

The Role Of Pedagogical Technologies In The Formation Of Students' Scientific Outlook

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Abstract. *The article focuses on the role of pedagogical technologies in the formation of students' scientific worldview and its specific features. At the same time, the problem of pedagogical technologies has been studied in depth from a pedagogical point of view on a scientific basis. However, when they are applied to the educational process, it is noted that the issue of psychological impact on the student's personality (his mental processes) has not been seriously studied so far. After all, the human personality is a psychological object with a very complex and multi-layered structure. Pedagogical technologies affect the student's personality as a whole, creating certain changes in it. Pedagogical technologies influence the formation of their scientific worldview as a way of conveying certain content to the minds of students. Also, the harmony of form and content of educational tasks, that is, the placement of content on the basis of effective pedagogical technologies, is the basis for the development of students' scientific outlook. Proof of this is reflected in the article.*

Keywords. *Student, scientific outlook, pedagogical technology, assignments, professional skills, intellect, intellect.*

1. INTRODUCTION

It is known that any pedagogical technology is based on the principles of education that shape the modern content of education, it should be aimed at educating the student's personality, the formation of professional skills in it. The active subjects of the educational process are teachers and students, whose collaborative activities characterize the general nature of the process, which allows for in-depth mastery of theoretical and practical knowledge on a particular topic (or the basics of science) with minimal effort and time. Also, one of the important features of pedagogical technologies is the formation of students' scientific outlook.

Dj Dewey advocated replacing all types and forms of education with independent learning by solving problems in students. At the same time, this correlation help facilitate problem solving methods offer students practical shape to attract attention to the main [1].

Psychologists such as S.L.Rubinstein, N.A.Menchinskaya, T.V.Kudryavtsev spoke in detail about the need to ensure mental development in the educational process. According to them, mental development is characterized not only by the volume and quality of acquired knowledge, but also by the structure of cognitive processes, the system of logical operations and mental actions in the student [8]. This leads to the formation of the student's scientific outlook.

The independence of the student's scientific thinking is inextricably linked with his productivity. The thinking of such a person is called productive if the student in a certain period of time expresses valuable and new thoughts, ideas, recommendations for a

certain field, and solves theoretical and practical tasks. A reasonable assessment of the scope and quality of mental activity performed over a period of time serves as a criterion for measuring the productivity of student thinking. Even when the student thinks of ordinary things, he is not limited to their external signs, but seeks to reveal the essence of events, trying to create a general social law from the realities of ordinary life. Undoubtedly, the scientific outlook of the student has not yet fully explored untapped opportunities, the full discovery of which serves the purpose of accelerating the development of science and technology. Any organization, innovation development is a product of human intelligence, so the development of science and technology depends in many respects on the scientific thinking of the specialist. Student maturity consists of physical, moral and mental stages, in which his scientific thinking takes the lead, a priority. Although today's students can easily reach the level of physical and moral perfection, but the development of mental maturity can be achieved gradually, thanks to the patterns of nervous tension, mental tension, emotional seriousness, stable willpower, continuous activity, devotion. Aims of the development of human kind to achieve future professional and spiritual values created by our ancestors as well as to ensure the future development of students' independent thinking, creative research, scientific world see the views of the purpose of the formation.

2. METHODOLOGY

Study of pedagogical, psychological and methodological literature; pedagogical observation; sociological methods (questionnaire; conversation; interview); test survey, modeling, pedagogical experience; mathematical statistics.

3. PART OF THE EXPERIMENT

During the experiment, we conducted research on the role of modern pedagogical technologies in shaping the scientific outlook of students. At the same time, we were able to assess the changes in student attitudes in the process of using interactive methods such as problem-based learning, brainstorming, BxBxB method, working in small groups, used in the application of pedagogical technologies in the educational process. To do this, we were able to assess which aspects of these methods influenced students' performance or personal-professional growth.

We were able to identify which methods are important in shaping students' scientific worldviews. At the same time, we emphasized the scale assessment of pedagogical technologies used in the application of these methods. According to this method, students were asked to evaluate the impact of modern teaching methods used for its activities on a 5-point scale with a score of 5 points if it is the most important and 1 point if it is the least important. It was also important for us to determine the level of formation of students' scientific outlook in the process of professional formation. Let us focus on the results of our own experience on the impact of educational technologies on student performance (Table 1).

