



Relationships between educational participants in the context of problem modeling

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Abstract. At present, the goal of education is not only to prepare a specialist who has received theoretical and practical training of high-level. It is also important for a student to be engaged in the development of new technologies, to adapt to the conditions of a particular production environment, and be able to make new technological decisions. Therefore, the educational process should be developed under the conditions of a model-based approach. The purpose of this study is to present the developed structure of interaction between the subjects of the educational process in terms of the problem-model approach within preparation of elementary education teachers. A methodical system of specialized training of pedagogical students (n=400) has been developed by researchers and implemented during 5 weeks in the context of problem modeling. Results show that the number of students of experimental group who have reached the creative level of training was 62.5%, which is 1.3 times more than the same indicator for control group, where there is a minority of such students. Thus, most students have achieved a creative level of training in specialized academic disciplines and a high level of development of specialized competencies. The materials of the article can be useful to: faculty and heads of universities, where future teachers are trained, to improve the quality of student training and more effective organization of the educational process; employers of future teachers; pedagogical students and potential applicants.

Keywords: Educational system, pedagogical interaction, problem-model approach, learning environment

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INTRODUCTION

A favorable environment for individual development is one of the premises for studying efficiency due to the pedagogical communication is a function of human communication. Contemporary education presupposes ability of a teacher to reach out to every student, student groups, etc. It means student-teacher interaction should be organized on the pedagogical laws and regulations (Astashova, Bondyрева, & Zhuk, 2019).

Pedagogical interaction is a complex process consisting of many components: didactic, educational, and social-pedagogical interactions (Costa et al., 2015). Pedagogical interaction is impossible without a pedagogical context. Pedagogical contexts would result in less frequent expression of personal opinions and experiences (personal preferences, prior history, and personal anecdotes), compared to non-pedagogical contexts. Whereas generic information is general and holds true across individuals and contexts, personal opinions and experiences are particular and need not extend beyond the individual to whom they apply (Gelman, 2012).

In the pedagogical interaction there are so-called learning objects. In practice, as well as in the literature, the concept of 'learning objects' is heavily used but not strictly defined. A learning object is any entity, digital or non-digital, that can be used, re-used, or referenced during technology-supported learning (Koper, 2012; Wu et al., 2015). Pedagogical interaction also

directly depends on the style of teaching chosen by the teacher. For example, Slovak researchers Gejdoš and Korčeková (2015) believe that the teacher can use such teaching approaches that are similar to those used in personal communication. This is an approach based on emotional relationships, built on tracking the emotional state, both within the group of students and in external manifestations in relation to the teacher. And an approach called "teaching management", where the teacher is the leader of the so-called "corporations" (student groups) and the teacher-student relationships are based on constant monitoring and direction to the desired vector of work.

Waring (2016) in turn, proposes an approach to pedagogical interaction, which he calls the "Rule of three C": competence, complexity, and contingency. At the same time, the scientist notes that, given the "wild" and "diverse" world in which the pedagogical paradigm is implemented, these approaches don't necessarily have to be "one clear, streamlined structure." Also, they should not be perceived by teachers as a strict system of rules. The professor argues that these aspects can partially complement each other and should help the teacher to create his own line of pedagogical interaction convenient for himself and his students. Brouwer, Day and Rasmussen (2012) studying the basics of pedagogical interaction note that the basis of a productive educational process is, above all, the inseparable nesting of practical actions and pedagogical interactions, based on the fact that conversations and actions perform both educational and instrumental work.

In the work of Zeer and Krezhevskikh (2018) it is noted that a modern specialist should possess such meta-qualities as social and professional mobility, communication, developed emotional intelligence, innovation, tolerance for uncertainty. First of all, the listed characteristics should have subjects of multidisciplinary projects. The joint activities of several professional groups require the project participants to search for consistent work principles, a "common language", pictures of the world based on the specifics of their occupation, ability to delineate responsibilities and act harmoniously in neutral areas, with a high degree of probability of learning new roles in the process of cooperation. A more complete interactive development of new activities is facilitated by immersion of students in poly-professional communication environments.

Chapaev, Efanov, Bychkova, Dorozhkin and Akimova (2018) considered the spiritual and moral and organizational and pedagogical foundations of educational and professional interaction on the example of small craft enterprises. The specifics of the activity has a significant impact on the process of educational and professional interaction of employees. Craft enterprises in most cases are micro enterprises, they are created and directly managed by the owner - master, carrier of knowledge, skills and traditions of the craft. With his personality and professional qualifications characterizes the activities and image of the company to the outside world. The master is personally engaged in the manufacture of products, knows all the functional areas of the business, and is responsible for the results of labor. The identification of the master with the activity and his personal sense of responsibility also affects the purpose of the activity, the relationship with clients and employees. Between them there is a special loyalty. The relations of the master with his employees are not only official, they are based on personal trust and are characterized by direct communication.

