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**ABSTRACT**

of the dissertation for the degree of Doctor of Philosophy

**PSYCHOLOGICAL CHARACTERISTICS OF STUDENTS'  
COGNITIVE ACTIVITIES IN PROBLEMATIC SITUATIONS**

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**Applicant:** **Rima Huseyn Ayyubova**

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Dissertation work was performed at the Department of Social and Pedagogical Psychology of Baku State University.

Scientific supervisor:

Doctor of psychology, professor  
**Kamila Ramiz Aliyeva**

Official opponents:



Doctor of Psychology, professor  
**Ramiz Ibrahim Aliyev**

Doctor of philosophy in psychology,  
Associate professor  
**Nurangiz Tofiq Rzayeva**

Doctor of philosophy in psychology  
**Raziya Elkhanovna Guliyeva**

Dissertation Council FD 2.43 of Supreme Attestation Commission under the President of the Republic of Azerbaijan operating at Baku State University.

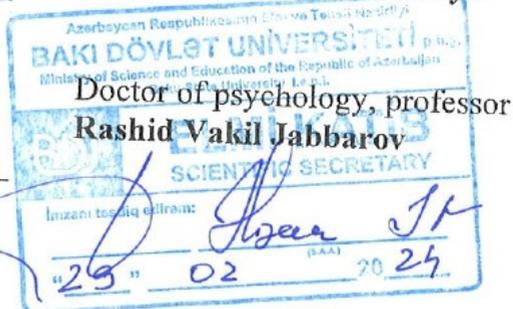
Chairman of the  
Dissertation council:

Doctor of Psychology, professor  
**Kamila Ramiz Aliyeva**

Scientific secretary  
of the Dissertation council:

Doctor of Philosophy in Psychology  
**Mushvig Huseyn Mustafayev**

Chairman of the scientific  
seminar:



## **THE GENERAL CONTENT OF THE WORK**

**Relevance of the topic and the degree of development.** Modern globalization, which causes dramatic changes in the historical and social development of humanity, is more comprehensive and penetrating not only in political and social terms, but also in terms of its impact on people's consciousness and thoughts. Everyone is already feeling the impact in their personal life, education and work. Every specialist who follows the path of self-realization understands that he must go through important stages in order to develop and realize himself: he must master new technologies to have information, he must consciously regulate his cognitive activity, he must be able to achieve productive, creative, unique activity results. These skills are currently included in the "cognitive skills" group. Cognitive skills develop in the process of solving problematic situations that the subject encounters in cognitive activity. For this reason, the relevance of the question we are researching attracts attention. As a result, the scientific and technical breakthroughs occurring in the world bring new requirements to the market economy laws of the modern age and therefore to the training of personnel in the higher education system. In the professional competencies of a highly educated specialist, cognitive skills are primarily preferred. This created situation creates the need for a thoughtful, conscious, result-oriented, in short, cognitive approach in solving the problematic situations that students encounter in vocational education. This is important because among the skills and competences needed by highly educated professionals in the current labor market, special attention is paid to those related to cognitive structure. A successful solution to the problematic situation requires the preparation of higher education graduates in their field at a level where they can find suitable jobs in the labor market. From this point of view, for the integration of the education system into the European educational space and the successful implementation of the provisions of the Bologna Declaration, it is necessary to improve the professional competence of students in specialized schools, the educational and technical base, and the teaching staff. Relations with students, and forms and methods of organizing training must be adapted to modern requirements. Therefore, in the process of training personnel in the higher education system, teaching students to solve problem situations in the course of cognitive activity, in addition to

providing them with knowledge and developing skills and abilities, attracts attention as a pressing problem.

In general, what we call an “event” in real life is considered in psychology from the point of view of a “situation” (problematic situation or problem-based learning in our study). The problem situation in the cognitive activity of students differs from the social or pedagogical situation. In fact, all problem situations are psychological situations. In the process of action, each factor, from the typological characteristics of the individual to the social structures of the individual, participates in resolving the psychological situation and influences it. Modern experience shows that it is possible to prepare students for this process by creating and controlling the solution of such situations in the learning process, allowing students to reveal their own internal capabilities and abilities.

Nowadays, in the education of students, more importance is given to active teaching methods, which are the basis of practical education for the effective acquisition of professional skills and abilities. For this purpose, a new education method is given extensive attention as active methods. One of such innovations is the application of case methods in educational organization. Case methods are one of the active learning methods of students based on real situations. For this reason, by conducting a purposeful research, creating a special situation for the solution of problematic situations that students may encounter in their cognitive activities, making it possible to summarize and evaluate the results in the new field of education and leave it to apply the acquired experience.

The problematic situation in current education has a developing effect on the formation of professionalism in students and the search for solutions to difficult issues, but they must be able to benefit from the problematic situation purposefully. This process can only be achieved in cognitive activity. There is a need to study how this happens, how to build cognitive activity in a problematic situation or, conversely, how to solve problematic situations in cognitive activity. Taking these issues into consideration, we determined the subject of the research as "Psychological characteristics of students' cognitive activities in problematic situations."

