

**ICHEU 2021**  
**International Conference «Humanity in the Era of Uncertainty»**

**THE SCIENTIFIC AND METHODOLOGICAL SUPPORT FOR  
PEDAGOGICAL GIFTEDNESS DEVELOPMENT**

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**Abstract**

The problem of developing the future teachers' pedagogical giftedness is due to the transformation of modern education. It is caused by the dynamic processes happening in society. The necessity to develop qualities that allow an educator to be successful in emerging situations of uncertainty requires high rates of professional competencies development. The scientific and methodological support of the process of developing pedagogical giftedness allows taking into consideration the arising problems and difficulties and provides targeted assistance in professional self-development in the process of teachers' training. The purpose of the study is to develop and prove the effectiveness of scientific and methodological support for the pedagogical giftedness development in future teachers in the context of modern education transformation. Methodology, methods and techniques are methods of theoretical analysis, empirical methods (survey, testing, analysis of documentation, comparison of the data of the ascertaining and control sections). The results show the level analysis of the future teachers' professional competencies reflected the effectiveness of the developed content of scientific and methodological support for the pedagogical giftedness development. The developed support algorithm is based on the posteriori model of a future educator's training, professional skills, gradually mastered in the professional activity experience, already at the stage of obtaining pedagogical education, constitutes the qualities that characterize pedagogical giftedness.

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*Keywords:* Pedagogical giftedness, scientific and methodological support



## **1. Introduction**

### **1.1. Background**

Higher education is in the process of content educational standards transformation, the requirements are imposed on university graduates, formulations of competencies are in demand in professional activities at the present stage. The result of the transformation process should be the compliance of education with the goals of advanced development of society.

First, the dynamic process of educational transformation is focused on development of abilities and talents of modern youth, formation of a successful personality capable of self-development and self-fulfillment, creation of favorable conditions for self-determination in various activities, preparation of students to independently designed ways and strategies for self-improvement of the individual in life and future profession.

The teacher is given one of the leading roles in this process since he is the initiator and participant in implementation of changes in the education system. The state policy in the field of education is aimed at training a teacher who has creative initiative and pedagogical talent and who is able to solve problems in conditions of professional uncertainty successfully.

The quality of talented teacher's training for a new school depends on many factors. First of all, it is necessary to develop theoretical, methodological and practice-oriented foundations for scientific and methodological support of pedagogical giftedness, to identify and rethink professional and personal qualities of a modern teacher. One is to develop mechanisms for building intensive career trajectories of gifted students and young professionals who are able to successfully and to solve modern challenges of education at the present stage of higher education development at a high professional level Ilaltdinova and Kisova (2018), Emelyanova (2011), Mazilov and Slepko (2019), Mazilov (2020), Rudenko et al., 2020, Shadrikov (2019).

### **1.2. The analysis of the notion giftedness in psychological research**

The research of pedagogical giftedness involves a psychological and pedagogical analysis of the concept "giftedness". Giftedness is determined as a systematically developing quality of the psyche during life, which determines the possibility of achieving higher (unusual, outstanding) results by a person in one or more activities compared to other people in the pedagogical encyclopedia (Tulkibaeva & Trubaychuk, 2003).

Giftedness is considered from two sides in Russian psychologists' works as the highest level of development of abilities (Rubinshtein, 1960; Teplov, 2014) and as a potential opportunity for their development (Bodalev & Rudkevich, 2003; Bogoyavlenskaya, 2016; Petrovsky, 1997; Yurkevich, 2018).

Giftedness is interpreted as a combination of general and special abilities that affect success of activities in Rubinshtein (1960) and Teplov's (2014) works. General giftedness is the ability in a wide range of diverse activities. Special giftedness involves a qualitative combination of a number of abilities that allow a person to achieve success only in a certain type of activity and do not receive development in other types of activities.