There are several approaches to pedagogical interaction that deliberately highlight the quality of the relationship among teacher and students and pedagogical reflections in the learning process. A group of American educators: Nind, Curtin and Hall (2016) developed a pedagogical interaction approach based on the frequent and regular communication of the teacher and students in the learning process. At the same time, in the course of pedagogical interaction, small goals are set. The setting of these goals is not chaotic. The pupils create an illusion of choice, which is predetermined by the leading teacher focusing on the productivity of the pedagogical process. This allows you to create a comfortable emotional environment for students and not to lose control over the educational process for the teacher.

Pedagogical interaction can be defined as a process that occurs between a teacher and students in the process of educational work aimed at developing the personality of all the subjects of this process through cooperation (Fominykh, 2016). Another popular approach is the block-

model approach. Block-model approach employs specific representation – abstract method of solving world problems. The block-model approach helps pupils visualize situations as it creates a specific picture of an abstract situation. It may satisfy the pupil's learning through seeing and doing. Finally, it transforms words into recognizable pictures for young minds (De Guzman, Jose, & Belecina, 2012).

In general, there are five types of modeling pedagogy:

- Exploratory modeling, where students investigate the property of a pre-existing model by engaging with the model (e.g., changing parameters) and observing the effects.

- Expressive modeling, where students express their ideas to describe or explain scientific phenomena by creating new models or using existing models.

- Experimental modeling where students form hypotheses and predictions from models and test them through experimenting with phenomena.

- Evaluative modeling, where students compare alternative models addressing the same phenomenon or problem, assess their merits and limitations, and select the most appropriate one(s) to explain the phenomenon or solve the problem.

- Cyclic modeling, where students are engaged in ongoing processes of developing, evaluating, and improving models to complete rather long science projects (Campbell et al., 2015).

It should be taken into account that pedagogical interaction can be direct as well as indirect. Thus, many European countries are gradually paying more attention to pedagogical interaction based on interactive technologies and online interaction (Cruz & Kwinta, 2013). Even social networks such as Twitter and Facebook are used for pedagogical interaction. In Russia, this is the social network "VK.com", in Europe - other local social networks. This helps teachers to be at the same level of social development with students, which is very important in the educational process (Fernández-Ferrer & Cano, 2015). To establish a pedagogical interaction, the teacher must be a good psychologist. Thus, many researchers believe that the periodic viewing of students' social networks can be useful for discovering new facets of the pedagogical process (Gao, Luo, & Zhang, 2012).

The social media can be called "student newspapers". If a teacher pays attention to social media websites, then he/she is in the center of events taking place in the lives of his/her students. It is important to establish a specific connection (Friesen & Lowe, 2012). Many students believe that pedagogical interaction can be "closed" and limited only by technology and other students, however - this is a delusion. Even with the availability of emerging technologies, the teacher is an important part of the pedagogical process, without which pedagogical interaction is impossible or incomplete (Lee et al., 2014).

Pedagogical interaction due to: educational activities; the purpose of training; upbringing. It is based mainly on cooperation, which is the beginning of the social life of mankind. Interaction plays a crucial role in human communication, in business and partnerships, as well as in compliance with etiquette and mercy. Pedagogical interaction can be considered as a process that acts in several forms: individual (between the tutor and the pupil); socio-psychological (teamwork); integral (combining various educational impacts in a particular society). The basis for classifying types of pedagogical interaction in the context of problem modeling can also be:

- content of activities (interaction in labor, aesthetic and other activities); within the framework of problem modeling, interaction in educational activities acquires special significance;

- the presence of a goal or its absence - a special goal can be set in the interaction, then it is called purposeful; either the goal may be missing, and then they talk about spontaneous interaction; in the context of model-based learning, interaction is always focused;

- degree of controllability - controlled, semi controlled, uncontrollable; uncontrollable is spontaneous interaction; semi-manageable is purposeful interaction, but feedback is used occasionally; managed - purposeful interaction, accompanied by systematic information about its results, allowing to make the necessary adjustments to the subsequent interaction;

- the type of relationship - "on equal footing" or "leadership"; interaction "on equal terms" is characteristic of subject-subject relations, activity from both interacting parties; with the

"leadership" - activity, on the one hand.