Problematic situations and the subject's attitude towards them are primarily investigated in personality theories. One of the first researchers in this field is Z. Freud. He explains the reasons for facing difficulties in problematic situations with the psychological state of the personality. Also, the explanation of the organization of cognitive activity in problematic situations is given a wide place in cognitive theories. Cognitive construction, regulation, motivation and result-achieving processes of problem solving are clarified. From this point of view, J. Kelly personal constructs, E. Korobova, I. Kardovich, M. Konusheva, D. Mironova, U. Nayser, A. Haymen, cognitive processes, T. D. Marsinovskaya cognitive processes - relations between them, J. Rotter locus of control, A. Lewis, I. Barhs, K. Roland, C. Ebbi, C. Hansen are related to the organization of cognitive activity in training activities.

More extensive studies of problematic situations S.L. Rubinshteyn, A.V. Brushlinski, Y.K. Kornilov and others. conducted by In those studies, first of all, the essence of the concept of "problem situation" is clarified. Some conflicting points have also been recorded in the sources. Thus, there are differences of opinion regarding the concepts of "problematic situation" and "problematic education". Ibragimov F.N., Ibragimov R.L. Huseynzade notes that in many cases problem-based learning is equated to a problem situation and is understood in a limited way. In fact, the problem is related to the situation - we mean the subject's ideas about the elements of the situation and cognitive abilities to solve it. Faced with a problematic situation, the subject sets himself the condition for solving it, tries to overcome obstacles, looking for possible ways. From this point of view, R. X. Shakurov identifies the functions of a problem situation. S.A. Trifonov and others, they find out the psychological mechanisms for overcoming obstacles created during a problem situation. E. V. Ryaguzova considers the psychological situation as a subject of theoretical reflection.

Bayramov A.S., Bayramov A.S. and Bayramov A.S. A. Alizadeh, H.A. Alizadeh, K.R. Alieva, S.I. Mansurova and others dedicated to research. Trifonov S.A., Matyushkin A.M., Kornilov Yu.K., Shalov V.K. Solondaev, N.N. Mekhdikhanova, V. Aktepe, J. Bayrak, Sh. Yuchesoy, E. Agaoglu. The main direction of research into the psychological characteristics of cognitive activity is the interaction of cognitive activity with

the process of mental development and learning. From this point of view, A. N. Leontyev, I. S. Yakimanskaya, L. Sh. Amrakhli approach the problem. Self-regulation and self-realization in problem situations are also one of the current areas of research. O.L. Konopkin, R.V. Jabbarov, G.N. Gasanova studied the issue from this point of view. One of the issues being studied was the methods of organizing students' cognitive activity when solving problem situations. In this area, J. Rotter (locus of control), V. M. Privalova (cognitive models and cultural codes), Yu. I. Movchko, Yu. I. Igorevna (cognitive modeling), M.A. Kharlukov (situational generalization), E.B. Beilarov (the use of tests in the development of intelligence), V.F. Kotlyarov (problems of organizing educational and research activities), R.N. Gadirova, T.T. Babaeva (practical psychology), M. Mehmud (the role of the teacher in solving problem situations) and others. there is study.

The study, based on sources, defines the essence of the concept of "case situation," which is of particular importance for solving problem situations. L.V. Pokulalova also draws attention to the essence of the current situation. He explains that the description of the Case method not only reflects a practical problem, but also actualizes a number of knowledge, skills and abilities that should be mastered when solving this problem. I AM. From Dolgorukov's point of view, the situations analyzed in the cases must meet a number of requirements.

**The object and subject of the research.** The object of the study is the cognitive activity of students in problematic situations. The subject of the research is the psychological characteristics of regulating the cognitive activity of students in problematic situations.

**The purpose and tasks of the research** - to determine the psychological characteristics of students' cognitive activity in problematic situations, to show the ways to eliminate the obstacles that arise in this process is the main goal of the research.

A task was set to test the hypotheses sequentially:

- 1) record the status of the problem in the literature;
- 2) clarify the psychological nature and structure of the problematic situation;
- 3) improving the problem research methodology;

4) determine the cognitive character of motivation to solve problematic situations in change;

5) distinguishing the skills necessary for the cognitive functioning of the problem in situation solving;

6) determine the determination of motivation for cognitive activity in changes in problem situations;

7) clarify the role of problem situation problems in practical cognitive activity;

8) to obtain the effect of case methods on the cognitive activity of changes in problem situations;

9) summarizing the results of research on key methods of changing the process of regulating cognitive activity in problematic situations;

10) to identify aspects of situations that stimulate cognitive activity of movement through the application of case methods.

**Research methods.** To fulfill the tasks of the research and test its hypothesis, the following methods were used:

- theoretical analysis: analysis of scientific sources relevant to the problem under investigation;

- observation: students' cognitive activities were observed in conditions of solving problem situations;

- interviews and surveys: carried out with the aim of learning the skills of forming cognitive activity in solving problematic situations with students and the experience of creating problematic learning conditions with teachers;

- test: tests "Identification of Professions", "Word game", "Typology of Intelligence" were used to determine the level of application of cognitive activity in solving problematic situations with students;

- experiment: carried out with students studying mathematics, philology and psychology at Sumgayit State University;

- Quantitative and qualitative analysis of the results was carried out using mathematical and statistical methods.

