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**PRE-SERVICE TEACHERS' EDUCATIONAL COMPETENCY IN
WORKING WITH GIFTED CHILDREN**

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Abstract

The relevance of identifying and supporting gifted children is determined by the priority requirements both at the level of national strategy and educational system, designed to provide favourable conditions for the development of talented youths. Quite recently, considerable attention has been paid to gifted children in Russia, as it is strongly believed that they will define the economic and intellectual potential of the country.

It is possible to speak about certain achievements concerning support and cooperation of schools and universities in different regions of Russia to aiding gifted children. A special mention should be made to new forms of activities such as, children's universities within university campus or pupils' scientific summer schools.

However, it could be argued whether all tasks concerning identification and support of talented youth are adequately solved. In particular, it concerns the deficiency of competence-based availability of pre-service teachers. Thus, the article emphasizes special educational projects and creative partnerships of university scientific communities and basic experimental schools can promote the necessary education and support of gifted children.

Experimentally, the article introduces the "Step to Science" project that has been tried and tested for a rather long period, and according to the monitoring of its efficiency, it shows significantly positive results. In the course of experimental work, the following research methods - questioning, testing, modelling, designing, case study, and analysing of normative documents are used. The ideas and recommendations suggested in the article could be potentially useful in further investigations of some core aspects of the considered problem.

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1. Introduction

New socio-economic and cultural conditions of life in modern Russia clearly confirm that its further continuous development depends mostly on human and intellectual potential. These social expectations will largely depend on the replenishment of the labour market by young specialists of a new type, who initially have professional competences and motivation to participate in innovative activities in education. Tomorrow's innovative educators are today's schoolchildren and students, especially those who are creatively cultivated within the walls of educational institutions. This shows the important mission of schools and universities in Russia to create the necessary conditions to support gifted and talented youth. Professor Gabdulkhakov claims, “nowadays, the creative abilities and professional skills of specialists become the main efficient force of the society. And in order to multiply achievements in all scientific and technological areas, it is necessary to develop creative imaginations and technical abilities, to use methods of scientific and technical creativity, and to involve the youth into inventive activity” (Gabdulkhakov, 2013). In these conditions, the development of Russian educational system should be oriented towards the priority of identifying and supporting children's giftedness. This concept is fully supported by National Educational Acts and Executive Orders, such as Russian Federation Education Act, Decrees of the President and Government of the Russian Federation, The Concept of a nationwide system for identifying and supporting young talents.

How successful are these regulatory and legal documents implemented in practice? Analyzing the issue, on the one hand, allows us to look positively at the solution taking into account the advanced pedagogical experience of educational institutions in the work with gifted children. Practically in all regions of Russia, it is possible to find really positive attitudes of teachers to the pedagogical support of students who are distinguished by high rates of intellectual development. On the other hand, we must admit the fact that a significant part of schools in Russia and Tatarstan as well lacks the necessary depth in solving the problem under discussion. The article aims to give a comprehensive account of what should be changed in the existing educational practice of working with this category of children and what approaches and technologies can ensure high results in this area.

2. Problem Statement

The first thing that should be noted is that in recent years, in Russian and foreign pedagogical theory and practice, the problem of children's giftedness development have been widely investigated. What aspects, approaches and techniques for giftedness development have been demonstrated by previous research?

Speaking about foreign experience, the emphasis has been on American pedagogy, where the nature of giftedness and the sources that generate it have been fundamentally studied (Altman, 1983; Burt, 1975; Fraser-Seeto, Howard & Woodcock 2013; Hopkinson, 1978; Renzulli, 1986; and others). Despite the numerous definitions of the term “giftedness” given by the American scholars, there is a priority vision that “giftedness is a complex fusion of genetic characteristics and influences of the external environment. The research of American pedagogical literature also allows us to talk about a variety of concepts relating to the essence of giftedness. A brief overview of some leading concepts might be useful here. The theory of multiple intelligences, developed by psychologist Howard Gardner constitutes that

individuals possess eight or more relatively autonomous intelligences (Gardner, 1983, 1993). Charles Spearman developed a two-factor theory of intelligence using factor analysis (Spearman, 1904). Information Processing Theory of Intelligence proposed by American Psychologist Robert Sternberg (1984), The theory of cognitive learning (Staats & Burns, 1981) etc. It is worth noting Sternberg's understanding of intellectual giftedness as mental self-management and high cognitive activity of the subject (Sternberg, 1988 6). Regarding teaching technologies, American researchers have proposed special programs for gifted children (Renzulli, 1986). In the sphere of teaching technologies for giftedness development, they suggest original forms of work with gifted children, including the organization of classes in museums, galleries, and in special research centers. An issue, which has recently received considerable attention, is the training of specialists who qualify for gifted and talented programs. No doubt, foreign experience in developing and motivating of gifted children research inclinations should be reviewed and applied in work with gifted children in Russia.