In practice, in the joint activities of the student and the teacher, various forms of organization of relationships are possible.

The aim of the study is to provide answers to the following questions:

- 1) What are the features of pedagogical interaction in a pedagogical university?
- 2) What are the specificity of interaction of the subjects of the educational process in terms of the problem-model approach?
- 3) How to create the effective model of the educational process of teaching students of pedagogical universities on the basis of the problem-model approach?

METHODS

Participants

Experimental search work was carried out at the base Russian State Vocational Pedagogical University (Ekaterinburg, Russia) from 2015 to 2019. Participants were full-time students of 1, 2, 3, 4, 5 courses (aged 17-22) of the Institute of Psychological and Pedagogical Education, enrolled in the specialty No. 050100.62 "Pedagogical education" (education in the field of a foreign language (English) and in the specialty No. 44.03.01 "Pedagogical education" (Education in the field of a foreign language (English) by years of study; teachers of specialized disciplines; administrative and management personnel of an educational organization. Number of participants involved - 400 (60% - male; 40% - female).

Survey and data analysis

The objectives of the study were to conduct a pedagogical experiment to test students' learning in specialized academic disciplines and the level of development of specialized and special competences. To check the levels of student learning and the levels of development of core and special competences when using the methodical system of training developed by authors in the context of problem modeling, a pedagogical experiment was conducted.

The purpose of the pedagogical experiment was to empirically confirm or refute the research hypothesis. The methodical system of specialized training of pedagogical students should be implemented in the context of problem modeling and take into account:

- variability of students' training levels;
- continuity and integrative content of basic academic disciplines based on logical and meaningful connections;
- use of tools, organizational forms and training methods based on the problem-model approach. The latter will ensure that the majority of students achieve a creative level of training in core academic disciplines and a high level of development of core and special competencies and fairness of theoretical results. When planning and summarizing the pedagogical experiment, statistical methods play an important role, which provide, among other things, the ability to establish the degree of reliability. Statistical methods correctly and reliably substantiate the coincidence or difference of the states of the control and experimental groups.

The method of sampling

Widespread in sociology and pedagogy received selective method. The basic concept in the sampling method is the general population - a set of objects that are the subject of study within the limits outlined by the research program and the territorial and temporal characteristics (Burr, 2018). The experimental test was attended by students of three years of admission. This sample is absolutely representative. The result of the experiment is generalized to other universities. Due to the specifics of pedagogical research, non-repetitive selection was used to study the sample.

Ensuring the representativeness of the sample

The pedagogical study covers at least 150 people annually; therefore, traditional statistical methods of analysis are applicable to them (Kennedy-Martin et al., 2015). Therefore, we can speak of a sample that is representative: it is quite voluminous, random, of the same type, with a normal

distribution. Accident is ensured by the fact that all students of groups were investigated. The uniformity of the sample is provided by the method of forming groups. The study groups contained more than 30 students, which ensures a normal distribution.

Selection of measurement scale

To confirm the hypothesis, the authors have decided to use the ordinal scale. In the ordinal scale, the more pronounced the quality of an object is (the increase in the student's level of learning), the greater the number attributed to it. In the ordinal scale it is easy to establish the order between levels of learning - starting, basic, and creative.

Definition of signs to be studied

The study highlighted the characteristics to be studied. As the studied traits, an assessment of the level of students' learning in academic disciplines of the core cycle was used when using the scientific and methodological foundations and approaches to learning.

The essence of our research is that students' learning activities in the process of core training are realized in terms of a methodological system in the context of problem modeling (Suskie, 2018). Building a self-consistent, seamless system is a serious didactic problem and required several years of focused work in this direction. The main problem of students' research work is the determination of the level of training in core academic disciplines and the level of development of core and special competencies (Bhatia, 2014).

RESULTS

Results showed that the average sample value of the number of correctly performed test tasks by students of experimental groups is $LH = 19$; sample standard deviation - $SG = 6.7$. At the same time, the number of students of experimental group who have reached the creative level of training was 62.5%, which is 1.3 times more than the same indicator for control group, where there is a minority of such students. Thus, the results of the pedagogical experiment showed that the majority of the students of the experimental group reached the creative levels of learning and a high level of competence development, which makes it possible to accept the research hypothesis as plausible.

Features of pedagogical interaction in the context of the problem-model approach

Based on the analysis of pedagogical interaction in a pedagogical university, the following features of pedagogical interaction in the context of the problem-model approach are revealed:

1. Subject-subject style of relationships with the elements of tutoring with an individual form of pedagogical interaction.