1 Table 1 Indicators for assessing the impact of educational technologies used in the educational process on the formation of students' scientific outlook

Methods Education directions	Problematic education	Mental attack	Design	Collaboration	Working in small groups	Average value
Physics and mathematics	4,21	3,66	4,75	4,30	4,61	4.30
Pedagogy	4,65	4,12	4,63	4,68	4,70	4.55
Natural sciences	4,51	3,78	4,25	4,52	4,25	4.26

History	4,70	4,25	4,02	4,60	4,56	4.42
Philology	4,70	4,26	4,3	4,5	4,47	4.44
Agroeconomics	4,51	3,95	4,41	4,52	4,53	4.38
Average value	4.54	4.00	4.39	4.52	4.52	

One thing we must admit is that a comparative study was made of the situation in which students' performance at the end of this month was compared with their performance before the month of implementation of educational technologies.

When the importance of the methods used as modern pedagogical technologies was assessed through the attitude of students, each area of education was reflected in its own values. It should be noted that the impact of technological methods used in education on the level of knowledge of the student, his activity in the learning environment and the level of mental capacity can be studied only through internal logical connections. It can be seen that the results of the table show that the importance of the application of educational technologies in the educational process in the impact on student activities is higher than the average for all faculties . We were able to compare the results within each faculty and by teaching methods.

Due to the importance of the methods used, all methods were able to have a positive effect on students in the learning process (almost all methods are above average), but problem-solving, collaborative, and small group work technologies showed slightly higher results (4.54, 4.52, and 4.52). However, the mental attack method was characterized by a slightly lower rate than other methods. This is reflected in the lower values (4.00), although the technology of application of this method is slightly easier than other methods. It is clear from this that it is not the ease or complexity of the teaching method used that proves that effective and appropriate use of the method can have a positive effect on education.

In turn, when observing these results by faculties, the results did not lose their positive significance: physics-mathematics-4.30, pedagogy-4.55, natural sciences-4.26, history-4.42, philology-4.44 and agro-economics-4.38. It is clear that the use of teaching methods is not without benefits for the learning process. Even this situation is reflected in the mastering of students by the results of the month of pedagogical technologies.

The results show that the introduction of educational technologies in students can have a positive impact on their professional formation in the acquisition of knowledge in the educational process. The use of interactive methods requires the teacher to rework the content of the teaching material, to explain to the student the terms that seem complicated, to stimulate and strengthen the mental activity in his mind. To do this, the content of the topic is transformed from concepts in the form of information into problematic questions, tasks, assignments, and situations. When a student is faced with a problem, there is a desire to solve it, to find a solution. In the same case, patterns of mental activity appear in the student. In its implementation, interactive methods give their effective results.

Independent thinking is the free expression of the knowledge, thoughts, and attitudes that exist in a person. Of course, this process does not happen by itself, especially in education. It is known that education is a set of pedagogical relations established between teacher and student. In this relationship, mutual trust, demand and discipline are important, that is, students form a scientific worldview, improve their scientific views.

In the process of a new approach, knowledge emerges based on students 'own social behaviors and also influences changes in behavioral patterns. Especially problematic organization of education has a positive effect on student learning. To make this process more successful, it is necessary to pay attention to the psychological basis.

When the educational process is organized on the basis of modern pedagogical technologies, there are several interrelated stages of acquisition of knowledge, which represent the level of knowledge and understanding, such as conveying ready knowledge to

the student's mind, remembering, memorizing, recalling, narrating, writing. At these levels, students do not lead to the formation of a scientific outlook and a creative approach is not required. At the next level of mastering, students are required to put into practice the acquired knowledge, to achieve, supplement, enrich, change certain results, to have their own independent point of view. A problematic approach is important for these levels of mastery. It was also important to do small research. Higher education institutions have great potential in the use of new pedagogical technologies. Awareness of these opportunities, a slightly creative technological approach to pedagogical activities, while making the lessons interesting, creates the basis for students to thoroughly master the knowledge on each topic. In fact, his training sessions are consistently the same repetition creates in students a feeling of indifference, irresponsibility towards learning. At the same time the most effective way to avoid this situation as the activities of educational institutions in accordance with the purpose of advanced educational technologies and T BIC recognized.