**The hypothesis of the study.** If problem-based learning conditions based on relevant situations are provided to students during the education process and cognitive activity experience is created for solving problems, students will develop cognitive skills to solve problematic situations they encounter in their professional fields.

### **Main provisions to be defended.**

1. Although students have concrete ideas about problematic situations, they do not have ready-made strategies to solve them. The time and efficiency of strategy formation depends on the cognitive skills of the student.

2. In problematic situations, it is necessary to think, seek solutions and take action. This requires motivation to take action. Therefore, directing cognitive activity without motivating students to solve problems will not yield positive results.

3. To solve problem situations, students should use mental structures appropriate not only to the current situation but also to a number of problem situations. This requires the development of practical thinking in them.

4. Problem situations that develop students' professional skills activate their cognitive activities.

5. The application of case methods to the learning process of students expands the experience of solving problem situations and increases cognitive activity.

Theoretical and practical importance of the research. The theoretical importance of the research is that the scientific results obtained by researchers in different countries of the world are investigated in comparison with local conditions. The resources used here are devoted directly to the most modern issues of the problem, allowing to further enrich the ways of determining and creating vocational education, which is one of the effective ways of vocational education of students in the higher education environment. a problematic learning environment. For this reason, the results of the thesis are of great theoretical importance.

The practical significance of research is determined primarily by the content of its materials. For this reason, in the studies carried out, the case methods used by students to solve problematic situations are explained in detail, examples are shown and new ones are made. The research methodology is a valuable resource for psychologists, including students and teachers.

**Approbation and application.** The results of the research, main innovations are reflected in 6 articles and 5 theses published by

the author in journals recommended by the High Certification Commission of Azerbaijan, at scientific-theoretical, scientific-practical conferences of the Republic and international symposiums.

**The name of the institution where the dissertation work was carried out.** Dissertation work was completed at the Department of Social and Pedagogical Psychology of Baku State University.

**The structure of the thesis.** the thesis, including the introduction (16369), chapter I (62,813), chapter II (57,616), chapter III (64,592), conclusion (10,998), 149 references and appendices, consists of 187 pages and 212,279 characters. .

## **THE MAIN CONTENT OF THE DISSERTATION**

In the introduction, the relevance of the research is justified, its object, subject, purpose, tasks, scientific hypothesis and methods are disclosed, the provisions defended, theoretical and practical importance, and its abrogation are given.

The first part of the thesis is about "Theoretical issues of students' cognitive activities in problematic situations and their place in the literature". This section consists of 3 paragraphs. In the first paragraph of the section titled "Problem situation", its psychological nature and structure", it is determined that the problem situation is quite vague, it has not yet been clarified enough and the impressions are not understood. Its most characteristic feature is unpredictability. The two main types are irreversibility and incomprehensibility. The reason for this is the inability to move forward, lack of knowledge At the same time, the problem situation characterizes the interaction of the subject with the surrounding world, as well as the psychological state of the perceiving personality. In problematic situations, the cognitive nature of the activity enables a more effective and productive solution to the problem. Students in higher schools encounter a number of difficulties in solving the problematic situations they encounter. In this case It is difficult for them to understand themselves professionally and to master teaching materials and practical skills. Therefore, it is necessary to examine the nature of the problematic situations that students encounter in cognitive activity and suggest solutions.

In the second paragraph of the first part, titled "Introduction of the Problem in the Literature", research on the problem in the history of psychology is reviewed. The first comprehensive studies in this area were made by S.L. Rubinshteyn, A.V. Brushlin-ski, Y.K. Kornilov et al. by R.Kh.Shakurov, S.A. Trifonova et al. explained the psychological mechanisms of overcoming obstacles that arise during a problematic situation. S.V. Dukhnoski concretely gives a psychological explanation of problematic situations and explains the essence of age characteristics in their solution. In other sources, it is stated that a number of problematic situations arise in the process of modern education (S.A. Dru-jilov, T.O. Gordeyeva, etc.). A.S. Bayramov, A.A. Alizadeh, H.A. Alizadeh, R.I. Aliyev, The role of qualitative indicators of personality in Azerbaijani psychology in solving problematic problems that people face in social life and in educational and professional activities. , R.V. Jabbarov, K.R. Aliyeva, E.B. Beylarov, L.S. Amrahli, M.S. Aliyev, V.A. Gasimov and others dedicated to research.



**Figure 1. Requirements for the construction of case-situations**

The explanation of the organization of cognitive activity in problem situations is given a wider place in cognitive theories. The issues of cognitive construction, regulation, motivation and achievement of results when solving problems are clarified. From this point of view, the personal constructs of J. Kelly, W. Neisser, A. Heiman, the constructs of cognitive processes, T.D. Differences in cognitive processes of Marcinovskaya, locus of control of J. Rotter, A. Louis, I. Bars, K. Roland, K. Abbey, K. Hansen in cognitive learning activity. They participate in organizing ac-

tivities. Trifonova S.A., Matyushkin A.M., Solondaev V.K., Mehdikhannova N.N., S.I. Mansurova, V. Aktepe, J. Bayrak, Sh. Yuchesoy, E. Agaoglu, Sh. Huseynov, F. Shiriyev and J. Muradov, V. A. Muradzade, psychological features of cognitive activity of students. They express their attitude to such topics as the interaction of visual and cognitive activity, memory processes and cognitive psychology, features of working memory in creativity, the importance of psycholinguistic processes in problem solving. Also R.K. Aliyeva, Z. Valieva, Ch. Kagichibashi, Y. Zurat, N. Davidyuk, M. Olinyuk and others. they emphasize creative cognitive activity as a condition for solving problem situations.