Bodalev and Rudkevich (2003) explains giftedness as willingness or potential of a person to master a variety of activities, ability to achieve a high level of activity productivity. The phenomenon of giftedness in a person manifests itself as the process of developing the makings, abilities and qualities of a person in the activity under certain favorable environmental conditions.

There are age-related dependencies in the rate and dynamics of a gifted person qualities development. Natural inclinations that are innate properties of the nervous system are at the heart of development. The inclinations or individual qualities of the innate mechanisms of elementary mental activity can explain the success and speed of a person's mastery of any one or many types of activity. They are the basis for development of abilities, but they predetermine their development. Definite conditions of upbringing are necessary for the makings to develop into individual psychological qualities of the individual.

There is a theory of giftedness conditionality by the development of a person's creative potential in psychology. Matyushkin (2012) describes the process of individual's creative development and structurally correlates it with giftedness. The structure of giftedness is represented by a qualitative combination of research and creative activity, cognitive motivation, which plays a leading role, the ability to see new things, formulate and solve problems. According to the author, intelligence or mental activity is a superstructure over creativity. In Gardner's (1998) work "Creative Life and Creativity: a creative scientific approach" there is a similar position that creativity ensures success of activities and allows you to use the existing level of abilities' development as effectively as possible.

Guilford (1967), Sternberg and Kaufman (1998) restrict giftedness only to creative types of human activity. Various aspects of giftedness are represented in the triad theory of giftedness by Renzulli (2005), who understands giftedness as the result of a combination of three factors: high-level of intellectual abilities, creativity and insistence.

A brief analysis of the concept "giftedness" shows the unsolved theoretical problems, which makes it difficult to implement practical issues related to development and diagnosis of giftedness in different periods of a person's life. The current state of psychological and pedagogical science requires comprehensive understanding of its essence, a systematic approach to the study of giftedness' mechanisms development including the professional activity of a teacher.

### **1.3. The essence of pedagogical giftedness, its structure**

A talented teacher mainly determines the success of his students in educational system. Makarenko (2013) wrote that there were not many naturally talented teachers. But possession of pedagogical skills allows a teacher to show the most outstanding qualities, characterized by a high level of manifestation of pedagogical giftedness.

Pedagogical giftedness is correlated with the abilities of a teacher in Kuzmina's (1985) research. The abilities are characterized by a special sensitivity to the flow of the pedagogical process. It allows relying on general abilities while solving definite problems, such as expressive speech, rich imagination, observation, arbitrary memory, logical thinking and a set of special abilities in the field of particular subject.

Pedagogical giftedness is considered as a psychological prerequisite for pedagogical abilities' development and pedagogical intelligence, which is a complex interaction of universal and special

components that provide a potential opportunity to achieve success in pedagogical activity. Creativity, activity and the level of cognitive processes' development are highlighted at the level of general abilities in the structure of pedagogical giftedness. Special components in the structure of pedagogical giftedness are pedagogical, communicative and organizational inclinations, artistry, speech abilities, empathy and interest in pedagogical activity (Fedorov et al., 2019).

Knyazeva (2005) systematized the qualities of primary school teachers' pedagogical giftedness and proposed to identify the components of pedagogical giftedness such as motivational, creative, reflexive. The motivational component represents a stable set of professional and personally significant values which are based on the sensory and emotional acceptance of the content of pedagogical activity. The creative component in the structure of pedagogical giftedness implies ability to comprehend the content of pedagogical activity creatively, ability to innovate and desire for innovation based on the development of an individual style in pedagogical practice. The reflexive component is associated with the ability to self-esteem and self-development.

## **2. Problem Statement**

The content of scientific and methodological support for the development of pedagogical giftedness in future teachers is developed on the basis of the selected structural components. Modern research substantiates the need to rely on humanistic, systematic, individual and personal approaches in development of pedagogical giftedness in future teachers. The principles of the humanistic approach in preparation of the future teacher guarantee the right to independence and creative development, and imply compliance with the "do no harm" requirement when working with potentially gifted students. The absence of bright signs of pedagogical giftedness at the early stages of its development should not be the goal of selection, but a means of improving scientific and methodological support of teaching at the university.