The use of new pedagogical technologies in the process of education and upbringing will be a factor that will have a positive impact on the formation of professional qualities, the formation of students' scientific outlook.

In the correlation between the scientific outlook of students and the impact of teaching methods, indicators of scientific significance were obtained. Teaching methods Problem-based learning with students' scientific outlook ($r = 0.327$, $p < 0.05$); design ($r = 0.370$, $p < 0.05$); collaboration ($r = 0.327$, $p < 0.05$); formed positive relationships with small group work methods ($r = 0.327$, $p < 0.05$). It seems that the effectiveness of the use of teaching methods in influencing the formation of students' scientific outlook is not operatively reflected. We must admit that the interaction between the formation of students' scientific worldview and the method of organizing problem-based education has shown a positive and high correlation between students of physics, mathematics and natural sciences. This is because the effectiveness of the use of this method in students of this field can be attributed to the fact that they have the accuracy and precision of the problems posed and the reflection of their solution in clear indicators. However, in pedagogy, history and other areas, the problem that arises in the educational process is characterized by the fact that it can be reflected in several solutions.

It is known that not only teaching methods, but also **teaching tasks** play an important role in the formation of students' scientific outlook. Our next experiments will focus on how the learning tasks affect the formation of students' scientific outlook.

The right choice of learning tasks is important in shaping the scientific outlook of students. Therefore, the correct formulation of learning tasks is considered expedient. Students studying in educational institutions must have the skills to properly formulate assignments. Here the following taxonomy of educational tasks is proposed by D. Tollingerova [5-6].

Each learning task includes several other sub-types of assignments. They are:

I. Tasks that require memorization:

- 1) awareness-raising tasks;
- 2) tasks on memorization of separate facts, numbers, concepts;
- 3) assignments on memorization of definitions, norms, rules;
- 4) memorization of large volumes of text, chapters, poems, tables, etc.

II. Tasks that require simple mental operations when working with numbers and data :

- 1) assignments to determine the evidence (measurement, weighing, calculation, etc.);
- 2) assignments on citation and description of evidence (calculation, enumeration, etc.);
- 3) tasks related to the organization and description of the process and methods of action;

- 4) assignments for separation and collection (analysis and synthesis);
- 5) tasks on comparison and differentiation (comparison and division);
- 6) assignments on distribution (categorization and classification);
- 7) tasks to determine the relationship between the evidence (cause, effect, purpose, means, effect, usefulness, means, methods);
- 8) tasks on abstraction, clarification and generalization;
- 9) solve uncomplicated (size, dimensions unknown).

III. Tasks that require complex mental operations when working with numbers and data:

- 1) assignments on relocation (transfer, change of form);
- 2) assignments for narration (interpretation, explanation, substantiation);
- 3) assignments on induction (drawing general conclusions based on partial features);
- 4) assignments on deduction (to draw special conclusions based on the general situation);
- 5) assignments on proof (proof) and investigation;
- 6) assessment assignments.

IV. Data disclosure assignments:

- 1) assignments for the development of a summary, draft, content, etc .;
- 2) report, scientific work on a particular problem, assignments for the preparation of reports;
- 3) assignments for independent writing, drawings, projects and other work.

V. Tasks that require creative thinking:

- 1) assignments for the production of practical proposals;
- 2) assignments to solve problematic issues and situations;
- 3) assignments for asking questions and expressing an issue or assignment;
- 4) assignments to find a solution based on personal observations;
- 5) tasks to find a solution based on personal reasoning (based on a rational solution).

As it is understood, students have the opportunity to choose two or more of the above-mentioned tasks depending on the nature of the teaching materials in the formation of the scientific worldview. However, the effective use of tasks that require creative thinking is important in shaping students' scientific outlook.

