

## Case Study as a Method of Teaching and Diagnosing Future Teachers

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### *Abstract*

The objective of this paper is to present the results of piloting the educational and diagnostic capabilities of the case study method in the process of training future primary school teachers. The study was carried out using a set of methods: method of content analysis of pedagogical literature, survey of respondents using Google forms, qualitative and quantitative analysis of educational cases compiled by the respondents, mathematical and statistical processing of experimental results. The sample of the study consists of 225 bachelor students of the training direction Pedagogical Education, future primary school teachers, Southern Federal University, Russia. Students were asked to describe the educational problems they witnessed being a teacher or a pupil. They were also required to offer their own solutions to the problems. The educational cases described by the students were classified according to the multivariate typology of the conflict according to the type and the content of the conflict. The data obtained indicate an increased occurrence of nurturing situations in the professional activity of a teacher. According to the solutions of the educational cases proposed by the students, vectors of priority solutions were identified. Qualitative analysis of the answers revealed students' lack of ability to solve educational problems. The authors recommend an algorithm for solving an educational problem by students. The algorithm consists of eight consecutive steps based on the algorithm of scientific and cognitive activity. Such training, according to the authors, develops pedagogical improvisation and intuition, alternative pedagogical thinking, values, pedagogical skills of analysis, planning, reflection, etc.

*Keywords:* teacher training education, case study method, educational problems.

### 1. Introduction

The last decades in Russian education have been marked by systemic changes that have led to the alterations in the goals and values of education, its characteristic features. Among the most significant features of a new type of education are personal orientation, instability, innovation, continuity, creativity and uniqueness. Besides these are competence and self-reliance of students as the goal and the result of education. The rapidly changing modern world and education require a graduate of a pedagogical university to possess both the theoretical foundations of his/her vocation, and professionally applied skills, as well as experience in practical pedagogical activity. The training of future teachers is becoming more and more practice-oriented, which determines the choice of appropriate technologies and methods for pedagogical education.

Among them, the case study method occupies an important place (Guruzhapov, 2017; Guseva et al., 2015; Margolis, 2015; Tatarenko & Shatokhina, 2018; Tulepbergenova, 2013).

## 2. Method

The purpose of the study: piloting the educational and diagnostic capabilities of the case study method in the process of training future primary school teachers.

Research objectives:

- (1) To identify the specifics of the educational problematic situations that most often arise in the professional activity of primary school teachers.
- (2) To identify and analyze the vectors of students' solutions to the educational problematic situations.

The research was carried out using a set of methods: theoretical research (a method of content analysis of pedagogical literature devoted to the problem of using case study method for vocational pedagogical education); experimental research (survey of respondents using Google forms; qualitative and quantitative analysis of pedagogical cases compiled by the respondents; mathematical and statistical processing of experimental results).

The use of the theoretical method of content analysis allowed us to identify and summarize a number of important theoretical positions for our research. The priority of case study methods reflects a number of significant trends in the development of modern education, including: the transition to student-centered education; increased personalization of education; blurring the boundaries between formal and non-formal education; changing the ways of evaluation of educational results (Charles Fad, 2010).

Gerring analyzes approaches to the definition of “case study” and the study of cases, as well as case selection strategies. He stresses the possibility of their application in various fields (political science, medicine, education, sociology, etc.), the use of quantitative and qualitative methods of their analysis (Gerring, 2007).

The advantages and limitations of the case study method characterize certain variations of it used in the educational process: situations based on video materials, Internet materials, role-playing games, etc. (Shivakumar, 2012; Davis, 2009; Vega, 2022; Rosier, 2022).

Difficult unforeseen situations regularly arise in the teacher's activity, the solution of which does not fit into certain ready-made algorithms. They require professional intuition and improvisation of pedagogical actions from the teacher. Readiness to solve such situations largely depends on the creative orientation of the teacher's personality. According to the researcher, the formation of these qualities is facilitated by training future teachers' heuristic activities (pedagogical heuristics) related to the situations of a problematic nature. In fact, we are talking about organizing the training of a future teacher using case study method (Levina, 2001).

Case study method is the imitative one, pursuing a range of both pedagogical goals and additional personal-developmental effects. The development of creative skills of future professionals is facilitated by offering them cases that can be solved in alternative ways (from the standpoint of not only pedagogy, but also psychology, ethics, etc.) (Panfilova, 2006).