The concept of "system" in relation to the phenomenon under study is considered as the quality that is developed during life, which cannot be reduced to a simple sum of components. Pedagogical giftedness involves the process of integration and emergence of new qualities, being a dynamic system that develops over time in the process of development. The system changes the characteristics and connections between its components, but at the same time the basic functions are preserved. The systematic approach explains the mechanism of pedagogical giftedness development. An individual approach provides the most dynamic process of developing qualities of pedagogical giftedness, taking into account the peculiarities of their manifestation in situations of professional uncertainty.

## **3. Research Questions**

The research of the structure and content of pedagogical giftedness' components leads to formulation of scientific and methodological support for the development of pedagogical giftedness in future teachers. Scientific and methodological support of future teachers' pedagogical giftedness involves organization of purposeful joint activities in the mode of professional students' development. Scientific and methodological support is provided in the form of step-by-step organized assistance based on the mechanisms of cooperation, mentoring and partnership. It is designed to help future teachers in solving

problems of professional and personal growth. The focus of scientific and methodological support is connected with development of future teachers' professional competencies, the top of which are the qualities that characterize pedagogical giftedness.

The principles of scientific and methodological support for development of pedagogical giftedness are an individual-personal approach to teaching, motivation for independent search for knowledge that is in demand in practice and pedagogical flexibility in making professional decisions. The program of scientific and methodological support of pedagogical giftedness involves the technology of solving professional development problematic issues of the future teacher in the process of accumulating diverse pedagogical experience, which allows transferring the knowledge gained in experience to solve other professional tasks.

#### **4. Purpose of the Study**

The purpose of the article is to substantiate and reveal the content of scientific and methodological support of pedagogical giftedness in conditions of modern education transformation.

#### **5. Research Methods**

To prove the hypothesis, we used methods of theoretical analysis of scientific literature (comparative analysis, generalization of research in the subject area), methods of empirical research (observation, survey, questionnaire, conversation method, analysis of practice reports, testing, comparison of data from the ascertaining and control sections in a pedagogical experiment, content analysis).

##### **5.1. Course and description of the experiment**

Qualitative and quantitative indicators of bachelors' professional competencies development studying in the field of training "Psychological and pedagogical education", the profile "Psychology and Pedagogy of primary education" were considered in the course of experimental work at the ascertaining and control stages of the pedagogical experiment.

The research was conducted during 2019-2021 on the basis of Tolyatti State University. The pedagogical experiment involved 36 second students in the number of 2 academic groups (experimental and control groups).

An ascertaining cross-section was carried out to identify the initial level of professional competencies' development of the participants in the experiment at the first stage of the pedagogical experiment. The fixation of the results was evaluated on the basis of points sum (on a three-point scale), allowing one to identify high, medium and low indicators. The level analysis allowed us to visually assess the dynamics of changes in qualitative characteristics of each quality of pedagogical giftedness' development studied in experimental and control groups.

The control review was carried out at the end of the formative stage of the pedagogical experiment. The content of the formative experiment is associated with implementation of the developed model and the conditions of scientific and methodological support for development of professional competencies among students of the experimental group. The comparison of data of the ascertaining and review sections reflects

the dynamics of development of professional competencies that make up the content of the components of the future teacher's pedagogical giftedness. They are motivational, creative and reflexive components.

The study of professional activity's motives was carried out in the process of survey methods. The creative approach in pedagogical activity was investigated in the course of reports' analysis on educational and industrial practices, electronic student portfolio, testing of creative abilities according to Ilyin's (2009) methodology. Reflexive abilities were diagnosed in the process of solving pedagogical situations according to Nemov's (2001) method when the subjects were required to offer a rational way to solve the problem on the basis of a reflexive analysis of their professional experience and knowledge. The task was accompanied by a conversation between the experimenter and the subject in order to obtain detailed interpretation of his professional position.