2. The element of mentoring in the socio-psychological (collective) form of pedagogical interaction. It should be noted here that tutoring and mentoring are quite similar concepts, unlike a tutor, a mentor is not a guiding and accompanying person to the activity, but rather a pushing person. Thus, the element of mentoring in the socio-psychological (collective) form of pedagogical interaction means not supervising by any activity, but unobtrusive guidance (Fominykh, 2016).

3. Advisory and accompanying nature of pedagogical influence in the process of all types of practices. Practice is a complex process in which students perform activities defined by their specialization. In combination with academic disciplines, the practical activity of students contributes to determining the directions and prospects for professional growth in the future, strengthening adequate professional self-esteem, and shaping the personality of the future teacher and profession. In the context of the problem-model approach, the advisory and accompanying nature of the pedagogical influence in the process of all types of practices acquires a special role due to the fact that the student aims to make decisions and plan, model and design his future professional activity consciously, without relying on the experience of the teacher-supervisor practice

4. Individualization of the personal result of educational activities aimed at the development of meta-professional qualities of the student. Meta-professional qualities are

abilities, personality traits that determine the productivity of a wide range of social and professional activities of a future specialist. There are two groups of metaprofessional qualities:

1. Wide radius of operation, in demand for performing diverse professional activities (responsibility, organization, independence, professional mobility, observation, and mnemonic mental quality);

2. Narrow range that is required when performing certain types of occupations: man-man, man-nature, man-equipment, etc. (tolerance, empathy, assertiveness, sociability, social intelligence, reflexivity.).

Thus, the individualization of personal training activities aimed at the development of metaprofessional qualities of the student within the problem-model approach in higher professional pedagogical education will contribute to the achievement of its main goal - the preparation of qualified professional of the appropriate level and profile, competitive on the labor market, fluent in their profession and oriented in related areas of activity, capable to effective work on a specialty at the level of world standards, ready for continuous professional growth, professional and social mobility (Fominykh et al., 2016).

5. Joint design of the prospects for the future professional activity of the teacher and the student.

Students, together with the teacher, get acquainted with the concept of an individual trajectory of professional development and try to answer the questions: "Is forecasting a professional future a necessity? Is it one of the conditions for professional self-realization?" It is necessary to build an algorithm for building an individual professional development trajectory directly with the teacher in order to determine the prospects for future professional activity not only of the student, but also of the teacher. Thus, a joint activity of a student and a teacher from the perspective of a problem-model approach can be viewed as a process in which the most diverse forms of organization of relationships are possible. With this approach, the teacher carries out the storage, analysis and processing of pedagogical information, which allows him to manage students' learning activities and make the necessary choices of pedagogical influences based on knowledge of the characteristics of the student's activity itself.

The structure of the interaction of subjects of the educational process in the problem-model environment

A characteristic feature of training using the methodical system developed by us is that the student's activity takes place in a specific environment of the problem model, in which the student must learn to independently find and interpret information obtained through the campaign of the problem model.

In this connection, it becomes necessary to create problem-model environments in which educational resources, training and monitoring tools are formed. At the same time, elements of the environment are for students not only learning tools, but also objects of study

The pedagogical process within the framework of the problem-model approach, no matter what teacher is created, it will have the same structure of interacting components (figure 1).

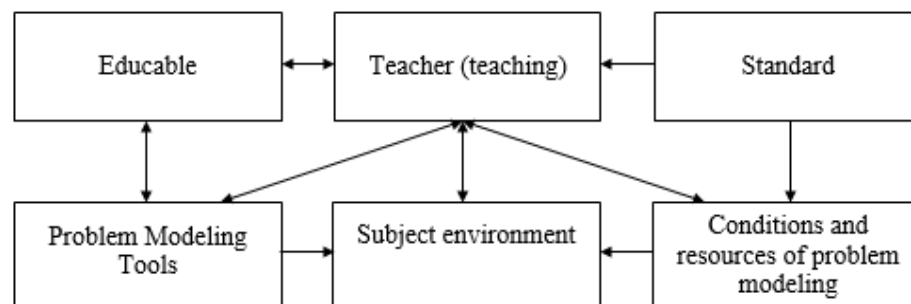


FIGURE 1. *The scheme of pedagogical interaction in the context of problem modeling*

Let's single out the following distinctive features of the management of a scientific and methodological system in a pedagogical university:

- 1) conscious and systematic influence, preferably spontaneous regulation;
- 2) the presence of cause-effect relationships between the control subsystem (teacher) and the object of management (student);
- 3) the dynamism or the ability of the controlled subsystem to move from one qualitative state to another;
- 4) reliability, i.e. the ability of the control system to perform specified functions under certain conditions of the process;
- 5) stability - the ability of the system to maintain movement along the intended trajectory, to maintain the functioning mode (despite various external and internal disturbances).
- 6) anticipation - the ability to immerse in a mode of learning environment and learning situation that simulates the real processes of personnel training from the point of view of emerging technologies and continuous analysis of the development trend of the industry, the practical development of new techniques, techniques and technology training, which forms the necessary competence for innovation activities.

With the optimal interaction of the subjects of the educational process in the structure of the problem-model environment, the following main functions can be distinguished:

- constructive, manifested when discussing and explaining the content of knowledge and practical importance of the subject;
- organizational, which is realized through the organization of joint educational activities of the student and the learner, mutual personal awareness and shared responsibility for the success of the educational activities;
- communicative-stimulating, which is a combination of various forms of educational and cognitive activity (individual, group, frontal), organization of mutual assistance with the aim of pedagogical cooperation, students' knowledge of what they need to know, understand in class, what to learn;
- informational and educational, realized through the demonstration of the connection of the academic subject with the practice for the correct world outlook and orientation of the student in the events of public life; through the mobility of the level of information capacity of studies and its completeness in combination with the emotional presentation of educational material, relying on the visual-sensual sphere of the trainees;
- emotionally correcting, which is realized in the process of learning through the principles of open prospects "and" winning "training in the course of changing types of learning activities, the trust relationship between the learner and the learner;
- monitoring and evaluation, manifested in the organization of mutual monitoring of the student and the student, joint evaluation of results, self-control and self-assessment.

DISCUSSION

In foreign studies, it is assumed that both the teacher and the student are active (Hamre & Pianta, 2006). Tutoring in modern education is regarded by scholars as a pedagogical position that is associated with a special way organized by the education system (Falchikov, 2001). Modern tutoring technologies open up a number of questions for researchers. Despite the fact that it would seem that the role of the tutor is clear, its functionality expands every year, and the role of the tutor, his appearance, duties and skills are subject to change (Gluck & Laird, 2018).

Cooperating teachers are often identified as some of the most important figures in the preparation of new teachers, and the reasons are not difficult to understand (Anderson, 2007; Rajuan, Beijaard & Verloop, 2007). Surprisingly, however, very little research has been conducted to quantify the effects of cooperating teachers on student teachers (Hamman et al., 2019).

Intelligent Tutoring Systems that employ a teachable agent or reciprocal tutoring agent are designed to elicit the beneficial effects of tutoring, known as the tutor learning effect. However, untrained tutors do not spontaneously use beneficial tutoring strategies, and in a reciprocal format, it is unclear how the tutor learning effect affects those tutors' future problem-solving

(Madaio, Ogan, & Cassell, 2016). Tutoring is not only an important part of the training system, but also an important psychological component in the educational process. As mentors, students feel more confident, overcome educational barriers more easily (Boud, Lawson, & Thompson, 2013).

The educational process, the mode and nature of the classes are built and put together, based on the cognitive interest, aptitudes, and perceptual abilities of the student. Tutor - in translation from English - teacher-leader. The etymology of the word (lat. *Tueor* - care, guard) is associated with the concepts - "protector", "patron", "guard". The modern Oxford English Dictionary identifies a tutor as a person with a degree that is entrusted with the supervision of a student (undergraduate). The latter is called his ward (pupil). In modern pedagogy, there are many tutoring programs. The message from the educational literature on tutoring programs seems clear enough. These programs have definite and positive effects on the academic performance and attitudes of those who receive tutoring. Tutored students outperformed their peers on examinations, and they expressed more positive attitudes toward the subjects in which they were tutored. Tutoring programs also had positive effects on children who served as tutors (Strogilo & Stefanidis, 2015).

Foreign researchers have also revealed an interesting fact that mentoring can also be in electronic format. However, at the moment, in the online mentoring system, more attention is paid to technological equipment rather than to the figure of the mentor himself, which certainly requires further research (Rodríguez-Hoyos & Calvo Salvador, 2011). The trend to create a fully automated computer tutor is gaining popularity, but this is just a big idea. Many researchers still agree that even when creating such a computer a live tutor is a necessity (D'Mello & Graesser, 2012). The best solution for combining technology and tutoring is now considered to be "video tutoring" when it is carried out using services that allow the student to see the teacher by video link (Sinclair, 2016).