Thus, in the scientific literature, the characteristics of problematic situations and cognitive activity, their nature and structure, features, subject, the dependence of solving tasks in this activity on mental development, the relationship between problematic situations and cognitive activity, as well as the use of quality indicators of personality in solving problematic problems arising in social life, educational and professional activities. role comes to the fore. In addition, research has revealed the increasing interest in the problem, on the one hand, the modernity of the problem, its implementation in the conditions of the implementation of new educational reforms, and on the other hand, the demands placed on social intelligence. personality are modern aspects of the socialization of personality. The reason for this is the necessity of a creative and cognitive approach in solving human problems.

The third paragraph is about "Problem Research Methodology". Here the objects to be investigated are determined. In the first stage, 124 students studying in the first and second grades of Sumgayit State University in the fields of mathematics, philology and psychology are selected. II. In the first phase, experimental research is being conducted with 72 people. The research with the tested proceeds in two stages. At the first stage, I.G.Lipatnikova and T.Y.Pashina's "Determination of professional tendencies" survey method, which was used by students in the research on the formation of cognitive competencies of students in pedagogically oriented higher education institutions, was applied.

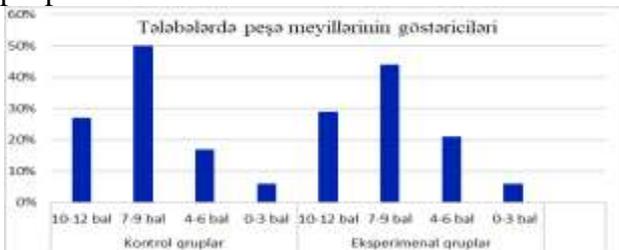
In order to facilitate students' studies and use their potential efficiently, before starting the application of the methodology, students' intelligence types were clarified based on Howard Gardner's "Mental Types"

research. The characteristics of the differential group were taken into account in our homework. The results of this test helped us to take into account, on the one hand, the character of the cognitive style in the tasks assigned to students, and on the other hand, the individual typological features of the thinking field.

We also used other testing methods in the research. One of these was the "This is the same word" test. Students in student groups solved a set of tasks using the methodology of "practical thinking work". We preferred case methods in the experimental part of the research. The case-by-case methods we employed included all measures taken to mobilize students, encourage their achievements, and highlight their achievements. In the empirical study, we based the general characteristics of training results on the field of specialization. Here, the specification of the module and the training outcome became the main criteria for evaluating the results of our study. Case methods we used to create change in students included: M.M. Methods we modified from Kashapov: "Yellow/blue method"; "Method of recording chapters"; V.I.Andreyev - "Organized strategy" method; "Collision", "Wandering of Thoughts", "Old tree-young branches", "Meeting with thoughts" exercises developed by us; "Exposition methods, methods of using obstacle conditions, etc. to develop students' creative thinking." After applying these methods, M.M. Based on Kashapov's recommendations, we identified 6 strategies. Finally, we applied expression methods to improve their cognitive abilities. The result showed that the methodology of the research was prepared to ensure its efficiency as much as possible and was aimed at preparing studies that would make students more active. In order to achieve these, students had to be active because they played a decisive role in the process in terms of the objectivity of the result. The second important issue is to create a culture of self-analysis and correction by encouraging students to evaluate themselves. In this case, students try to correct their deficiencies themselves. Another issue in this field is to act in accordance with the intellectual type and individual style of the students and to approach the solution of problematic situations with practical ways, methods and rules. The main thing was to increase students' ability to use methods of overcoming obstacles in problematic situations, which ultimately led to the formation of cognitive skills.

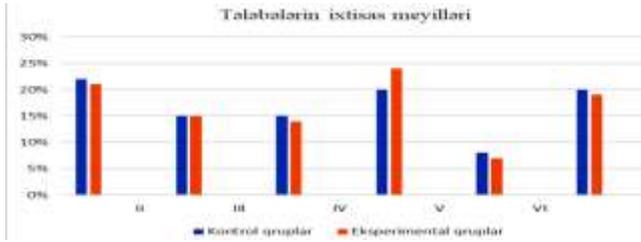
**Part II is called "Factors determining the effective cognitive activity of students in problem situations".** In the first paragraph titled "Motivation of students to cognitive activity in solving problem situations", we learned about the subjective situations arising from the objective situation that constitute the motivation for cognitive activity in vocational education, at what level are students' professional inclinations. is at the heart of the solution and relies directly on this activity. For this, we worked with test takers at Sumgayit State University. According to the results of the "Vocational Tendency Research" conducted with 124 first and second grade students studying in the mathematics, philology and psychology departments in September-October of the 2019-2020 academic year. 27% of the subjects in the control group (10 -12 points) and 29% of the subjects in the experimental group had an inclination towards the profession they were studying. These students chose their profession willingly. 50% of the students in the control group and 44% of the students in the experimental group (7-9 points) studied at more well-known universities of the country (BSU, ADNA, specialization in mechanics - mathematics, computer science, law, international relations, medicine, biology, etc.). They took the exam with the aim of receiving education in the field. The scores they collected did not allow them to realize their intentions. However, after completing their education, they wanted to make a career either in the field of specialization they studied or in other fields.

