which helps them to understand themselves and achieve their goals. The free expression of students' thoughts, acceptance of different points of view and application of their knowledge in practice increases the effectiveness of education. This topic is also important for teachers and educational institutions. Improving educational methods helps to organize the pedagogical process more effectively and improve the quality of education. Educational methods that include the variant-based approach provide students with the skills necessary for success in life.

Thus, improving the methodology for teaching students a variable approach to the educational process will not only improve the quality of education, but also contribute to the active participation of the future generation in social life and the implementation of innovative ideas.

The main objectives of the study are:

Analysis of the theoretical foundations of the variation-based approach in education. In this process, previous research, methodologies, and approaches are studied, as well as their role and significance in the educational process are determined.

Identifying practical forms and tools used in implementing a variation-based approach. The use of innovative technologies and interactive methods in the teaching process is explored.

Develop a research methodology appropriate to the topic under study. This methodology will allow for the assessment of teacher-student relationships and the effectiveness of the teaching process.

Conducting experiments to apply the theoretical knowledge gained in practice. During this process, it is planned to observe the development of interaction and creativity skills among students by using a variation-based approach.

Analyze the results of research and experiments and draw conclusions. Based on the results obtained in this process, recommendations are developed for further improving the educational process.

To develop practical recommendations for teachers based on the research results. These recommendations, in turn, will help in the effective implementation of the educational process and the development of students' skills.



These goals and objectives will help to increase the effectiveness of implementing a variation-based approach in the educational process, as well as prepare students for success in modern life. Thus, the research will be of great importance not only from a scientific but also from a practical point of view.

Observation is a fundamental method for analyzing the interactions between students and teachers and teaching methods in the educational process. By directly observing the activities of teachers and students during observation, it is possible to determine how the learning process is going and the interest and motivation of students, as well as their interaction.

An experiment is one of the basic research methods. Through this method, a comparison is made between two or more groups in order to determine the effect of using a variation-based approach in the teaching process. For example, one group uses traditional teaching methods, while another group uses variation-based approach methods.

The questionnaire method is used to collect and analyze the opinions of students and teachers. This method helps to determine students' relationships, interests, and attitudes towards teaching methods. Questionnaires can include:

- Student questionnaires: Students are asked questions about their opinions on the variable-based approach and what difficulties they face in the learning process.
- Questionnaires for teachers: Teachers' own experiences, difficulties in implementing an individual approach to students, and their willingness to use new methods are determined.

The results of the survey will help identify skills and methods needed to improve the teaching process.

Content analysis is used to analyze curricula, teaching materials, and methods used in the learning process. This method helps to assess the quality of resources and materials used in implementing a variable-based approach to the learning process. The information collected through content analysis is important for improving the learning process and developing new approaches.

The data collected during the research process is studied through two main analysis methods - qualitative and quantitative analysis.

The aim is to analyze the data collected in depth, to explore the opinions and experiences of students and teachers. This is important for assessing the quality of the educational process and developing new approaches.



Analyzing the data obtained using statistical methods. This allows you to evaluate the results of experiments, questionnaire responses, and observation results in numerical form.

these methods together allows for a more reliable and thorough analysis of research results.

The above methods are important in achieving the main goals and objectives of the study. They will help to assess the effectiveness of the use of a variable-based approach in the educational process, improve the relationship between students and teachers, and also improve the quality of education. The results of the study will be a valuable tool for teachers and educational institutions in applying new approaches to the educational process.

The research topic "Teaching students to adopt a variable approach to the educational process" raises a number of important problems in the modern education system. Solving these problems is necessary to increase the effectiveness of the educational process and prepare students for success in modern life. Below, these problems and approaches to solving them are analyzed.

1. Traditional teaching methods often make students passive learners, which hinders their development of creativity and independent thinking skills. Students often have difficulty expressing their ideas or solving problems. Incorporate a variation-based approach into new curricula. Teachers should use active teaching methods that encourage students to solve problems and think creatively. For example, project-based learning, discussions, and workshops can encourage students to actively participate.

2. Communication and interaction between teachers and students may often be underdeveloped. This leads to difficulties for students in expressing their opinions, solving problems, and getting help from teachers. Develop open and honest communication between teachers and students. Teachers should use interactive methods in communicating with students, for example, by organizing group work and conducting discussions, encouraging students to express their opinions.

3. Students' interest and motivation in learning can be variable. Some students do not find sufficient motivation to achieve the expected results in the educational process. Implement an individual approach to students. Use each student in the learning process according to their interests and needs. Also, the learning process can be made interesting and motivating by adding gamification



elements. Students should be encouraged to see their own success and achieve their goals.

