



## SCIENTIFIC RESEARCH METHODS USED IN PEDAGOGY

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### Annotation

Any science has its own research techniques. It will enrich and update its content through techniques. In life and in the theory of cognition of the object world, there are issues such as what to teach and how to teach, Who and how to educate, they are interdependent. Pedagogy studies existing pedagogical phenomena and processes with their methods that correspond to its goals and objectives in order to enrich and update its content. In this sense, when we say the research methods of pedagogy, the methods, methods and means of examination, knowledge of internal communication and relations, characteristic of the real processes of educating, educating and teaching the younger generation, are used. In this article, the importance of scientific research methods used in pedagogy is analyzed.

**Keywords:** Pedagogy, education system, methodology, observation, analysis, research, conversation, questionnaire, research.

### Introduction

Pedagogy implies the study-knowledge of the processes of teaching, giving knowledge, upbringing and their essence as follows. Their general connection, interrelationship and education and upbringing of children in the process of interaction, science, culture, morality and art, their interrelationships regardless of where education and upbringing is carried out, as well as their non-stop behavior, functions of teaching and upbringing that arise in the process of change and development, changes in their methods, the impossibility of teaching and educating all children, relies on the criteria of the word and the unit of work. Traditions, customs that affect children's maturity, knowledge of the differences between them, based on the determination of good to bad, news with taking into account the disputes that occur between, mutual criticism, etc. How perfect are the scientific research methods of pedagogy, in accordance with the mind, if properly selected, the updating and improvement of the educational content will improve to this extent, the science of pedagogy will also become richer.





Until now, one can think of relying on the following scientific research techniques that exist and have been developed: 1) observation method; 2) method of conversation; 3) method of studying children's creativity; 4) method of tests, questionnaires; 5) method of analyzing school documents; 6) experimental-experimental method of testing; 7) method of analyzing statistical data; 8) method of mathematics-cybernetics;

**Method of observation.** The method of observation of pedagogy introduces the current state of educational processes, helps to know the consequences of them and creates an opportunity to collect evidence, factors for new discoveries created on this occasion. The process of applying this method is much more complicated, it is also used to determine how the intended goal is realized, to compare the interaction of the teacher and the students, their individual differences. Experiments have shown that goal-based observation is effective only if it is organized on the basis of a real analysis, comparison of the evidence collected under a certain plan. Observations are carried out not only for the purpose of observing simple phenomena, collecting some evidence, taking into account, determining, but also for the purpose of improving and perfecting the educational process. Usually, through pedagogical observation, it is used to determine the ways in which students master the sciences, take into account the changes in their behavior and behavior, and to establish the appropriate educational and educational impact. And scientific observations determine not only the natural activity of students, but also the formation of their scientific worldview, the strength of the thinking process, their activity in the production of conclusions, analyze them and give an opportunity to draw appropriate conclusions. Such observations lead to a richness in the content of pedagogical science.

**Method of conversation.** In order to improve the educational process or determine how accurate the created scientific hypotheses are, the method of conversation is used. Usually, the method of conversation is used when the school works with a team of teachers and students, both parents and the general public in a single and group order. Before the introduction of this method of conversation, a targeted plan is drawn up, ways of implementation are determined, the results are analyzed and an appropriate conclusion is drawn. It is also extremely important that the researcher knows how to conduct a conversation and take it in the direction that is necessary, adjust the tone of the conversation depending on the mood of the interlocutor. Such:

1. How to compose a question in advance for an interview;
2. Setting the time and place of transfer;
3. Be aware of the number and profession of participants in the conversation;
4. Create comfortable conditions for conversation and the opportunity to talk freely;





5. The immediate analysis of the results of the interview, comparison, the conclusion of the relevant, if necessary, the introduction of supplements and the introduction into school life are pedagogically valuable.