## **6. Findings**

We will turn to the analysis of the results at the initial and final levels of professional competencies of future teachers' development. The data obtained in the course of comparing the results of establishing the initial level of professional competencies' development and the final level of formation of these qualities allow us to prove validity and effectiveness of the formulated scientific and methodological support for development of pedagogical giftedness in future teachers of primary education. Generalized quantitative data on the level of professional competence development are presented in Figures 1, 2.

### **6.1. Results of diagnostics of the initial level of development of students' professional competencies development at the early stages of training**

The results of the complex of diagnostic procedures showed that 38.9 % of students in the experimental group and 33.3 % in the control group had no desire for independent acquisition of knowledge. There is a low level of motivation to expand the boundaries of pedagogical competence in the field of modern technologies and methods of educational organizations, correctional work and methods for diagnosing the development of primary school students.

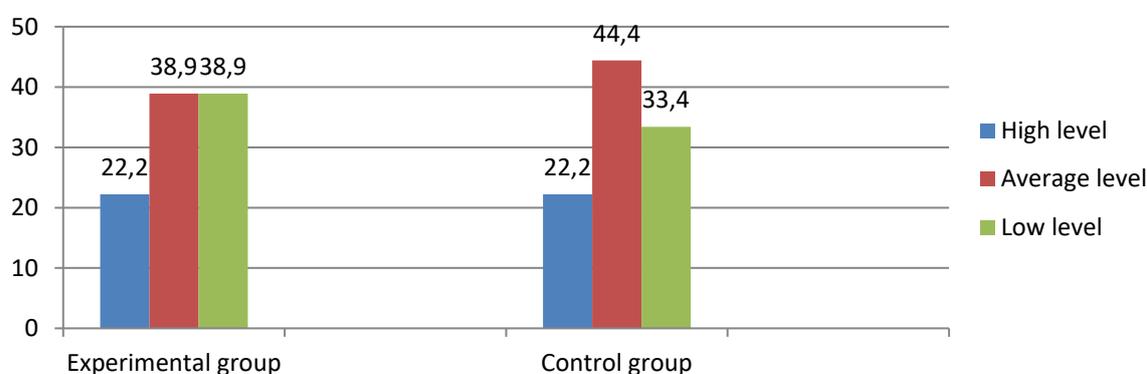
The average indicators (38.9 % in the experimental group, 44.4 % in the control group) are correlated with such manifestations of qualitative characteristics in development of professional competencies as presence of motivation to improve professional knowledge and desire to acquire them independently, but rather low activity in implementation of this motif. There was a passive attitude towards of modern technologies' knowledge accumulation teaching primary school students during the survey, unwillingness to acquire experience in applying knowledge in practice independently.

The motives of knowledge are based on the standard situations of manifestation of the activity success. The difficulties of organizing the learning process in non-standard or creative situations that require innovative thinking or reflexive analysis of professional experience are highlighted.

A high level of professional competences' development was found in equal values only among 22.2 % of students in the experimental and control groups. The diagnostics showed that future teachers with high indicators of professional development had a prominent need for self-education and expanding experience of pedagogical activity in many types of its manifestations (in the upbringing, training, and

organization of children's leisure). The high level of qualities of pedagogical giftedness was manifested in the emotional responsiveness of students to the problems of students' school life, issues of child development in school and family, and their adaptation to school education. Students solve professional tasks, including practice at school, on the basis of their existing theoretical knowledge and pedagogical experience. Students conduct an analysis of the teacher's pedagogical work. They evaluate their pedagogical achievements meaningfully and methodically competently, show initiative and creativity in the process of practical work with children. The results of the ascertaining cross-section are reflected in the content of Figure 1.

