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Prospects of the 21st Century Teacher's Training to Work with Gifted Children

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Abstract

The article is devoted to the study of the prospects of future teacher's preparation - teachers of the 21st century to work with gifted children during their studies in university, during the vocational pedagogical practice in the lyceum-university system.

Future teachers need for pedagogical education in general remains relevant until the end of the university, almost all students associate their lives with educational activities in the subjects of the natural science cycle, in the future become excellent teachers.

Education in the pedagogical field includes the practice of students in general education institutions, namely in schools, grammar schools and lyceums, from the first year to the pre-graduate practice in the fourth year.

The relevance of the study of this problem is due to the fact that questions remain on the training of teachers, namely, on the conduct of the practice of students in the conditions of identification and accompanying, gifted children to the lyceum-university system.

The purpose of the study is to determine the prospect of preparing 21 teachers of the 19th century to work with gifted students. The study, conducted for four years, from 2016 to 2020, involved a group of students - future teachers from the first to the fourth (110 students).

For this purpose, a plan has been developed for the interaction of students with gifted children in the educational process during pedagogical practice; The role of teachers-mentors and teachers of the Department of Chemical Education is justified; Analysis and self-analysis of lessons learned and organized; Performance was tested experimentally.

Keywords: teacher training, pedagogical (production) practice, teacher-mentor, university teacher, gifted children, 21st century teacher.

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Introduction

Pedagogical education is becoming one of the most necessary, important and relevant areas today more than ever.

If graduates after graduation, choose to study in this direction and after several years of study do not deviate from their choice and in the future become excellent teachers.

Every year the level of teacher training changes for the better, as the modern open world is rapidly changing, under these conditions is very important, to teach students to constantly learn, to extract knowledge, to train, to be an example for their students in the future.

There was and is a need to train modern teachers for modern school, for which purpose the Professional Standard of Teacher was adopted three years ago.

Purpose and objectives of the study

The purpose of the work is to determine the perspective for preparing future teachers to work with gifted learners.

Research objectives:

1. Work out the plan of interaction of students with gifted students in the educational process during pedagogical practice.
2. To establish the role of teachers-mentors and teachers of the Department of Chemical Education in the start-up training of future teachers.
3. Conduct analysis and self-analysis of prepared and organized lessons to determine the level of preparation of future teachers for work with gifted students.
4. It is practical to check the effectiveness of training of future teachers during vocational pedagogical practice to work with gifted students.

Literature review

If to remember Ushinsky's words: "in training and education, in all school business nothing can be improved, passing the teacher's head", apparently, that they are just conformable with fundamental spheres of rules of structure of this normative document - training, education, development (2017).

According to the professional standard, the sphere "Training" obliges the pedagogical worker to know his subject impeccably and to possess advanced educational methods. In the sphere "Education" it is stated that the teacher should always demonstrate the corresponding qualities, as the teacher "own example."

In the sphere "Development," the teacher 's duty is to teach to learn his students, as well as to explain the benefits and necessity of continuous self-development and self-education (Professional standard, 2015).

Pedagogical practice is one of the key components in the educational program of higher pedagogical vocational education. According to state educational standards, the time of passage, volume, purpose of practice is determined and

distributed by courses (levels). At the organization of student teaching of students - future teachers the continuity and the sequence of mastering students of professional activity according to requirements to level of training of the graduate is provided.

Pedagogical research in the field of training of future teachers is available, this problem is considered in the works of authors Makhmutov (2016) and Bulanova-Toporkova (2020).

Koreshkova & Ryzhevskaya (2016) and Ignatieva (2016) wrote about pedagogical support of the formation of young teachers, about the formation of professional competence in them.

Kornilov (2016), Kisileva and Kuzenkova (2015) in their publications pointed to the need for research work of bachelor and master's degrees while studying at the higher educational institution when becoming a teacher.

Sukhomlinsky (2019) and Korczak Janusz (2019) noted in their writings that future teachers should know the psychology of students in addition to subject matter knowledge.

Yamburg (2019) highlighted in his publications the compliance of young teachers with the professional standard of the teacher.

Nina Jackson (2015), Peter Gray (2016), Diane Ehrensaft (2016) wrote about how to work properly with special, creative students and parents, while loving your profession, receiving pleasure.

In the analysis of the study of the problem, the author determines the fact that there are no articles on the prospects of preparing future teachers to work with gifted students during their studies at the higher educational institution, during their vocational pedagogical practice.

The feasibility of developing the topic of the study is that at present the teacher of the school has a great responsibility for the correct education and education of gifted children.

The feature of working with gifted children requires from young teachers a set of necessary skills and skills, desire to improve skills, knowledge of creative thinking and to be ready for self-development always.