The indicators of students with 4-6 points and weak professional orientation are low: 17% in the control group, 21% in the experimental group. The results can be considered unreliable (with results of up to 3 points) due to the indifferent approach of students who are not inclined towards the profession they are studying for. However, in the next phase of the research, we managed to improve the results by keeping the activities of 10 people under control.



## Figure 2. Indicators of students' professional tendencies

Thus, according to the results, the majority of the students who scored low in this survey have the same opinions on their chosen professions. That is, the results of a greater percentage of students correspond to the field of specialization they are studying.



**Figure 3. Indicators of students' specialization tendencies on scales**

For example, the highest indicators of students studying mathematics were on the VI scale (control - 34%, experimental - 38%). This is related to planning economy of scale. Among philologists, preference is on the IV scale - fields of aesthetics and art (33% control, 42% experimental). The tendencies of students in the field of psychology are scale I - working with people, service areas (control - 35%, experimental 33%). In Figure 2, the highest indicator on the IV scale is in the experimental group. This is in the field of philology - 42%. Then comes the result of scale VI in the control group. Mathematics, experimental group - 38%. The result of the first scale in the psychology specialty ranked third with -35%.

With these results, it is possible to obtain positive results in students' motivation against problematic situations in their professional activities. During the education process, if students are directed to tasks in the fields they are interested in, using the methods and technologies they are interested in, and if a problematic learning environment is created for them, motivation for cognitive activity will be easier. The main thing here is to create a problem-friendly learning environment for students.

In the second paragraph of the second part, the problem of "Practical thinking as the main determinant of structured cognitive processes in problem situations" is examined. According to the results of the analyzes we

made in the second paragraph, it is clear that students mainly take into account individual practical thinking opportunities and features in their department selection (Figure 3).

In mathematics specialization, logical types come first, visual-spatial and personality types come second and third. In the field of philology, linguistic type is the first choice, and visual-spatial and personality types are the second and third choice. In the psychology specialization, the advantage is of the existential type. The 2nd and 3rd rows are shared according to personality and kinesthetic types. The issue that draws our attention in these results and that we should keep in focus in the next stages of the research is the students who cannot correctly evaluate practical thinking opportunities.

### Description of the results on the student's choice of major and the type of intelligence corresponding to it

Table 1.

Şkolalar	Kontrol qruplar			Ekspərimental qruplar		
	riyaziyyat	filologiya	psixologiya	riyaziyyat	filologiya	psixologiya
1. L.		10 28 %			9 38 %	
2. M.	11 34 %			8 33 %		
3. V.	4 13 %	5 14 %		5 21 %		
4. Ş.	4 13 %	5 14 %	6 15 %	3 13 %	5 21 %	4 17 %
5. M.						
6. K.			5 15 %			4 17 %
7. E.			10 28 %		3 13 %	8 33 %
8. N.						

In the vast majority of them (mathematics: 22 people - 69%; philology: 26 people - 70%; psychology: 24 people - 70%), the natural possibilities of practical thinking in the specialty do not match. Of course, in every specialization there is correspondence regarding alternative genres in the chosen field. For example, visual space in mathematics, personality in philology, personality in psychology, linguistics, etc. Thanks to these opportunities, they can gain skills that are important in their field of expertise.

The advantage of those tested in terms of practical thinking possibilities is the linguistic (1st), existential (2nd) and logical (3rd) types.

This is proportional to the areas of specialization they choose. Our analyzes in the paragraph showed that practical thinking is a key determinant of structured cognitive processes in problem situations. Currently, practical thinking serves two important functions; Approaches the world around us and the situations we encounter in the course of professional activity from a critical, differentiating, situational and experiential perspective, summarizing what is required (internalization); Develops a plan of action necessary for the appropriate application of generalized knowledge into practice (externalization). The solution of problem situations that students encounter during their education in higher education depends on the development level of their practical thinking. To develop practical thinking, students are created experience in solving objective and subjective problematic situations.

The analyzes made in the third paragraph of the second part are related to "The cognitive skills needed by students in the process of solving problem situations". The analysis concluded that the concepts that are important for the successful resolution of problematic situations are generalized in cognitive activity and research skills that are important for the organization of this activity. The formation of these skills requires a conscious and solid mastery of the fundamentals of the relevant sciences and familiarity with these scientific facts. The most effective way to do this is to create problematic situations and involve students in the solution of these situations. The positive results obtained in teaching subjects related to the acquisition of cognitive skills to students in colleges are achieved by correctly organizing the students' cognitive activities. This implies the formation of students' abilities to solve problem situations according to expertise. Although in some cases the formation of cognitive skills in students is distinguished by the "discovery" of new knowledge by him, modern approaches to the formation of cognitive skills are needed in modern education.

The topic "Application of case study methods to the cognitive activities of students in the process of solving problem situations" was continued in Part III. In the first paragraph, "Psychological properties

of case methods that regulate cognitive activity in solving problem situations" are examined. The main features of case methods in currently used methods are as follows (Figure 3).