The analysis of a specific situation belongs to a group of non-gaming methods in the structure of simulation (modeling) learning technologies (SmLT), which are problematic in their nature, because they presuppose the identification and formulation of the problem by students, the justification of the conditions and means of its solution. It is noted that this method not only arouses students' interest in the learning process, but also has an essential, specific significance

for the holistic development of personality This method of teaching, as well as the SmLT technologies in general, contributes to the formation of students' value orientations, relationships, communication culture, culture of thinking, methods of activity (planning, forecasting, analysis, reflection) (Zagvyazinskij, 2001)

Case study as an educational method combines the features of various types of teaching. These are problem-based, research, project, individual, and group types of teaching. Among the advantages of the case method is that it is focused on posing questions, while other methods focus on ready-made solutions. The use of case method is associated with the disciplines, the content of which contains questions that require ambiguous and alternative answers, as well as with the ways of organizing the educational process, the emphasis in which is on the independent and creative search for knowledge by students, information analysis, joint activities of students and teachers. Thus, this method trains future teachers to make decisions based on pedagogical improvisation and intuition, thereby developing their ability to pedagogical creativity (Popova (Smolik) & Pronina, 2015; Strekalova & Belyakov, 2013; Radzhabaliev & Nurmagomedova, 2015; Kadrzhanova et al., 2018).

Case method aims the collection of information from various sources, including such means of communication as television, Internet resources, electronic publications (Gasanova, 2018; Velieva, 2016). Different types of cases in terms of their function are distinguished. It is noted that the scope of the case method is not limited to training, it is able to perform a diagnostic function and be used as a research method (Pyanzina, 2015; Simonova, 2019).

### 3. Results

The study was conducted with the use of the following research methods: the analysis of psychological and pedagogical methodological literature; the analysis of modern educational Internet resources; the survey of respondents using Google forms; comparative analysis of the results of experimental activity; statistical methods for processing the results of experimental activity.

The research was conducted in the Academy of Psychology and Pedagogy of the Southern Federal University, Rostov-on-Don (the region in Russia). Respondents were the bachelor students of the training direction 44.03.01 Pedagogical Education, training profile "Primary Education" and 44.03.05 Pedagogical Education (with two training profiles) "Primary Education and Foreign Language." 225 students were tested in the study: 1<sup>st</sup> year students (entered 2022, full-time education) – fifty-three respondents; 2<sup>nd</sup> year (entered 2021, full-time education) – forty-four respondents; 3<sup>rd</sup> year students (entered 2020) – forty-eight respondents; 4<sup>th</sup> year students (entered 2019) – fifty-three respondents; 5<sup>th</sup> year students (entered 2018) – twenty-seven respondents. Students' participation in the surveys was voluntary and anonymous. Before conducting the survey, the objectives of the study were explained to the participants.

The empirical part of our research was based on the use of the above-mentioned functional capabilities of the case study method: training and diagnostic ones. Students were asked to describe the educational cases (problems, conflicts), participants or witnesses of which they had to be in the role of a teacher or a student. In addition, respondents were required not only to describe the ways to solve the problem by the teacher they were watching, but also to offer their own solution to the problem.

Such training, according to the authors, develops pedagogical improvisation and intuition, alternative pedagogical thinking, forms the value orientations of future teachers, and also creates conditions for them to master important pedagogical skills of analysis, planning, reflection, etc. These professional abilities and personal qualities are the most important components of the teacher's pedagogical competence.

Case method as a diagnostic technology was associated with the analysis of the solutions offered by students to educational cases (problems). Depending on the vector of choosing priority solutions, it is possible, according to the authors of the study, to judge the formation of the components of pedagogical competence in future teachers. The results revealed by the case method can also indicate the directions of those changes that need to be carried into both the process and content of the vocational training of future primary school teachers.

### 3.1 *The analysis of diagnostics results*

The educational cases described by the students were classified according to the multivariate typology of the conflict according to the following criteria:

- (1) The type of the conflict: intrapersonal, interpersonal, between a person and a group, between groups;
- (2) The content of the conflict: didactic, nurturing, combined.

According to the respondents' answers, 210 educational cases were identified and distributed as a percentage as follows: (1) by the type of the conflict: intrapersonal – 30%, interpersonal – 32%, between a person and a group – 35%; between groups – 3%; (2) by the content of the conflict: didactic – 20%, nurturing – 62%, combined - 18%.

The data obtained indicate an increased occurrence of nurturing situations in the professional activity of a teacher.

The identification of the relationship between the types of conflicts and their content showed the results presented in Table 1.