Within the methods of pedagogical research there is a method of studying children's creativity in a natural state and making scientific conclusions. In this, data on the activities of schoolchildren in a specific individual order are analyzed, conclusions are drawn. The goal is the formation of typical images of the youth of Uzbekistan and positive qualities in them. For this reason, various written books of young people, journals they hold, written letters, poems and Stories, Life plans, essays, various written reports serve as a source for the study of children's creativity. As a result, it will be possible to identify talented, talented young people who are growing up among schoolchildren, to create plans and conditions for the manifestation of their talents. As a rule, there are a lot of sources of study of children's creativity, they include: Science Olympiads, courses on topics, views on schools, competitions, excursions and festivities, etc.

Test, questionnaire method. Within the pedagogical research methods, the leading method is the use of questionnaires and test questions. The questionnaire is conducted in order to know the novelty of the scientific hypothesis created when the method of the questionnaire (in French it means "verification") is used, to determine, to know the individual or group thoughts, views of students, what professions they are interested in, to know the future wishes and to draw appropriate conclusions, to make recommendations. Uzbekistan was the first in Central Asia to introduce the test method into the system of school, higher and secondary special education. The purpose of the test is to determine, evaluate the students' knowledge in a short period of time. It should be borne in mind that it is important to draw up these test questions so as not to be detrimental to the thinking process, with as much clarity and intelligence. The role of Test questions and the structure of their content in a colorful way, will grow the independent thoughts of the readers, will provide a real assessment of the future.

Method of analysis of school documents. There is also a method of determining the educational work carried out and carried out in the school on the basis of the decisions and ways adopted by the leadership of the Republic on public education by means of documents. Through the examination of school documents, a team of teachers and students will receive accurate information about their pedagogical activities. In general, when school documents say; the number and quality of teachers and students; students will be able to understand personal documents, class journals, diary books, command books, The Book of decisions of the pedagogical Council, the





school's planned Cash Account and documents on its expenditure, the book of various inventories and so on. In the analysis of school documents, attention is paid to the total number of pupils, the description of the reasons for its growth or decline, the degree of mastering of students in the subjects, measures to prevent, encourage and punish students for staying in the Class, their types, the material base of the school. It is conducted with the aim of analyzing them, reviewing the reports, determining whether they are correct or wrong, comparing them with the growth of students' activities, summarizing and introducing advanced pedagogical experiments, and finally, checking the scientific and pedagogical activities of teachers and educators, setting appropriate measures and measures.

**Experimental testing method.** The so-called experiment in Latin means "to try," "to experiment". Usually experimental-experimental works are conducted with the purpose of checking and determining the processes of application of scientific hypotheses or practical works related to the educational process. In this also pays attention to the didactic or practical significance of scientific hypotheses. The conducted experimental work will be aimed at determining the legal relations between education and training, introducing new techniques on the basis of accounting of results, increasing the effectiveness of Education. It also provides an opportunity to see in advance the course, structure and results of the educational process.

The method of the experiment is carried out in 3 types, depending on the circumstances: 1) Natural Experiment; 2) laboratory experiment; 3) practical experiment. When conducting pedagogical experimental work, the following requirements are met:

- It is necessary to determine the exact, scientifically based hypothesis of the work and set a plan for the expected result.
- Determination of specific objects for scientific work or pedagogical activity, Determination of additional techniques for implementation.
- Specify the time and duration for the conduct of the experimental work.
- Ready-to-use tools, etc., necessary for the experiment;
- It is necessary to immediately analyze the results of the experiment and draw appropriate conclusions and make recommendations.

Pedagogical research cannot manifest itself without statistical data, their analysis. Because not only in the field of scientific research, but also in the field of public education, including the increase of allocated funds, the constant growth of public education institutions, textbooks and manuals, economic contracts and the funds falling from them are determined by the statistical method. Almost all educational institutions of our republic are armed with statistics, have future development plans.





Until the independence of our republic, the confusion in the field of Statistics, deliberately increasing and adding records were also present in the system of public education. The gap in their control and non-objectivity has led to a deep reform in the field of public education. So, if the statistical data is accurate, vital, then the value of the education or scientific research carried out will be high.

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