The obtained data confirmed the need to work out the content of scientific and methodological support for development of professional competence competences of the future teacher, taking into account the identified problems of professional and personal development of future teachers.



**Figure 1.** The initial level of development of professional competencies of future primary education teachers

## 6.2. Results of diagnostics of the final level of professional competencies' development that form the basis of pedagogical giftedness of the future teacher

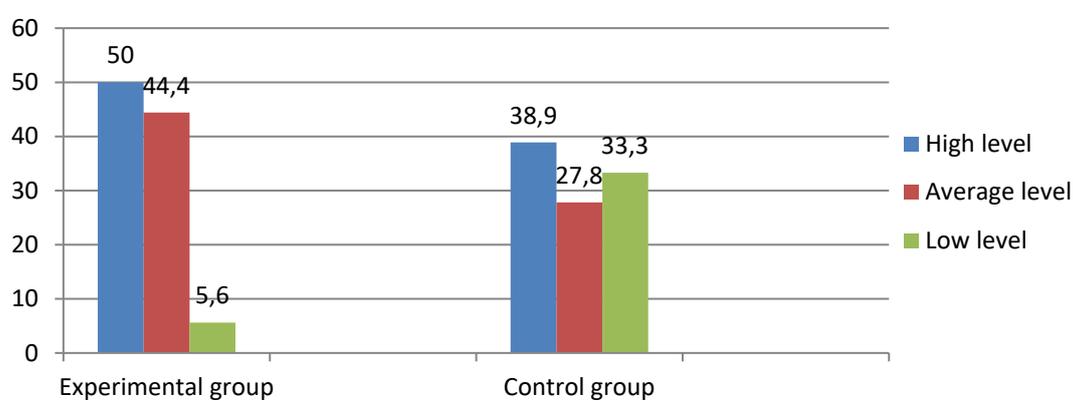
The results of the control cross-section reflected dynamics of pedagogical giftedness qualities' development in future teachers after the formative experiment. The difference in the quantitative values obtained from the results of the ascertaining and control cross-sections is shown in Table 1.

**Table 1.** Quantitative indicators in dynamics of development of pedagogical giftedness qualities according to results of the ascertaining and control sections (%)

Groups	Low level	Average level	High level
Motivational component			
Experimental group	-44.4	16.7	27.7
Control group	-22.3	16.7	11.6
Creative component			
Experimental group	- 38.9	-5.6	44.5
Control group	-22.2	0	22.2
Reflective component			
Experimental group	-44.5	11.1	33.4
Control group	-16.7	-5.6	22.3

The data given in Table 1 show that there was an increase for all the components of pedagogical giftedness in the number of students who turned to high indicators in development of professional competencies. Changes that are more significant are observed in the experimental group of students participating in the experiment.

Summarizing the data of all the control cross-section procedures showed that dynamics of level changes in the development of professional competence of indicators of bachelors' psychological and pedagogical education is most highlighted in relation to a high level of development among respondents of the experimental group. Quantitative data on the final level of professional competence development are shown in Figure 2.



**Figure 2.** The final level of development of professional competencies of future teachers in primary education (%)

The research showed that a high (50%) and medium (44.4%) level of professional competence development dominates in the experimental group. The motivation for professional growth is noted. The issue of acquiring professional knowledge is of a personally significant nature. Students are interested in expanding their professional experience and finding additional resources for self-education. They are interested in methods and techniques for conducting correctional work and diagnosing development of younger schoolchildren. Desire for self-actualization and self-development that is reflected in scientific activities and in creating a meaningful image portfolio of personal achievements is manifested. The analysis of practice showed that students who had high indicators of professional competence development in innovative activities, tend to study topical issues of the theory and practice of school education. The research work is aimed at studying the specifics of teaching and educating modern children, technologies for using virtual and digital resources in school education, and study of methodological issues on how to teach your students to learn and fulfill themselves creatively. A similar trend was observed in the control group but these changes are not so significant. The revealed regularity allows us to formulate conclusion that dynamics of professional competencies' development among the students of the experimental group appeared due to introduction of scientific and methodological support for development of pedagogical giftedness.