Table 1. The relationship between the types of conflicts and their content (number / %)

Type of conflict	Content of conflict		
	didactic	nurturing	combined
intrapersonal	26 / 41	13 / 21	24 / 38
interpersonal	17 / 25	47 / 69	4 / 6
between a person and a group	3 / 4	60 / 82	10 / 14
between groups	0	6 / 100	0

The results obtained allow us to conclude that the intrapersonal nature of the conflict is more common in the didactic and combined content of events; the interpersonal level is more due to problems of a nurturing character; the conflict between a person and a group, between groups is also associated with the problems in the nurturing sphere.

Special attention should be paid to the causes of the conflictual educational situations. The analysis of the educational cases revealed the key problems causing the occurrence of conflict events in the educational process of primary school (Table 2).

Table 2. Causes of the educational situations in primary school

№	Type of pedagogical situation					
	didactic		nurturing		combined	
	problems	number	problems	number	problems	number
1.	fear of public speaking	7	random events	16	isolation, low self-esteem	7
2.	unknown intrapersonal cause	10	conflicts between students	19	school maladjustment	8
3.	difficulties in working with text (reading and writing)	9	bullying	20	bullying	4
4.	low learning motivation	4	emotional instability or hyperactivity	13	emotional instability or hyperactivity	9
5.	family trouble	5	low level of students' discipline	12	a sharp change in the child's behavior	4
6.	conflicts with the teacher	3	conflicts with the teacher	9	inappropriate behavior	2
7.	problems with attention concentration	3	student's obscene language	7	deceitfulness	2
8.			demonstrative behavior	6	bad habit	2
9.			theft	5	the others	1
10.			attracting attention	5		
11.			health status	6		
12.			dysfunctional parents	5		
13.			opposition to the group	4		
14.			the others	3		

A special group of problems caused by “random events” underlies the situations of a sudden or ordinary nature which create difficulties in organizing the educational process by the teacher (for example, “students stopped listening to the teacher in class”). Unknown reasons of an intrapersonal nature (for example, “the child refuses to read aloud”) are of significant importance in didactic problems.

Conflicts of students and bullying are leading in the content of the educational problems, which indicates the need for special training of a teacher to work in this direction. Most of the causes of the educational situations are associated with a low level of students' behavior culture and discipline, which, however, does not exclude conflicts with the teacher, in which the student is not always to blame.

Combined educational situations arise mainly for intrapersonal reasons, such as isolation, low self-esteem, adaptation problems, emotional instability and others. The difficulty of overcoming these problems is due to the complexity of their impact on the educational and personal spheres (for example, “the student is constantly alone, he has no friends, he is not

interested in anything, he is always detached in lessons; he tries to sit at the back desks and not participate in the lesson”).

Primary school teachers in their daily activities have to face a wide range of situations that require both operational and time-delayed informal decisions. After analyzing the solutions of the educational cases proposed by the students, we conditionally identified vectors of priority solutions (Figure 1). The diagram shows, that most students choose the following prevailing work strategies: conducting an individual conversation with a child; working with parents (parent meeting, conversation, etc.); class meeting; implementation of an individual approach to the student to overcome learning difficulties; directing the student’s energy in a positive direction (sports, leisure, social assignment, etc.); seeking help from a psychologist, etc.

