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CONTENT OF PEDAGOGICAL EXPERIENCE IN THE STRUCTURE OF PHYSICS TEACHING AND METHODOLOGICAL BASIS OF ITS ORGANIZATION

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ABSTRACT

The paper discusses methods for abstraction, analysis and synthesis, in theory study and the method of preparation of the empiricist teaching test and practical work. As well as, the article outlines the priorities of organizing physics education on the basis of a differentiated approach to the development of the intelligence of trainees. As a result, the same learning content and the same complexity of knowledge and skills provided to students do not ensure their dynamic development. Eventually, there will be a number of students who do not master science and lose interest in it. The short-term experiment used a differentiated learning process for students. In comparison with the control group, the level of aspiration, interest and knowledge of the students of the experimental group changed significantly, and positive results were achieved.

KEYWORDS: *Method, Abstraction, Analysis, Synthesis, The Theoretical Method, The Empiricist, Educational Literature, Phraseological Method, Induction, Deduction, Classification, Analogy, Prophecy, Design, Modeling.*

INTRODUCTION

Currently, the education system requires the introduction of new non-traditional teaching methods, as well as the acquisition of the necessary knowledge by the students themselves, independent study, conclusion.

Such unconventional methods should be aimed at active and independent acquisition of knowledge, the development of thinking skills, and the development of a scientific worldview. It is also important to pay more attention to scientific and methodological activities to improve the effectiveness of the educational process.

In today's education system, one of the primary tasks of educational institutions is to develop the abilities of students in different disciplines in each subject. Because it is not enough to equip students with certain knowledge and skills.

In the context of the current process of globalization, the training of highly qualified personnel and the training of modern competitive specialists who meet the requirements of the STS pose a number of challenges to the education system. Scientific and pedagogical research and research have shown that traditional education based on the active work of a teacher in the classroom, focused only on the idea of unification, aimed at obtaining ready-made knowledge, does not justify itself in practice [1].

Currently, the social order of society in education has undergone radical changes: it is designed to create for each student a wide range of opportunities to achieve specific learning goals, taking into account his interests, abilities and inclinations. The education system serves as a means of fulfilling a social order in the context of educational developmental tasks.

MATERIALS AND METHODS

It is believed to be the best way to accommodate students' interests, abilities and inclinations for physics (this is a learning process, including teaching, stratification) (differentiation).

The main task of our teachers is to create a favorable environment for students, to increase their capabilities, abilities and interests. According to some scientific and pedagogical studies, literature and articles, as well as their analysis, there are certain problems in the foundations of stratification in teaching physics, and an economical solution must be found.

According to scientific, pedagogical and applied research, not all students have the same level of knowledge and skills. It depends on their personal characteristics, abilities, interests, as well as on the family environment. In addition, the content of education that students must master is not commensurate with the perception and abilities of each of them. Because every student in the class has different abilities. It is difficult to find two students with similar abilities. The knowledge and skills transferred to students through the program are related to the abilities of some students, are new to others and burden other students. As a result, the same learning content and the same complexity of knowledge and skills provided to students do not ensure their dynamic development. Eventually, there will be a number of students who do not master science and lose interest in it. Accordingly, the idea of organizing the educational process on the basis of a single requirement does not justify itself, it is desirable to organize the educational process.

We believe that the required level of knowledge cannot be achieved without the group organization of students and the development of initial skills. In particular, in the process of teaching physics, it is advisable to identify students' interest in science and organize the educational process, differentiating them according to different levels of knowledge, level of consciousness, level of training, and qualitative characteristics of students. Also, if the

educational process of physics is organized on the basis of a differentiated approach to the interests of students, their activity will increase, their level of knowledge will increase, their interest will increase, their independent and free thinking will develop, their knowledge will be systematized, and practical problems of physics will be formed.

In the history of pedagogy, the stratification of education has always been relevant. In particular, the Great Didactics of the great Czech teacher Jan Komensky reflects one of the didactic principles of teaching - the principle of "comprehensibility".

Differentiated learning is an educational process that involves the management of the educational activities of students in a specific system. Organization of training according to interests, abilities, consciousness, knowledge of students - differentiated education, which is a measure of pedagogical science.

The main goal of differentiated education is to increase the effectiveness of the educational process to meet the needs of students to improve their knowledge, skills and abilities.

Its main task is to determine the criteria for in-depth study of the level of preparedness of students and what should be focused on in order to ensure the high efficiency of the educational process. The social essence of stratification education is, on the one hand, in the formation of each student's creativity, hard work, initiative, creativity, on the other hand, in getting rid of the method of equalizing education, calling everyone to new views on the basis of interests, abilities, results lay the foundation [2].

The organization and implementation of differentiated education requires a physics teacher to have great methodological skills, research, knowledge and initiative. This requires the advance development of all methodological mechanisms of the lesson technology and the preparation of the lesson script. Otherwise, the expected positive results will not be achieved.

The selection of creatively gifted students to educational institutions requires that they study through a differentiated teaching based on direct grouping by area and their level of ability.