A large number of capable and gifted children need the comprehensive development of their talents. The teacher needs to identify the natural talent of the child as soon as possible in order to further develop his abilities in the future. This requires the professional and personal readiness of future teachers to work to identify, train and develop gifted children.

The relevance of the work is primarily related to the need of the society to train highly qualified pedagogical personnel who are able to work with extraordinary creative personalities.

The object of the study is the process of initial preparation of students - future teachers for work with gifted students.

The subject of the study is the formation of vocational and personal readiness in students - future teachers to work with gifted students.

Scientific novelty:

1. The role of teachers-mentors and teachers of the Department of Chemical Education in teacher training is based on the developed plan of interaction of students with gifted students during pedagogical practice from the first to the fourth course in the educational process.
2. Analysis and self-analysis of prepared and organized lessons was carried out to determine the professional and personal readiness of future teachers.
3. The effectiveness of training of future teachers during the vocational pedagogical practice to work with gifted students has been tested.

The theoretical significance of the work is that it was possible to develop the necessary qualities (skills and skills) of future teachers necessary for the training of gifted students.

The practical significance of the work is that the results of the study can be used by specialists interested in training future teachers.

Methodology

The following methods were used during the study: analysis of special literature, observation, pedagogical practice, questionnaire.

The basic research site was KFU's "IT-lyceum"; Lyceum № 131 of Kazan; Lyceum № 35, gymnasium № 1, 2 of Nizhnekamsk and 3 basic schools of the Republic of Tatarstan for pedagogical practice.

The study lasted four years, from 2016 to 2020, and involved several students - future teachers from the first to the fourth (110 students).

Production teaching practice is a necessary way to implement the skills gained by students during the course. The practitioner has an excellent opportunity to realize himself as a subject teacher, but also to be a class leader and psychologist for students. Often students-practitioners quickly find common ground with students, it helps them, as well as in lessons in their specialties, and in carrying out class hours.

At the same time, students should know and remember that everyone begins a professional path during the vocational pedagogical practice, which will lead to successful becoming a teacher.

During the training students of full-time study of the direction: 44.03.01 "Pedagogical education. Chemistry "from the first to the fourth course, as in all pedagogical directions, pass different types of practices, with different number of hours, different directions (Table 1).

Table 1. Completion of practice by students of bachelor 's degree from the first to the fourth course

Structure Course	Name practice	Quantity passing hours	Time practices	Features
First	Training (Study)	108	During the school year	In different education institutions general
Second	Training (Study)	108	During the school year	In different education institutions general
Third	Acquisition of professional skills and professional activities	432	Spring (February- March)	In a specific school, Trial lessons in eighth to ninth grades
Fourth	Pre-Graduate	432	Autumn (September- October)	In a particular school, Trial lessons in the tenth to eleventh grades

Also, entering the master 's degree, master 's students - future teachers in the first and second courses undergo production pedagogical practice, before defending master 's theses - pre-graduate practice, at the same time working as teachers in general education institutions.

Students-bachelor of the direction "Chemical Education" of Kazan Federal University every year since 2013 undergo pedagogical practice at the third and fourth courses in the basic schools of the Republic of Tatarstan, in the city of Kazan, including "IT-lyceum KFU" for gifted children. Pedagogical practice for students in lyceum takes place in special conditions, as work with gifted students has its own peculiarities.

Practitioners - future teachers of chemistry, have an excellent opportunity to hold lessons in equipped chemistry rooms, which helps them to conduct classes at a high level for gifted lyceum children. Thanks to experienced mentors, chemistry teachers, students-practitioners improve their skills, find common language with gifted children students and skillfully perform vocational-educational tasks assigned to them, at the same time realization of vocational-personal qualities of future teachers takes place.

Students who plan to associate their future profession with teaching, educational activities, in the future enter the master 's degree in the direction "Chemical education," continuing their studies for another two years, at the same time undergo pedagogical practice in general education institutions.

Master students experience difficulties, problems of teaching gifted students, for individual work with them carry out tests to identify the profile and success in learning (Khalikova, 2019).

Method of assessment of psychological atmosphere in collective according to A.F. Fidler is used. The Sishor group cohesion index is determined that the groups in the lyceum are cohesive, although gifted children enter the lyceum only from the seventh grade, but live in a boarding school together. Student practitioners are convinced that the upbringing and education of gifted children needs to be given special attention, as well as more time. It is understood that the teacher for such children is a mentor not only during the educational process, but also in making personal decisions of the student.

On the example of their mentor, students choose a further path of individual educational activity, so it is very important to submit material and personal achievements of the teacher-mentor. In practice, bachelor 's students and master 's students with gifted lyceum students find common language easier and faster, but only on the example of experienced teachers are worthy teachers from bachelor 's and master 's students raised. The role of mentoring in preparing future teachers to work with gifted learners plays a huge role, only experienced school educators will be able to transfer their professional knowledge in a way that makes young teachers truly professional in their work with gifted learners.