**Figure 3. Application system of case methods in student groups**

The analysis shows that the case method helps develop students' skills in preparing a plan to solve a problematic situation, analyzing different situations, evaluating alternatives and choosing the most appropriate options. Considering that most experts support the teacher's active participation in student activities, students can improve their professional skills for practical problem solving if the application of cases is consistent in the educational process. The role of the teacher, who must organize the process of implementation of the cases, is also taken into account here.

Currently, the application of case methods in the higher education system is not very relevant; Its principles of application and use in the educational process in courses, programs and other forms still remain to be clarified. Although many researchers agree that the impact of the case method is quite great, there may still be hesitations in the academic field. During the research, methods for carrying out the cases in the form of lectures, seminars, laboratory studies, experiments and applications, or the methods used in them, were suggested.

In the second paragraph, the problem of "organization of students' cognitive activities by case methods in solving problem situations" is clarified. First of all, we determined the evaluation criteria for students' personal development and entrepreneurial activities. According to these criteria, we also distinguished the criteria for evaluating the results of students' professional activities. We can also evaluate this example for a specific area of expertise. For example, let's look at

the textbook prepared for the module from the field of psychology. The funds were prepared on the basis of the project "Support to the Implementation of the National Qualifications Framework in Azerbaijan" (EuropeAid/ 138339/ DH/SER/AZ) to support the Ministry of Education of the Republic of Azerbaijan. Technical assistance of the European Union.

### **Implementation of psychology consultation**

**Table 2.**

General objective of the module:	After completing this module, the student will be able to organize psychology by choosing methods and techniques to be used in accordance with the principles of psychological counseling, and summarize and evaluate the results.
Study results	Evaluation criteria
1. Preparing for the psychological consultation process	<ol style="list-style-type: none"> <li>1. The subject of psychological counseling is defined;</li> <li>2. The principles of psychological counseling are distinguished;</li> <li>3. The methods and techniques used in the psychological counseling process are selected;</li> <li>4. Information is given about the types and organizational forms of psychological counseling;</li> <li>5. The professional competencies of the counselor-psychologist are explained.</li> </ol>
2. 2. To organize the consultation	<ol style="list-style-type: none"> <li>1. General rules for psychological counseling are explained;</li> <li>2. Consultation procedure is determined according to the problem;</li> <li>3. During the consultation, various psychotechniques are applied accordingly.</li> </ol>
3. To evaluate the process of psychological consultation	<ol style="list-style-type: none"> <li>1. 1. In the process of psychological consultation, the client's gestures are evaluated;</li> <li>2. 2. In the process of psychological consultation, the client is focused on his problem;</li> <li>3. 3. The essence of what happened in the psychological consultation is recorded;</li> <li>4. 4. The results of the psychological consultation process are evaluated.</li> </ol>

We offered students various activities to show their learning results with the evaluation criteria we prepared for 3 areas of expertise. The aim of the research was to find appropriate ways for students' cognitive activities in these situations and to train them appropriately. We carried out each of these studies with sub-goals. The process is based on cognitive activity. The stages of cognitive activity and understanding and the stages of organizing the case method were interconnected. Our research on the situations that students solve in their cognitive activities also concentrated on this point - finding solutions and removing problematic situations that

students encounter when performing professional tasks. And this could not give five without a cognitive approach.

Thus, based on the examples, the goals of the stages were determined. First, we linked the evaluation criteria of student activities on which learning outcomes depend.

Learning outcome 3. Evaluating the psychological counseling process.

These headings summarize the factors that make it difficult for the client to focus on his personal problems and solve them as a problematic situation. These factors were grouped into 4 domains: cognitive domain, emotional domain, behavior, and personality disorder. Before influencing students in this way with independent changes, we extracted the results of the control and experimental groups by separating the same number of students from the experimental group (72 people) from the students from both groups (144 people in total). The difference between impressions about the problem situation as a task and impressions about its individual elements is that the former can be effectively applied in both directions. Therefore, we need to solve two tasks: having a clear idea of the task under test, can one move from the general content to its parts or vice versa? For this purpose we chose the following tasks:

1. The clarification of the movement, that is, the instruction process, is carried out.
  - a) mathematical groups (REA and REB-RKA and RKB): creating a problem based on the given dimensions.
  - b) Philological groups (FEA and FEB – FKA and FKB): Give the text a title by selecting keywords from the given text;
  - c) psychological groups (PEA and PEB – PKA and PKB): describe the psychological content of the given picture;
2. Testicles are given 2 texts. Each text is 1/2 of an A4 page. While one of the texts describes the students' own situations, the other describes situations related to another field of expertise. For example, one of the texts in the REA, REB, RKA, RKB groups is psychology-mathematics), in the group FEA, FEB, FKA, FKB, philology-psychology, and in the RQ group, texts are given on

mathematics-mathematics-psychology. (texts on psychology are the same).