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Allocating time for differentiated classroom assignments, of course, requires great skill on the part of the teacher. At the same time, it is important for the teacher to develop students' interest in the study of physics. Therefore, it is important to provide opportunities to meet the needs of students who show interest and ability in physics.

DISCUSSION

Experimentation is essential to determine the reliability, effectiveness, and relevance of any technology used in training. Among the organizational and methodological measures taken in the design, development and implementation of pedagogical technologies, an important step is the organization and conduct of experiments.

Pedagogical experimentation is a method of scientific and pedagogical thinking aimed at clarifying the causal relationship between pedagogical factors, conditions, processes and methodological approaches based on clear plans.

The theoretical method consists in modeling, analysis, synthesis, comparison, generalization, stratification of pedagogical technology, integration of its systems and identification of the most important legal links between them.

The empirical method is based on the study of well-known scientific-theoretical, educational-methodical, popular science, additional literature on experimental activities and analysis of existing ideas, hypotheses and experiments. corresponding models and project of forthcoming works.

The credibility and validity of test results is an important indicator. It should be borne in mind that as a result of experiments, various unexpected conclusions and results can be obtained. This is due to the fact that experimental results do not always give a guaranteed result.

The success of the experiment largely depends on the preparation and skills, methodological skills, knowledge and experience of the facilitator, the number of respondents (participants) and their attitude to this activity.

Before starting to experiment, it is important to determine the most appropriate method of working in this area. These methods are mainly divided into two main groups based on the above theoretical and empirical experiments.

It is necessary to study all regulatory and methodological documents, recommendations, guidelines related to the problem that is the subject of the experiment.

Analysis of various documents on the activities of educational institutions, pedagogical observations, oral and written surveys, answers to questionnaires and test questions, study and generalization of various best practices also contribute to pedagogical experiments.

The number of students in control and monitoring classes selected to ensure the objectivity of experimental results, relative equality of ability, equal number of textbooks, teaching aids, unified science classroom or classroom equipment, and the number of students in each class. Instructor: Teaching in both grades allows you to compare the results of the current and proven curriculum and draw clear conclusions [2].

Result

The short-term experiment used a differentiated learning process for students. In comparison with the control group, the level of aspiration, interest and knowledge of the students of the experimental group changed significantly, and positive results were achieved. In particular, when the experiments were first carried out in experimental groups, we witnessed the results of the analysis of students' knowledge, their comprehensive and deep scientific assimilation of teaching materials in physics.

The students' answers to the questions of the control group were superficial, incoherent, were not interested in the importance of physics in technology and showed a very weak ability to apply their knowledge of physics in practice. This can be seen in the table below.

№	Experimental groups				Control groups			
	Assessments							
	fine	well	satis-factory	unsatis-factory	fine	well	satis-factory	unsatis-factory
1	20	42	38		5	25	52	18
2	28	40	32		5	2	69	24
3	22	37	38	3		30	52	18
4	26	33	41			8	65	27
5	18	48	34		2	28	62	8
6	16	49	35		4	27	52	17
7	14	48	34	4		30	51	19
8	20	37	40	3	3	4	70	23
9	13	38	41	8	2	26	60	12
10	19	43	38			24	53	23
Average mastering	19.6	41.5	37.1	1.8	2.2	20.4	58.6	19

The use of a differentiated approach to the educational process, which is one of the non-traditional methods of teaching students to achieve the desired knowledge in physics, allows increasing the level of students' knowledge, improving the quality of teaching, and achieving high efficiency if:

• Targeted educational activities for students aimed at improving their knowledge;

• Creation of the necessary pedagogical conditions for the formation of educational activities of students in the effective assimilation of the necessary knowledge;

• Develops a scientific and methodological basis for solving problems and a differentiated approach to laboratory work, purposefully organizes and develops educational activities;

• Introduction of pedagogical technologies and non-traditional methods in teaching physics, as well as the correct use of modern information technologies in teaching;

• Correct and rational use of experimental methods to provide students with the necessary knowledge of physics in the educational process;

• Correctly organized educational process for students:

Also, if the educational process of physics is organized on the basis of a differentiated approach to the interests of students, their activity will increase, their level of knowledge will increase, their interest in science will increase, independent and free thinking will develop, their knowledge is systematized, and practical questions are formed.

With the introduction of a differentiated approach to the educational process in physics, students' knowledge will grow, their level will rise, their interest in science will increase, their abilities will develop, and their thinking will become more free. The deeper the topic, the better the students understand and master the material. The teacher has the opportunity to use various

forms, methods and techniques of the lesson to explain complex concepts of a topic, especially problem solving, as students understand and accept the ideas put forward by the teacher [3].

CONCLUSION

Experiments have shown that the introduction of differentiated learning by students mastering academic disciplines or their creative abilities, direction and level, first of all, the development of knowledge, skills and abilities in gifted children; secondly, do not waste time; thirdly, to ensure the stability of relations between students.

Thus, differentiated education is based on the principle of general didactics, which provides for the specialization of the educational process in homogeneous groups of specially organized students. This requires the student to realize his personal potential and meet the requirements of the modern educational process.

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