For interaction of students with gifted students in the educational process during pedagogical practice, a plan is developed, during the implementation of which a base is created for formation of personal-professional qualities and gifted schoolchildren, and students at the subject-personal level, as well as continuity ties leading to chemical educational integration. On the basis of the interaction plan, students of the third and fourth courses actively participate in the educational process of the lyceum, in the interaction matrix of the "teacher-student-teacher" bundle, delving into the following forms of work with gifted students:

- Lessons with the Olympiad component: with all students, regardless of whether they take part in Olympiads or not, at lessons the Olympiad tasks are dealt with;
- Individual training with the teacher: in the conditions of boarding school it becomes possible to engage individually after basic and additional lessons; The teacher is then the Olympic coach;
- Separation of children into homogeneous groups: at the end of grade 7 pupils are tested, which allows to divide pupils in directions already in pre-profile classes;
- Circles of Olympic preparation: pupils of IT-lyceum and in groups on classes-parallels prepare for Olympiads. Such classes are conducted by students of Kazan Federal University, who in the past themselves are prize-winners of Olympiads, which emphasizes continuity in the Olympic movement;
- Trips to museums of a certain orientation: for example, with a chemistry teacher for students of grades 7, 8, 9, a trip to the museum of the Kazan Chemical School is organized, which helps to identify the interest of students in the subject, motivate them to study the subject. High school students visit the Arbouzov House Museum;

- Thematic evenings on chemistry (integrated), organized jointly with students of the III, IV course of the Institute of Chemistry named after A.M. Butlerov Kazan Federal University within the framework of pedagogical practice of students-bachelor, students-master: such a form of work is motivation to study the subject for students and helps to build continuity school - university;
- Block credits (terms in English): pupils pass credits on the subject, for example, in the 9 class on the topic "Production," in the 10 class on the topic "Named reactions in organic chemistry," which helps the teacher to track down the most capable and motivated pupils;
- Olympic collecting (profile camps, educational shifts in Sirius): such collecting lasts for three days, when pupils do not study the main subjects, and the whole school day is devoted to studying the subject on which take part in the Olympic Competition.
- Collecting takes place in autumn (for preparation for the municipal stage of the All-Russian Olympiad of schoolchildren), in winter (for preparation for the regional stage of the All-Russian Olympiad of schoolchildren), in spring (work plan for summer is built) and in summer the final collecting takes place; Work of schoolchildren in the library (virtual): pupils have free access to the resources of the library throughout the day, the school orders textbooks on Olympic chemistry;
- Mentoring: pupils of high classes (prize-winners of Olympiads) act as the Olympic mentor for students of junior classes; Participation in the organization of the first level Olympiads (All-Siberian Olympiad, Young Talents), the basis of which is the lyceum and the Olympiad "5 ELEMENT," the All-Russian chemical dictator on the lyceum site;
- In terms of gender education (in some classes the educational and educational process involves separate education of children within the classroom). Lyceum accepted the first pupils in 2012. For 3 years only boys who showed a high level of results at the entrance tests were trained here, the last 2 years gender training became mixed.

Results

Students interacted with gifted children in organizing and conducting lessons, out-of-school events, on the basis of the plan, received promising own experience in becoming such a teacher, who is prepared to work with gifted children.

The role of teachers-mentors and teachers of the Department of Chemical Education in the promising training of teachers on the basis of the developed plan of interaction of students with gifted children during pedagogical practice from the first to the fourth course in the educational process is justified.

Above, it was said that a very important role is played as a teacher 's personality for students, as well as that of a teacher of a higher education institution for students. Experience in the system of lyceum-profile university is reflected in joint publications of teachers of the university, teachers-mentors with students and young teachers. Together they hold master

classes on the topic "problems of the beginner teacher," support future teachers in the certification procedure for the grant "Our new teacher."

Heads of practice, teachers of the Department of Chemical Education actively participate in the start-up preparation of future teachers for work with gifted students. They work closely with students at lecture and practical classes, seminars on such courses as "Demonstration Experiment," Innovation in Education, "Chemistry Teaching Methodology," etc. Methodists from the Department of Chemical Education and teacher-mentor in lyceum, in cooperation help students-practitioners, evaluate their lessons and extracurricular activities, carry out critical analysis, give practical advice.

For the interaction of teachers of the Republic of Tatarstan and students of IT-lyceum and the Department of Chemical Education of the Chemical Institute named after A.M. Butlerov together two years in a row the All-Russian (with international participation) autumn school-seminar Chemistry in School: Problems and Ways of Solution was held in the last decade of September.