At the same time, we should take into consideration the Russian experience in education of gifted and talented youth. In our opinion, the contribution of the classics (Andreev, 2013; Mukhametzhanova, 2011; Tsvetkova, 2013; Teplov, 1985; Leites, 1988) of our psychological and educational science do not lose its relevance. It is difficult to overestimate the information value of the work carried out by a group of researchers (Ivanova et al., 2015) of the Moscow Regional State University. The Ministry of Education and Science of Russia challenged them to monitor the advanced pedagogical experience of Russian educational institutions related to gifted children development. According to the monitoring, the imperfection of gifted and talented education programs is, firstly associated with the insufficient level of competency of school teachers. Secondly, it is connected with the absence of a systematic approach to the organization of the process of supporting giftedness based on close cooperation of schoolteachers, representatives of the university teaching staff and student teachers. The conclusions contributed to the formation of an objective insight, both about achievements and about gaps of the problem in the Russian educational space. Concerning the conceptual part of our study, the most significant was the monographic work of KFU Professor Gabdulkhakov (2012), devoted to giftedness and its development in the conditions of school-university cooperation. Gabdulkhakov raises questions of theoretical comprehension of the problem of identification and support of gifted children, appealing to particular local (Tatarstan) models of school-university cooperation. This is one of the first works devoted to the experience of the Kazan Federal University in creating productive coordination links between the university and basic schools in order to support gifted children. In the light of the foregoing, the present paper contributes to the development of creative cooperation between the Kazan Federal University and the schools of Kazan city.

3. Research Questions

Having identified the challenges in implementation of gifted and talented education programs and analyzed the existing research findings and scientific views on the phenomenon of “gifted children”, we focused on the research in two conceptual directions:

3.1 Development and implementation of the optimal organizational and pedagogical model of the University-school partnership.

3.2 The identification of technologies for including student teachers in the process - as tutors for young talented researchers.

4. Purpose of the Study

Taking into consideration the priority tasks of the Education Acts of Russia and Tatarstan and evidently challenging situation in educational practice of working with talented children, the paper offers a new educational concept and methodology for creating a constant educational environment for gifted and talented children development based on university-school cooperation within the interschool project “Step to Science”.

The research objective is to theoretically justify and implement into educational practice of Kazan a new long-term project “Step to Science” considering it as an effective approach and methodological solution. It appeared due to cooperative partnership of a number of schools in Kazan and the Institute of Psychology and Education of the Kazan Federal University. The suggested project represents a model of a step-by-step organization of annual pedagogical support for the research activities of gifted and talented youths as participants of the scientific contest.

5. Research Methods

The experimental base of the research included the Institute of Psychology and Education of the Kazan federal university and its basic experimental schools in Kazan: Gymnasium No.3, Comprehensive School No.1, Comprehensive School No.167, Gymnasium No.27, IT lyceum KFU, non-state supplementary education school for children “Globus”. The research was carried out in four stages.

The first stage (2005-2012) consisted in carrying out search experiments in specialized linguo-humanitarian classes for the purpose of approbation of a special training course for senior pupils “The world of people and I am in this world” (comprehensive School No.1), it was included in the school curriculum so as to facilitate interest to teaching profession.

The second stage (2013-2014) aimed to develop a conceptual justification of the “Step to Science” project as an effective form of identification and assistance of talented children in their self-affirmation in scientific areas. A starting point for the development of the “Step to Science” project in its interschool format was the experience of Gymnasium No.3. In 2005, the gymnasium headmaster initiated a scientific and practical conference “Step to Science” (it was the XII Conference in 2017) on the territory of the school with participation of scientists of the Kazan Federal University. Subsequently, Gymnasium No.3 became a basic experimental platform and initiated further development of the “Step to Science” project to the city interschool scientific and practical conference of gifted pupils. At this stage, school teachers and a scientific expert team from the Institute of Psychology and Education KFU, drew up the Regulations for the Interschool Scientific and Practical Conference of gifted pupils of Kazan “Step to Science”.