### Final evaluation of problem-solving skills in cognitive activity in control and experimental groups

**Table 3.**

Control groups	Levels			Experimental groups	Levels		
	High	Me- dium	Low		High	Me- dium	Low
RKA	5	4	3	REA	4	5	3
RKB	5	4	3	REB	5	5	2
FKA	4	5	3	FEA	4	5	3
FKB	4	6	2	FEB	5	5	2
PKA	5	5	2	PEA	4	5	3
PKB	4	7	1	PEB	5	5	2
Total	27 people	31 people	14 people	Total	27 Peo- ple	30 people	15 Peo- ple

Task: Exam takers are required to select and separate words from these texts that are appropriate to their areas of expertise. The time to solve the task is 10 minutes for each text.

The purpose of the cases was to maximize the activity of each student, analyze problematic situations and involve them in making appropriate decisions. Based on the analysis, the results of activating cognitive processes in students through case methods in solving problematic situations showed that in this way the individual responsibility of each student increases. When the case method is used repeatedly in educational processes, there is no need for extensive discussions. Our conclusion was that the optimal use of the case method creates a synergistic effect on students and teachers. This process is clearly an educational, investigative-creative process in preparing the student for the most difficult processes such as presentations, projects, articles and theses, coursework, independent studies, and diploma defense. The case method allows students to analyze problematic situations they encounter and evaluate alternatives. They manage to develop the ability to choose the best options and prepare a plan for implementation. When such an approach is applied repeatedly throughout the educational period, students develop professional skills in solving practical problems.

In the third paragraph, the experiment "Stimulation of students' cognitive activity in solving problematic situations through the application of case-methods" was conducted. From the beginning of the II experimental stage, we defined a general approach to a number of issues. Thus, in the first years of higher education, students are formed elementary specialized knowledge in mathematics along with other specialties. At this stage, students develop the skills that ensure independent regulation and management of their own intellectual activity. As a result, it became clear that purposeful self-regulation of cognitive activity in the teaching of mathematics in higher schools allows students to acquire the experience, knowledge, skills, motivation, attitude necessary for the independent organization of cognitive activity. Then they achieve self-development, self-correction, self-search, and finally self-activation.

After these works, changes were recorded in 30 people in the experimental works applied in mathematics, philology and psychology: to a high level - 12 people (17%), an average level - 4 people (6%), a weak level - 12 people ( was 17%). To a high level. This means that at the end of the study, 12 out of 72 students rose from average to high level, and 12 from weak to average level. In general, a positive change was recorded in the vast majority of those tested. In 28 people, this level of change was manifested in the rise from one assessment level to another.



**Figure 4. Case method solution plan**

Let's remember that we evaluate students out of 10 points. There have been changes in score increases here. For example, there were students who got 8 points in the first stage, and 9 and 10 points in the next stage, but as a result, we recorded them at the

same high level as before. Thus, at the end of the study, improvements were seen in the initial and final indicators of those tested.

These changes were noted in several areas:

- 1) in the motivation of demands for their own activities;
- 2) when choosing a style of work according to the type of intelligence;
- 3) appropriate organization of this activity after receiving information about cognitive concepts;
- 4) behavior is related to social roles, etc. enrichment with .

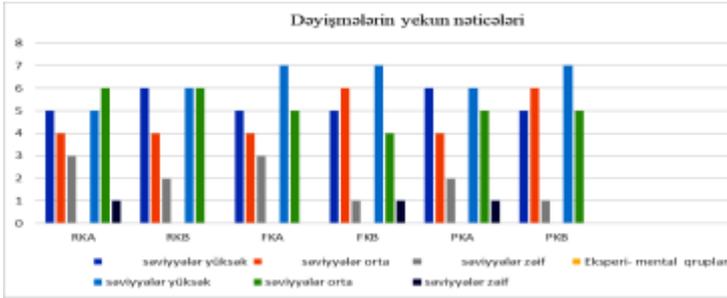
The increase in changes at high and low levels is quantitatively more evident, but at the high level this increase is due to the improvement of students with average indicators at the initial stage. After these comparisons, we made a final evaluation of problem-solving skills in cognitive activity in the control and experimental groups.

Control groups	Levels			Experimental groups	Levels		
	High	Mid- dle	Low		High	Mid- dle	Low
RKA	5	4	3	REA	5	6	1
RKB	6	4	2	REB	6	6	0
FKA	5	4	3	FEA	7	5	0
FKB	5	6	1	FEB	7	4	1
PKA	6	4	2	PEA	6	5	1
PKB	5	6	1	PEB	7	5	0
	32 p	23 p	12 p		39 p	31 p	4 p

### **Final assessment of problem solving skills in cognitive activity in control and experimental groups**

**Table 5.**

In table 5 and figure 5, it is possible to see the difference of changes in control and experimental groups.



**Figure 5. Description of changes in control and experimental groups**

As a result, the differences in the experimental group decreased from 27 people to 30 people at the high level, from 30 people to 31 people at the medium level, and from 12 people to 4 people at the weak level. These changes were both quantitatively and qualitatively lower in the control group. The differences increased from 27 people to 32 people at the high level, from 23 people to 31 people at the medium level, and from 14 people to 12 people at the weak level. Our conclusion is that in the process of overcoming problematic situations, various cognitive processes in cognition are created and directed to action. New cognitive structures are gradually emerging to solve similar situations. As a result, students have more opportunities to more effectively solve problem situations they encounter during cognitive activity.