A tutor is a teacher who acts on the principle of individualization and accompanies the construction by students of their individual educational program. Moreover, tutoring and teaching are interconnected by one concept of "mutual aid", which is necessary for the student at all stages of education. For example, 12,000 letters from elementary and middle school students were studied, describing the "teacher who helped me the most". A tabulation of the repeated characteristics or traits showed that the most mentioned traits included "cooperative, demographic attitude," "kindliness and consideration for the individual," and "patience." Other studies have evaluated teacher's personality on a global scale, such as by asking "How do you feel about the instructor as a person" on a Likert scale from "Doesn't appeal to me at all" to "Terrific; a great person" (Kim, Jörg, & Klassen, 2019).

Modern pedagogical science explores the issue of how tutors can be helped to engage in more dialogic interactions with their students in whole class, group-based and one-to-one interactions to ensure they are given the opportunity to engage in intellectually stimulating classroom talk and deep learning. The implications of the findings for the professional development of university tutors are also considered (Sadovnikova & Mirzaahmedov, 2019). Although engaging in tutorial dialogue has many potential advantages, many students do not have access to skilled tutors. Tutoring can involve prohibitive expenses and time commitments, especially for nontraditional students (Arnott, Hastings, & Allbritton, 2008). A huge role is played by the independence of the student and the accompanying activities of the student by the teacher. In many countries, such as China, it is believed that the best tutors are not only teachers, but also parents of students. The educational system of the countries of the east assumes that the family is a full part of mentoring, along with teacher mentoring (Zhonglu & Zeqi, 2018).

At present, there are still no graduates in Russia who are prepared to work as a "tutor". The first departments of tutor support appeared quite recently, in the universities of Moscow, Tomsk and Izhevsk. Tutoring is a different ideology, built on different values and approaches, which entails the need for the teacher to master a new professional role, understanding and understanding a different philosophy, a philosophy of individualizing the educational process, and practical development of other technologies, including open education technologies. Experts call the goal of tutoring support the full realization of the educational potential of an individual (Villegas-Reimers, 2003; Waks, 2007). The key principles of tutorial work are considered the

principle of individualization and the principle of openness of education (Esenina et al., 2018). Individualization is the desire to provide each student with the possibility of forming their own educational goals and objectives, their own educational trajectory, making the learning process more meaningful due to the conscious choice of their educational path, an adequate understanding of their educational prospects. The principle of open education implies the implementation of such democratic principles as the availability of knowledge, freedom of movement, the possibility of self-education, conditions for development, the creation of a single educational space (Davydova, Dorozhkin, & Fedorov, 2018). Building a model of effective management of the education system involves the organization of practical vocational training in accordance with the requests of employers involved in the implementation of the educational process, and, as a result, providing the labor market (including elementary schools) with truly sought-after specialists (Kokovikhin, Mokronosov, & Ogorodnikova, 2019).

Effective functioning is ensured by a certain distribution of roles, team work, an established system of relations, an adopted procedure for resolving issues, and dispute resolution. The attitudes and patterns of behavior include respect, responsibility, trust, continuity. In the process of the individual work of the master with the student, an analysis of the creative labor process, "penetration" into the essence of mastery and the identification of possible ways of its transfer, takes place. However, in the existing Russian and foreign studies, the features of pedagogical interaction in the context of problem modeling have been little studied, and there are no features of the functioning of the teaching system for students of pedagogical specialties.

CONCLUSIONS

The experiment showed that the number of students of experimental group who have reached the creative level of training was 62.5%, which is 1.3 times more than the same indicator for control group, where there is a minority of such students. Most participants have achieved a creative level of training in specialized academic disciplines and a high level of development of specialized competencies.

The functioning of the system of teaching students of pedagogical specialties to the main disciplines of the cycle in the context of the problem-model approach is determined by such factors as:

- the implementation of dialogue interaction of subjects of educational activities;
- dominance of student's interests; guide and support function of the trainer;
- the focus of the subjects of interaction on the construction of professional dialogue;
- the willingness of all participants in the educational process to self-education and self-development;
- introduction of emerging technologies in learning aimed at developing the core competencies of the student in a specific subject area;
- the inclusion of the student in the subject of professional activity.

The formation of this scientific and methodological system of training and the implementation of its pedagogical functions can be successful only with the active participation of all stakeholders in this process: not only teachers and students, but also educational organizations, employers, government bodies.

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