The third stage of the experimental “Step to Science” project (since 2014) was connected with the process of pedagogical assistance of gifted pupils by pre-service students of Institute of Psychology and Education of Kazan Federal University. Such pedagogical activity provides various opportunities to form a competence-based readiness of student teachers for cooperative work with gifted and talented pupils.

Moreover, we connect it with the development of necessary competency that would help student teachers to perform the function of tutors maintaining gifted pupils research activity in basic experimental schools as scientific platforms.

The fourth stage (final) consisted in evaluating the achieved results from the implementation of the “Step to Science” project on the platforms of basic experimental schools of Kazan Federal University and determination of prospects of its further development. The evaluative procedures were methods of pedagogical observation, interviewing of schoolteachers, testing of pupils - participants of the experiment, using of a rating scale on a certain criteria base during the presentation of the results of the conducted researches, and studying the level of competence-based readiness of student teachers to work with gifted children.

6. Findings

As the main achievements of the implementation of the pilot project “Step to Science” we believe the following. 1. Creation of training experimental platforms and resource centers based on best educational institutions. They have been identified during studying the advanced pedagogical experience of schools in Kazan in the development of pedagogical support programs for gifted children. Within the framework of partnership agreement between the Department of Methodology of Education and Upbringing of the Institute of Psychology and Education, KFU, and basic experimental schools, the “Step to Science” project includes two stages every new academic year.

At the first stage of the research activity modeling in basic experimental schools, pupils carry out the project activity on the current topics in accordance with their educational program specialization, range of scientific interests and qualification level of schoolteachers in the development of children's giftedness. For the purpose of partnership in basic experimental school, a mobile integrated research team is usually created, which consists of pupil-researchers, their schoolteachers, academic consultants for the project activity - scientists of the Kazan Federal University and student tutors of Institute of Psychology and Education, KFU. Models of organization of research activity of pupils vary in forms of organization and technologies used to support gifted children. The target orientation of the project determines the specificity of the evaluation. For example, in Secondary School No.1 (2005-2012), a novice school subject “The World of People and I am in this World” as previously mentioned was included in the curriculum in the section “Technology” for senior pupils of humanitarian classes (10-11 grades). This training course aimed at humanitarian education of the individual, raising interest in the profession of teaching, and the development of creative abilities in the sphere of social leadership, the latter is an important task for the formation of a future professional as a competitive person.

We should note here that the students with Master's Degree of the Institute of Psychology and Education, who were prepared to solve a number of educational problems, were involved as assistants in the course. They delivered special training courses for consolidation and development of abilities for team building. Within “Pedagogy of Tolerance”, was held a practical lesson “Present with Your Own Hands”, where student-trainers conducted workshops on making presents in the traditions of art crafts of Tatarstan. After the completion of the course, the researchers provided a survey for school graduates to identify the results achieved. The obtained results were compared with the levels of development for the

same indicators of graduates of the control class (11grade) of the same school, where the suggested discipline was not delivered. The comparative data convincingly showed the superior dynamics in the experimental classes in terms of the degree of communicative and organizational culture, the qualities of tolerance and motivation of professional choice. We must underline here that over the years of working in this school (4 classes of graduates), 32 % of graduates have made their choice in favor of educational and psychological specialties.

Within the framework of this article, we will give one more example of creating a school experimental platform (School No.167) for the support and development of talented children on a project basis. Since 2015/2016 academic year, this school has been an active participant in the interschool project “Step to Science”. The first thing that needs to be said is that they piloted their own project “Mental Health and Ecology of Personality” in cooperation with the Department of Methodology of Education and Upbringing of Institute of Psychology and Education, KFU. A particular advantage of this project is that it supposes an interdisciplinary approach, which led to the creation of a triumvirate of schoolteachers-consultants (English teacher, Psychologist, Art teacher). At the same time, the main participants were pupils from the 8th to 11th grade who paid much attention and interest to the issues of psychological personality self-management and organized a children's club “Ambulance”, aimed at sharing knowledge and skills of self-regulation and self-management among children in troublesome situations. The form of presentation was created with elements of dramatization. After studying some of the topics with the help of a school psychologist, and getting acquainted with our help and creating a case-study, the children began to compile a card-index of problem situations that arise in the life of adolescents. These situations became the subject of discussion with the participation of a school psychologist, and then the most challenging of them were transformed into dramatized psychological cases. The next step was the decision to perform the problems of the project in English. We must emphasize here that the Institute of Psychology and education is particularly interested in the developing and promising project.