**Thus, our research allows us to draw the following conclusions:**

1. When analyzing the results of the implementation of problematic tasks by graduates of higher schools, it becomes clear that the connection between practical skills among students is weak, based primarily on academic knowledge. As a result, this situation negatively affects the development of professional skills. They even lack the motivation to expand and consolidate the foundations of their specialized sciences through self-education, to be active and creative, to consciously learn and adopt the intricacies of the profession they are studying.
2. Students have a weak desire to set and pursue a goal in connection with cognitive activity. Students who have cognitive skills and try to develop their research skills on their own cannot find

the appropriate environment for this. They do not have sufficient knowledge about the basic concepts of the profession and the rights and duties of labor activity.

3. Although students have concrete ideas about problematic situations, they do not have ready-made strategies to solve them. The duration and efficiency of strategy formation depend on the student's cognitive style and cognitive skills. This is important because in order to solve problem situations, students need to use mental structures appropriate not only to the current situation but also to a number of problem situations. This in turn improves their operational memory, logical and abstract thinking, etc. It requires the common (relational) connection of cognitive processes. When solving problematic situations, students not only focus on the goal set for this particular situation, but also evaluate the necessity of the situation for vital purposes.

Applying the case method in solving problematic situations during cognitive activity is important in terms of, on the one hand, overcoming the difficulties that students encounter during their education, and, on the other hand, teaching the ways of doing this to the learners. It is tested in practical work in future activity. For this purpose, problem situations that are either naturally occurring or artificially created are selected and directed to their solutions.

1. In the methodology of the applied situations according to the Case method (Case Study) used in the research, the main and auxiliary goals, the conditions for solving the problem by the group (or collective), the criteria for evaluating the results, individual and group activities, as well as the emotional tension of the participants and the presence of the stress control mechanism, and the case The technological features of the method are summarized.
2. Improvements in the initial and final indicators were noted in the motivation of the test subjects in the requirements for their own activity, in the selection of the style of work appropriate to their type of intelligence and in the correct organization of this activity after receiving information about cognitive activity. concepts. The increase in high and low level changes was due to the development of students with average indicators at the initial stage. In addition,

as a result of the development of weak students, quantitative differences at the average level were also filled. The change was from weak to moderate and from medium to high.

3. At the end of the research, a number of skills required from students to effectively regulate cognitive activity in problematic situations were summarized:
  - a) at the level of cognitive understanding: summarizing academic knowledge and research experience and creatively applying them to cognitive activity; mastering modern methods; scientifically verify the nature of the research method used; Adequacy of intellectual abilities and interests to overcome difficulties in cognitive activity;
  - b) at the level of cognitive structures of personality: compatibility between self-assessment, creative abilities and research experience; have the values, motivation and orientation to overcome stereotypes that hinder research activities in problematic situations; strive to make personal cognitive skills clear and instructive to others; c) at the level of cognitive regulation of the emotional sphere: managing one's own emotional state, maintaining emotional stability; be ready for collaborative empathetic relationships; strive for results-oriented action; correct emotional-volitional skills by evaluating one's own activity;
  - d) at the level of cognitive regulation of behavior: working together to achieve the overall results of the group in cognitive activity; helping other students overcome subjective barriers they face and provide possible opportunities;

**The main content of the study is reflected in the following publications:**

1. Problem situation, its psychological essence and structure. Baku Girls University, scientific works. 2016, No. 3, pp. 178-183.
2. The role of higher school teachers in the pedagogical process. Teacher-student relations: pedagogical and psychological aspects, materials of the Republican scientific conference, Sumgayit, 2016, p. 224-225

3. Features of professional training of student psychologists. BSU, Republican scientific-practical conference of Young Researchers. 2016, pp. 49-50
4. Characteristics of practical thinking and its relation to problem situations. Educational Institute of the Republic of Azerbaijan, scientific works, volume 84. 2017, No. 1, p. 117-122
5. Problematic situation and its psychological nature. BSU, Republican scientific-practical conference of Young Researchers. 2017, pp. 71-72
6. Research directions of students' cognitive activity in problematic situations. Ministry of Education of the Republic of Azerbaijan XXI national scientific conference of doctoral students and young researchers. 2017, pp. 202-204
7. Issues of formation of professional skills in students in the process of solving problematic situations. BSU, Journal of Psychology. 2017, No. 4, pp. 99-108
8. О когнитивной деятельности студентов в проблемной ситуации. Київська наукова суспільнознавча організація. МІЖНАРОДНА НАУКОВО-ПРАКТИЧНА КОНФЕРЕНЦІЯ. 2018, s.52-56
9. Роль типа интеллекта в выборе путей решения проблемной ситуации. Теорія і практика сучасної психології 2018, № 4, s.106-111
10. The nature and conditions of solving problematic situations arising in students' cognitive activity. News of the Pedagogical University. ISSN 25. Vol. 66. 2018, No. 2, p. 248-256
11. Когнитивный характер проблемных ситуаций студентов при дистанционном обучении в период карантина. Известия Балтийской государственной академии рыбопромыслового флота, Калининград. 2020, s.103-110

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Address: Academic Zahid Khalilov street, 33. II educational building, room. 203, Postal Code: AZ 1148. Baku city, AZ-1073/1

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