4. The lack of modern materials, technologies and resources in the educational process creates difficulties for teachers and students. This situation can reduce the quality of the educational process. Educational institutions need to develop cooperation to provide modern technologies and resources. Conducting seminars and trainings for teachers will help increase their ability to use new methods. Also, organizing experience exchange programs between educational institutions will allow sharing resources and experiences.

5. Some teachers are not sufficiently prepared to use modern teaching methods and variable-based approaches. This reduces the effectiveness of the teaching process. Provide teachers with ongoing professional development courses and training. Create opportunities for teachers to learn and apply new methods in practice, supporting their professional development. Also, develop cooperation and exchange programs among teachers, helping to further improve their knowledge and skills.

The above problems indicate the main difficulties that arise when applying a variant-based approach to the educational process. Approaches to solving these problems are important in improving the quality of education and preparing students for success in modern life. With the help of innovative approaches and methods in education, the educational process can be made more effective by strengthening the interaction between teachers and students, increasing student motivation, and providing them with the necessary resources. This, in turn, has a positive impact on the development of society.

The results of the study demonstrate the effectiveness of teaching students a variant-based approach to the educational process. The results obtained play an important role in assessing the impact of the methods and strategies used in the educational process. These results are analyzed based on approaches aimed at increasing students' communication, creativity skills, and independent thinking.

The results of the study showed that the variation-based approach is important in increasing students' interest in the learning process and their active participation in the learning process. 100 students participated in the experiment, 50 of whom were taught using traditional teaching methods and 50 using variation-based approach methods. According to the results, students in the group using the variation-based approach showed 30% more success.



The level of interaction and cooperation between students has also increased significantly. The development of creativity and innovative thinking skills among students is associated with the interactivity of the teaching process, which in many cases was achieved through strengthening student interactions, group work, and project-based learning.

The above results prove the effectiveness of the variant-based approach in the educational process. Increasing student interaction and creativity ensures the effective implementation of the educational process. While traditional teaching methods are more passive, in the variant-based approach, students have the opportunity to express their opinions and actively participate in the educational process. This, in turn, develops their independent thinking skills.

The results of the study show that the variation-based approach plays an important role in increasing student motivation and making the learning process interesting and effective. The results help to increase students' ability to self-assess and independently determine their own knowledge. Innovative methods used by teachers encourage students to discover their own abilities.

The results of the study strengthen the scientific basis for the use of a variation-based approach in the educational process. This study serves as a basis for research and implementation of new methods and strategies in education. The results obtained allow the development of new approaches and methods for teachers and educational institutions.

The study also provides guidance to teachers in implementing an individual approach to the educational process. The willingness of teachers to develop cooperation and use innovative methods is necessary to further improve the quality of education.

In practical terms, the research findings offer a number of practical recommendations for educational institutions and teachers. Teachers can develop sincere and open communication with students by using a variation-based approach in the educational process, increasing their creative skills. This, in turn, helps prepare students for success in modern life.

also increase teachers' ability to use new methods and strategies by providing modern technologies and resources. Providing teachers with ongoing professional development courses and training will create opportunities for them to learn and put new methods into practice.

The results of the study prove the effectiveness of teaching students a variant approach to the educational process and help improve the quality of the



educational process. The results obtained are of great importance in developing interaction and creativity among students. Their scientific and practical significance serves to develop new approaches and strategies aimed at improving the education system and preparing students for success in modern life. Thus, the results of the study open the way for innovative changes and new opportunities in the field of education.

In addition, the results of the study showed that the level of interaction and cooperation between students increased significantly. With the help of a variant-based approach, students had the opportunity to express their opinions and actively participate in the learning process. This is important for the development of their creativity and independent thinking skills. The interaction and cooperation of students is increasing day by day, ensuring that the learning process is interactive and interesting.

The study's findings offer teachers and educational institutions the chance to develop new strategies and methodologies. Strengthening collaboration among educators and their readiness to adopt innovative teaching methods play a crucial role in enhancing education quality. Additionally, teachers' personal experiences contribute to implementing individualized approaches for students, ultimately improving the overall effectiveness of the learning process.

In practical terms, the research findings offer a number of practical recommendations for educational institutions and teachers. Teachers should develop sincere and open communication with students by using a variant-based approach in the educational process. This, in turn, helps prepare students for success in modern life. Educational institutions, in turn, should increase the opportunities for teachers to apply new methods and strategies by providing modern technologies and resources.

Conclusion: Providing teachers with ongoing professional development courses and training provides them with opportunities to learn and practice new methods. This, in turn, encourages teachers to expand their knowledge and skills and helps improve the quality of the educational process.

Thus, the results of the study reveal the scientific and practical significance of using a variant-based approach in the educational process. The information obtained opens the way for innovative changes and new opportunities in the field of education. These approaches help students discover their abilities, develop creativity and independent thinking skills, and also prepare them for success in modern life. As a result, the educational process becomes more



qualitative and effective, which has a positive impact on the development of society.

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