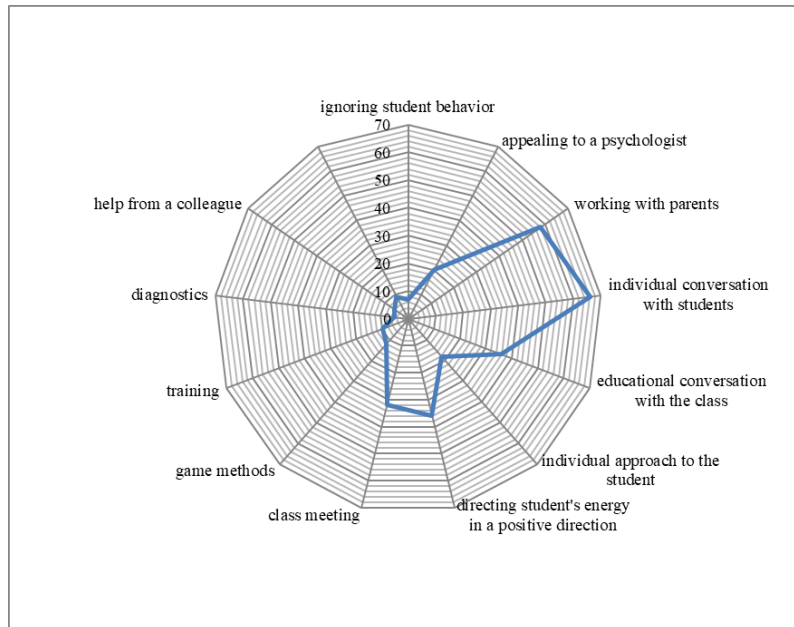


Figure 1. Vectors of solving pedagogical cases by students

A qualitative analysis of students’ decisions also showed the absence of specific proposals in the responses of some students to solve educational problems (36%). This was evidenced by the following formulations: “to work with parents,” “it is necessary to conduct special conversations,” “it is necessary to adjust the methodology of education.” Such proposals were formulated without explaining the purpose, specific steps or names of planned activities. These respondents did not offer scientifically-based solutions to the educational situation based on scientific concepts, approaches, methods or legal norms.

The most scientifically developed approach to solving problems and problematic situations is the algorithm of scientific and cognitive activity. According to A.A Frolov and Yu. N. Frolova the algorithm can be defined as an accurate description of a sequence of elementary operations interconnected by necessary, essential, stable and reproducible cause-and-effect relationships that systematically ensure the inevitable achievement of the goal [23].

### 3.2 Algorithm for solving an educational problem

We have developed and piloted an algorithm for solving an educational problem (task) by students. The term “educational problem (task)” is used by us, since the formulation of the task is an important stage of solving a problematic educational situation. The algorithm presented below consists of eight consecutive steps based on the algorithm of scientific and cognitive activity:

Step 1 – a detailed description of the situation, getting used to it. At this stage, it is important to imagine the situation as it really is and emotionally appropriate for it.

Step 2 – fixing the specific context of the educational situation. It is necessary to fix the context in writing (without fantasizing) in order to focus on the task as clearly as possible.

Step 3 – correlation of the context of the educational situation with the species classification. We used the above-mentioned classification in accordance with the multivariate typology of the conflict.

Step 4 – formulation of the probable causes of the situation. Identification and fixation of both known and unknown (supposed) causes.

Step 5 – determination of the leading contradiction(s) (the core of the conflict). We believe that the educational situation contains a conflict consisting of external and internal contradictions of the educational process. The identification and overcoming of the contradictions ensure both the solution of the educational problem (task) and the success of the educational process.

Step 6 – formulation of the educational problem as a question and the task to be solved. The educational problem is highlighted on the basis of the contradiction, and the formulation of the task is an important stage in solving a problematic situation (conflict).

Step 7 – substantiation and formulation of the law / scientific approach / scientific and methodological basis of solving the problem. A conscious solution to the problem is possible if only the necessary, substantial, stable and reproducible causal relationship between the phenomena under consideration is identified and established – the law according to which it is possible to influence the development of a problematic situation (Frolov, A.) [19]. At the same time, in the humanities, the task can also be solved on the basis of the law (legal, social, psychological, pedagogical, etc.)

Step 8 – making an action plan to solve the educational problem based on the chosen law, approach, etc. (for a teacher);

Step 9 – development of recommendations for parents / students and other participants of the educational process involved in the situation under consideration.

The presented algorithm was integrated into the process of students' studying such disciplines as "Pedagogy," "Module of Research Work," "Theories and Technologies of Primary Language Education," "Educational and Extracurricular Activities in Primary School," "Family Pedagogy," "Pedagogical Communications," and others. The options for using the algorithm depended on the content and type of the tasks that were solved (didactic, upbringing, socio-educational, intrapersonal, etc.)

#### 4. Discussion

The results obtained made it possible to identify and classify the range of problems arising in the professional activity of primary school teachers. The selected criteria for grouping cases can be expanded by students in the process of their professional development as future specialists in working with children of primary school age. Thus, the case study method is able to act as an effective tool for open education by creating a special matrix, the initial data of which can be constantly supplemented by the participants of the educational process, the most effective algorithms for solving complex pedagogical cases can be selected. The range of the educational problems identified in the course of empirical research, the solutions offered by students served as guidelines for the transformation of the content and methods of vocational training of future

primary school teachers at the Academy of Psychology and Pedagogy of the Southern Federal University.

## 5. Conclusions

The priority of case study among the methods of training future primary school teachers is associated with the changes taking place in modern pedagogical education. The case study method is aimed both at the formation of professionally significant knowledge and skills of future teachers, and at their professional and personal development. The educational potential of the method is not limited to its teaching and developing capabilities. Extensive diagnostic capabilities of the method allow to modify the content and technologies of vocational teacher training.

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The authors declare no competing interests.

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