Involving students in working with multiple types of assignments in a single session increases students' interest in learning activities and enhances learning activities.

We were able to determine the importance of educational tasks on the taxonomy of D. Tollingerova in the formation of students' scientific worldview. At the same time, they were asked to evaluate the impact of these 5 different learning tasks on the formation of his scientific outlook with a score of 5 on the most important scale and 1 point on the most insignificant. It was also important for us to determine the level of formation of students' scientific outlook in the process of professional formation. The results of our experiment on the impact of different learning tasks on student performance are presented below (Table 2).

Table 2 Indicators for assessing the impact of learning tasks used in the educational process on the formation of students' scientific outlook

Types of study assignments	I	II	III	IV	V
Education directions					
Physics and mathematics	3.95	4.15	4.78	4.30	4.80
Pedagogy	4.65	4.12	4.67	4.60	4.72
Natural sciences	3.86	4.20	4.48	4.75	4.66
History	4.68	4.25	4.51	4.60	4.56

Philology	3.80	4.26	4.47	4.67	4.83
Agroeconomics	4.55	3.95	4.82	4.45	4.81
Average value	4.24	4.15	4.62	4.56	4.73

- Note** : I. Tasks that require memorization:
 II. Tasks that require simple mental operations when working with numbers and data:
 III. Tasks that require complex mental operations when working with numbers and data:
 IV. Data disclosure assignments:
 V. Tasks that require creative thinking.

In the formation of students' scientific worldview, a comparison of differential differences in the areas of education was considered. The average score for Task IV was 4.24-4.73. This is characterized by a reflection of the values between the average and above-average results of the student's scientific outlook (Table 2).

Even when comparing the results of students of physics and mathematics by type of assignment, there was a sharp difference in their values between I-3.95 points, V-4.80 points. This is the role of cognitive constructs that explain the general scientific worldview of students, as it is the basis for the accumulation of low performance due to the predominance of tasks requiring type I memory, recall, while tasks type III require complex mental operations in working with numbers and data. -4.78 points, tasks requiring V-type creative thinking -4.80 points. This is led by the fact that thinking has mastered the processes of grouping, that is, synthesis and comparison, which, in turn, shows that students have a high ability to perform assigned tasks and identify the effectiveness of attention, imagination and similarities.

Subjects gradually began to experience difficulty in completing Type III assignments. Because the assignments were different from the previous series, the students had to demonstrate their abilities inherent in other aspects of thinking. Because it was likely that this was due to the fact that they tended to analyze their one-sided solution in solving tasks. In fact, the difficulty in solving tasks occurs in both the horizontal and vertical directions, and lastly, it is necessary to determine whether all the changes occur in the missing element. This was to demonstrate the dynamics of the intellect, observation of change, the ability to quickly perceive changes, attention (efficiency of attention), the development of imagination and imagination.

We can say that students had a lot of problems in completing type III and type B assignments. These tasks require a creative approach. It required an understanding of the laws to find solutions to problems. The solution of the task was to assess the ability of the subjects to perceive the qualitative and quantitative changes occurring in the forms, to regulate them in a certain order (to find legitimacy). But in this case, even though all the assignments were completed by the students, their accuracy remained far from the truth.

For the students, these assignments also seemed a bit complicated and the effectiveness of completing the assignments correctly was not achieved. Observing and understanding complex qualitative and quantitative changes in the performance of tasks requires a high level of intelligence and understanding in students. The highest form of abstraction and dynamic synthesis was not shown in solving this type of task. We can say that this eas will be the basis for the formation of the student's scientific outlook.

4. CONCLUSIONS

1. Higher education institutions have great potential for the use of new pedagogical technologies. Awareness of these opportunities, a slightly creative technological approach to pedagogical activities, while making the lessons interesting, creates the basis for students to

thoroughly master the knowledge on each topic. This situation is the most important aspect in the process of shaping the student's scientific outlook.

2. The organization of activities on the basis of pedagogical innovations has an individual and creative character. At the same time, the use of new pedagogical technologies in the organization of the process of education and upbringing can be a factor that has a positive impact on the formation of professional qualities, the development of the scientific worldview.