The first day of the school-seminar was devoted to the analysis of the main topics from the course of organic chemistry from the point of view of the system-activity approach in learning. The moderator and host was Candidate of Pedagogical Sciences, author of textbooks in chemistry, member of the editorial board of the journal Chemistry at School, Associate Professor Derabina.

On the second day of the seminar there were open lessons of students of the graduate course of bachelor 's degree of KFU, studying in the direction "Pedagogical education, profile - chemistry."

Student lessons were developed on the basis of a system-activity approach in teaching the subject and met the requirements of the next generation GEF. In conclusion, all students conducted a detailed self-analysis of author 's lessons. Experts were the Head of the Department, Professor Gilmanshina, Head of Pedagogical Practice from the University Associate Professor Kosemyanskaya, leading teacher of IT-lyceum, Associate Professor of Chemical Education Khalikova and young teacher, graduate of the Department of Chemical Education Massarova.

The seminar ended with a round table "From pedagogical practice to pedagogical skill," during which the problems faced by practitioners and young chemistry teachers during production (pedagogical) practices were discussed. The general discussion concerned the implementation of the educational standard of the new generation, the application of system-activity and personal-oriented approaches in training, variable methods of increasing motivation of gifted students to self-education and self-development. The school-seminar aroused great interest not only among active teachers, but also among freshmen from Turkmenistan, who are students of the Chemical Institute named after A.M. Butlerov in the direction "Pedagogical education, profile - chemistry."

As a result of the seminar for the self-training of bachelor 's students to pedagogical practice with a view to the practical implementation of a system-active approach in teaching the subject, taking into account the dialectical relationship between pedagogical science and educational practice, a training manual "System-active approach in teaching: technological maps" was developed and published (Khalikova, 2020).

Discussion

The system-activity approach as a modern concept of education in the context of the implementation of modern educational standards has emerged as a combination of system and activity approaches, plays an important role in the promising training of future teachers who will work with gifted students. The training manual, which uses technological maps of lessons of future teachers, created situations of inclusion of students in various types of educational activities in order to develop gifted students in the process of education, upbringing and education.

This process is shown when teaching chemistry of ten and eleven graders in classes of different profiles, presenting different educational technologies, concepts of educational and methodological support of the learning process of such authors as Gabrielyan, Kuznetsova, Novoshinsky, Rudzitis and Feldman. Practical part is presented by the flow charts made under the leadership of authors of this grant by students of HI of institute of A.M. Butlerov of KFU of a final year of a bachelor degree of direction 44.03.01 Pedagogical education (a profile - chemistry) in 2019-2020 academic year.

All the technological maps presented were tested during the pedagogical practice of students when working with gifted lyceum students.

Conclusion

We give a statistical analysis of the questionnaire on three issues of students from the first to the fourth course (2016-2020) as part of the study.

1. Have you ever had difficulty interacting with gifted children?

Table 2. Difficulty interacting with gifted children.

Possible answers	Course			
	first	second	third	forth
I do not have any difficulty	16%	28%	50%	74%
Selection of tasks due to lack of reliable sources	16%	15%	12%	10%
No reagents and equipment for OL	5%	5%	4%	4%
Shortage of knowledge	15%	12%	9%	3%
Lack of contact, difficult to find common ground	48%	40%	25%	9%

As can be seen from table 2, in the fourth year most students answered the question " I do not have any difficulty," answered positively. It is also noticeable that the gradual sharp decrease in negative answers to the question "lack of contact, it is difficult to find a common language."

2. Did you need scientific and methodological assistance to improve your work with gifted students?

Table 3. Scientific and methodological assistance to improve the work with gifted students.

Possible answers	Course			
	first	second	third	forth
Special literature with answers	21%	19%	12%	9%
Teaching technique courses	21%	20%	17%	13%
Chemical laboratory	11%	10%	10%	10%
Diagnostic tests	6%	6%	6%	6%
Gifted Children by Grade Program	41%	45%	56%	62%

According to the results of the replies (table 3), it is clear that the courses of teaching methods of the subject and the program of the course of work with gifted children in classes are always relevant.

3. How do you think you can organize events to work with gifted students?

All students always gave a positive answer to this question during their studies. Future teachers are confident that they can and will be involved in changing work with gifted children for the better, for which it has been proved that all conditions are available.

Thus, the pedagogical practice of students in the pedagogical direction takes place in general education institutions from the first course of study to the pre-graduate practice in the fourth year, in the future at the master 's degree and during certification.

It should be noted that the practice of students takes place in the conditions of identifying and accompanying the talent of students, as well as in the development of special professional and personal qualities for future teachers of chemistry to work with gifted students thanks to experienced mentors.

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