At the end of every school year, schoolteachers conduct a sample survey of adolescents, using the questionnaire “Methods for diagnosing self-esteem of mental states” by Eysenck and “Method for assessing the effect of weather on the emotional state”. Then school psychologist and members of the children's club “Ambulance” process the collected data together. This allows them to get an idea of the problem areas and the risks of the emergence of emotional tension and anxiety in the transmission period, to search for personal meanings of the "I-concept", etc.

And, finally, the second stage of the project is devoted to the Interschool Scientific and Practical Conference of gifted and talented pupils “Step to Science”. It is an annual event held on the platform of Gymnasium No.3, Kazan, in cooperative partnership with scientific community of Kazan Federal University, as well as the Department of Youth Policy of the KFU. Fortunately, the number of schools participating in the conference only increases. This testifies to the recognition of the Gymnasium No.3 as a school of excellence, with special care relating to young talents. Within the “Step to Science” project, on March 22, 2017, the XII Interschool Scientific and Practical Conference of gifted pupils was held, this time it was marked by the Year of Ecology in Russia and the Republic of Tatarstan and the Year of Lobachevsky at the Kazan Federal University. The best reports of the pupils were awarded with certificates in various nominations from the Ministry of Ecology of the Republic of Tatarstan, the Department of Youth Policy, KFU, and the Institute of Psychology and Education, KFU.

2. The development of the phenomenon of “student tutorship” which functionally enriches the pedagogical support system of gifted and talented children and is an effective form of practice-oriented training for professional activities.

The ideological value of the development of the phenomenon of student tutorship in the Institute of Psychology and Education and the Kazan Federal University is attributed to the fact that in this case it likens students to envoys of their university wishing to act as tutors for gifted schoolchildren. They enhance pupils’ social and professional self-determination, which is a very important step for school graduates. One of the big advantages of the “Step to Science” project is that it implies interactive forms of activities between student-tutors of Kazan Federal University and schoolchildren (organizing and conducting excursions around the University campus, visiting KFU museums, holding intellectual games, tournaments, quests, organizing interschool quizzes and creative civil-patriotic contests, etc.). Actually, we observe a situation of continuity of generations of students of KFU and future graduates of KFU basic schools. All the above-mentioned areas are implemented in the administrative practice of the Department of Youth Policy, Social Affairs and the development of the system of physical and sports education at the university level and on the platforms of all the academic departments of KFU. It can be assumed that involving student-teachers in systematic tutoring activities in support of research activities of gifted schoolchildren in basic experimental schools can be considered as a priority multifunctional direction. Competent readiness of student-teachers to perform student tutorship in this case includes, first of all, functions of schoolchildren research work tutoring and participation in the role of experts in the jury of the conference “Step to Science”. In addition, they could conduct diagnostics of schoolchildren readiness to conscious socio-professional self-determination and participate in the development and implementation of innovative projects in promising areas of creative self-development of gifted schoolchildren at school in cooperation with schoolteachers and pupils, and supervisors of KFU. Finally, they could participate in interschool competitions devoted to civil-patriotic issues in coordination of the public youth organization “Centre of Patriotic Education”, KFU. The participation of student-teachers of the Institute of Psychology and Education in the project “Step to Science” was preceded by a special training course developed by one of the authors of this article “Realizing the Personality and Development Potential of the Educational Process in Schools and Universities” aimed to reveal the specific technologies of pedagogical support of talented children. During the course, a special emphasis was made on tutoring technologies in working with gifted children and using the case-study method. (Popova-Smolik & Pronina, 2015; Tsvetkova, 2013).

7. Conclusion

What is the main value of the “Step to Science” project, tested in our experiment, which is our version of the system of support and development of gifted and talented children?

First, close cooperation of experimental schools and Kazan Federal University in the interests of supporting gifted children is an opportunity for the society to replenish the student population with a deep desire for scientific knowledge.

Secondly, the basic schools of the university, similar to the Gymnasium No.3, considered as experimental platforms for the development of giftedness, allow to provide an effective system for

identifying, developing and supporting gifted children. And here we must point out that the choice of schools highly depends on the competency the teaching staff going to work with talented children.

Thirdly, the participation of scientific staff of the university as experts in the conference, is not limited to the procedure for issuing a verdict of winners, but necessarily involves a tutoring approach. It means that at the final stage in the work of sections and in summing up and awarding procedures, every pupil receives advice and recommendations for further research from the experts.

Finally, within the conference, the Department of Methodology of Education and Training of the Institute of Psychology and Education, KFU, implements the idea of student tutorship at school for supporting gifted children. It requires a special training of pre-service teachers for a certain range of competencies.

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