3. Learning tasks have a positive effect on the learner, especially on his scientific outlook. The degree of this impact depends on a number of factors, including the individual-psychological characteristics of the learner, the successful structure of the learning tasks, as well as the learner and his or her readiness.

4. Although learning tasks focus on a specific aspect of the learner in terms of content and structure, they simultaneously affect other psychological aspects of the learner, such as his or her communication, willpower, cognitive processes, and so on. Future research of these effects and systematic sequencing of the collected results will allow the learner to create an integrated map of the psychological impact on the learning tasks.

5. RECOMMENDATIONS

In order to develop the scientific outlook of students, it is necessary to conduct research in the field of psychological and pedagogical assistance in a new direction, aimed at solving problems that arise in the educational process. It is obvious that for the professional development of students, it is important to consider the educational process in higher education as a whole system, taking into account the following aspects of education:

1. Systematic organization of psychological and pedagogical influence on students in the process of teaching and personal development for the development of their scientific outlook.

2. Creation of psychological, pedagogical and social conditions aimed at ensuring the development, intellectual maturity and mastery of students' scientific outlook in the context of professional development. This in turn leads to the display of individual characteristics of students.

3. Creation of special psychological, pedagogical and social conditions that promote the professional and personal development of students in the educational process. The mechanism that serves to increase the scientific outlook in the professional formation of future professionals should be in the nature of systematized measures to eliminate psychological and pedagogical problems.

4. **Individual student development program (SDP)** - a program of individual-practical nature, developed on the basis of the needs of each student in the formation and development of a certain quality, *scientific outlook*. This program sets the deadlines for the formation and development of the BCM and the scientific worldview, which are necessary for the organization of professional activities.

Every student should be able to develop a "program of individual development" of a personal-practical nature, on the basis of which to conduct research.

The following is an example of a student's Individual Development Program :

Individual development program

Knowledge, skills and personal qualities	Available degree	Future tasks
Specialty knowledge		
Research skills: cognitive (gnostic) design		

creative research communicativeness organization consistency (procedural) technical and technological skills		
Professional and personal qualities of the psyche: The breadth of the scientific worldview structural flexibility mobility creativity responsiveness emotional development research reflection		
Self-development goals		
Assignments for self-improvement		

The formation of students' scientific outlook ensures the effective, successful organization of scientific activity. In order to gain professional competence, students need to focus on developing a coherent scientific outlook. The "Individual Development Program" is useful for students in self-development. Indeed, in this program, the qualities of competence that students have and the qualities that need to be developed, can be expressed in a clear, objective way.

REFERENCES:

- [1]. Dyui Dj. Psychology and pedagogy of thinking (how we think) / Translation with English. - M., 1999. - 187 p.
- [2]. 2.Dolgorukov A. Method case-study as modern technology professionally-oriented training: http://www.vshu.ru/lections.php?tab_id=3&a=info&id=2600.
- [3]. Drapeau Patti. Sparking student creativity (practical ways to promote innovative thinking and problem solving). - Alexandria - Virginia, USA: ASCD, 2014.
- [4]. Innovative educational technologies / Muslimov NA, Usmonbaeva MH, Sayfurov DM, Turaev AB - T .: "Sano standart" publishing house, 2015. - 81 p.
- [5]. Markova A.K. Psychology professionalism. - M .: Znanie, 1996.
- [6]. Muslimov N.A. Professional formation of future vocational education teachers / Monograph. - T .: Fan, 2004.
- [7]. Muslimov N.A., et al. Technology of formation of professional competence of teachers of vocational education / Monograph. - T .: "Science and Technology" Publishing House, 2013.
- [8]. Rubinshteyn S.L. Basics of general psychology. - M., 1996. - 440 p.
- [9]. Savelyeva M.G. Pedagogical cases: design and use in the learning process and assessment of students' competencies / Textbook. - Izhevsk: FGBOUVPO "Udmurt University", 2013. - P. 9.
- [10]. A collection of cases for universities in the disciplines of the humanitarian and socio-economic cycle / Textbook. - SPb .: Publishing house of the Saint Petersburg University of Management and Economics, 2015 .-- P. 3.