## 7. Conclusion

Testing of scientific and pedagogical support for development of pedagogical talent in future teachers was carried out in the experience of professional activity that students accumulated in the course of educational and industrial practices, as well as in practical classes in the process of studying the disciplines of subject training. The support of the educational process was based on implementation of a set of conditions that ensure expansion of the role repertoire in the future profession and allow, ultimately, leveling out the difficulties of professional development. The processes of modern education transformation require the teacher to be flexible and agile while choosing the direction of teaching and upbringing technologies. The content of the scientific and methodological support included a set of information, technological, didactic and methodological tools, taking into account situations of uncertainty and the problematic nature of their inclusion in the process of the future teacher preparation.

### 7.1. Algorithm for implementation of scientific and methodological support for the development of pedagogical giftedness

The algorithm for implementation of scientific and methodological support included five stages and was based on the posteriori model of professional competencies of the future teacher's formation (Rudenko et al., 2020).

The first stage of assistance is associated with immersion in a situation of a problematic nature when a student has difficulties in solving a learning task. Awareness of knowledge lack encourages students to search for an answer, which at this stage is, to a greater extent, of a reproductive nature. The format of work is individual and subgroup. Teacher consultations, electronic support of the process of independent work (for example, practical courses and lectures developed through Echo360, web conferences, webinars on the Zoom platform) allow one to orient a future teacher in a problem situation and its normative characteristics and develop qualities of reflexive actions and decisions.

The second stage of assistance is associated with development of ability to design ways to find solutions to pedagogical problems independently. The reproductive level of pedagogical activity dominates in obtaining and enriching professional experience. The principle of professional reflection is implemented on the basis of self-assessment and rethinking the capabilities of students that allows you to allocate compensatory resources in solving emerging professional problems. An effective form of assistance at this stage is master classes which allow students to immerse students into situations of pedagogical success and develop ability to design solutions to problematic issues. The format of work is sub-group and collective. The mechanism of implementation is cooperation and advisory assistance.

The third stage of assisting the process of developing the qualities of giftedness in future teachers is associated with expansion of subjective experience of professional pedagogical activity. The content of scientific and methodological support is focused on targeted assistance to the student in learning. It is the study of his individual needs in accumulation of professional experience, the study of adequate methods, forms and means of assistance in solving professional problems, coordination of issues related to the processes of self-development of the future teacher's personality and the resources of educational organizations. The format of work is individual. The nature of the activity is productive and creative. The

mechanism for implementation assistance is joint work with a mentor in the process of industrial practice, consultation with the head of practice, cooperation with educational organizations.

The fourth stage involves integration of knowledge into experience of professional activity. The format of assistance is focused on solution of creative professional tasks by students. The mechanism for assisting pedagogical giftedness is partnership aimed at updating hidden resources in professional self-development of the future teacher. Students are involved in work of creative groups on the basis of an educational organization in order to perform research work. The final stage of support is aimed at designing and implementing new knowledge and methods of activity into professional experience of the future teacher. The mechanisms of support are variable, depending on the level of pedagogical giftedness' qualities development. They ensure implementation of the student's creative activity as a form of professional self-expression (participation in professional competitions, grants, scientific conferences, forums, website creation, and publication of scientific papers). The creative process acquires an intrapersonal character that is associated with the processes of self-education and professional self-improvement, reflecting the individuality of pedagogical giftedness manifestation.

Thus, the scientific and methodological assistance of the pedagogical process of future teachers' talent development makes it possible to train a teacher in modern conditions of educational transformation as the person who successfully opposes himself to various situations of professional uncertainty.

## Acknowledgments

The reported study was funded by RFBR, project number No. 20-013-00126 A.

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