Work with Gifted Young People: A Survey of Practices of the Leading Russian Universities

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Abstract—The article deals with the issues of search, development, and support of gifted students in 21 leading Russian universities, which are the participants of the Project 5-100. Project 5-100 is a state program to assist universities, which is being implemented in Russia since 2013. The article aims to study the experience of solving some problematic issues of work with gifted students in some leading Russian universities. The material for the research was the “Road maps” (development program) of each university, as well as information from the official websites of universities. The analysis resulted in the model of interaction with intellectually gifted young people «search-development-support». Mechanisms to stimulate this category of people were systematized. The distinctive feature in realization of the given policy is creation of the special centers for work with gifted youth in 5 universities.

Keywords—Gifted young people, leading Russian universities, mechanisms of search, development and support of gifted young people, centers for work with gifted young people, state educational policy

1 Introduction

One of the most important resources of the society is its intellectual potential represented by specialists who can successfully realize creative and professional opportunities, intellectual and organizational abilities. It is intellectually gifted young people who are the main engine of progress in all spheres of the country. The ability to preserve and multiply intellectual potential is vital for the society that exists in the conditions of globalization and informatisation of the XXI century.

The problem of searching and revealing the intellectually talented youth, ready to effectively solve the state tasks, has always been challenging. Today this issue has become paramount in the educational policy of any modern innovative state.

It is the intellectually gifted specialist who is ready for original solutions and improvisation, who knows how to organize, how to solve extraordinary tasks creatively and professionally, who can take the responsibility and is ready to show leadership and initiative, who knows how to work in a team and strives for self-development and reflection.
The search for and support of gifted youth is one of the main goals of the state youth policy of the RF. Contemporaneously, the state is guided by the special social importance of a gifted individual and strives to support young talents, preserve and develop the intellectual and creative potential of Russian society.

In recent decades, programs of work with gifted young people have been quite actively developed in the Russian Federation. In April 2012 the RF President signed the “Concept of a nationwide system for identifying and developing young talents”.

It should be also mention the existence of some regional targeted work with gifted youth and adults in different parts of the country and at some universities. The Message of the President of the Russian Federation to the Federal Assembly held on January 15, 2020, notes that the country is in dire need of people capable of developing and improving it. At the same time, as V.V. Putin stressed, the main foundation for the development of the economy was and still is a qualified specialist, who in modern conditions requires not only the performance of normal procedures and actions but also the ability to work in non-standard conditions, to carry out innovative development. Therefore, the key task for the state, society, and universities, which are a platform for working with talented young people, is to form an effective system to identify, support, and develop abilities and talents among youth.

The most effective mechanism to identify gifted young people in Russia today is a system of Olympiads, academic competitions at various levels, which assume the maximum coverage of students [1]. Researchers are also concerned about the fairness of the results of the Olympiad competitions [2].

The existing system of search and identification of the gifted exclusively by means of competitive events and Olympiads is imperfect and has a number of limitations. There is still a risk of missing talent that for some reason was not involved in the competition system or involved in the wrong competitions.

Therefore, instead of a one-stage selection of gifted people, efforts should be directed to their continuous and gradual search in the course of special programs in the system of additional education or in the process of individualized education in the conditions of general education [3].

There is also a need for a principally new, normatively oriented system of selecting gifted students within the framework of the universities, which would predict the success of the development of their intellectual abilities as the main result of education. The main thing is not what the applicant knows in a certain area, but how ready he is for a certain type of training. These challenges are related to the idea of measuring intelligence and ability. This demonstrates the need to complement the pedagogical diagnosis of learning achievement in universities [4].

There are gaps between the organizations of additional and vocational education, and the request from the industry. After graduation gifted young people are not always and everywhere provided with assistance in employment and special conditions of social realization. The problem area of the system of work with talented and motivated young people remains to staff. An effective model for training teachers to work with these categories of students has not been developed at the national level [5].

Elena L. Grigorenko [6] published the scientific paper where she outlines the system of identification and training of gifted children and youth in Russia. It provides
the reader with an opportunity to appreciate the historical roots, current state, and future goals of the system.

Currently, there are also multiple theoretical approaches influencing theories of giftedness, first and foremost being the Russian theories of intelligence. Specifically, Marina Kholodnaya’s [7] ontological theory of intelligence stresses the importance of considering the complex structure of intelligence and its transformation throughout its development, as captured by a person’s cognitive, metacognitive, and motivational experiences.

Also, the idea of mastering gifted youth is extremely relevant to modern pedagogy and has clear practical goals, because “the improvement of the modern education system and the progress of society in the field of science depends on properly developed technology for working with this category of people” [8].

In addition, Russian scientists are interested in the mechanisms and models of search, development and support of talented students in a teacher training university, which in our opinion is also quite urgent nowadays [9].

Talented young people have become the subject of research of foreign authors. Some of them consider this area rather vital and problematic nowadays. They conducted the research of trends in technology usage in gifted child published in selected professional sources during the period 1990-2019 [10]. Some of them are confident that the successful transition from school to university is essential for the academic success of any student. The researchers have noted that gifted students might encounter unique challenges due to their characteristics, and there is evidence that a failure to adjust to the demands of the university environment has a negative effect on gifted students’ academic performance, leading to underachievement [11].

The others are interested in psychological problems and failures of intellectually gifted students and their solutions [12].

Also, there is a study of statistical methods which were used to gauge academic rise. The researchers describe a growth model that examines differences in summer lag between gifted and non-gifted students. The scientists give some recommendations for those who are interested in documenting the academic growth of gifted students [13].

Besides all the works mentioned above, there is a project that deals with special personnel courses for teachers of gifted students [14].

Scientists state that modern approaches to gifted education are erroneous because in order to understand the development of exceptionality they need to realize the components of giftedness, including intelligence and motivation which are considered as cognitive and non-cognitive factors respectively. Systemic approaches focus on the cooperation of these components where it is necessary to understand the system that leads to exceptionality before it is possible to understand its components. After analysis of these approaches researchers present three central arguments for the necessity for a paradigm shift. This is followed by an introduction of constructs of a systemic approach of gifted education. Using the Actiotope Model of Giftedness to understand the development of exceptionality, the study of Ziegler and his colleague presents the basic stages of a gifted education based on this systemic approach [15].
Thus, identification and development of gifted students, their adaptation is considered as one of the most complicated and actual issues of modern pedagogy in Russia and abroad. In conclusion we want to stress that the education of gifted students has some gaps now and testifies to the necessity of addressing this topic today.

2 Method

The implementation of work with intellectually gifted students was considered on the example of leading Russian universities, which are members of the Project 5-100. In May 2013, by the provisions of Decree № 599 of the President of the Russian Federation “On measures to implement public policy in education and science” the implementation of the state program (Project 5-100) to support universities of RF has begun. The aim of the program is to increase the competitiveness of Russian education in the global educational and scientific space by 2020. There are 21 Russian universities, which have won the competition for state support and participate in the Project.

The work of universities with gifted young people was evaluated according to the model consisting of three interrelated directions “search – development – support”. All stimulation mechanisms used by universities were systematized according to the mentioned directions.

Evaluation of work with gifted young people is presented as a result of the analysis of measures formulated in the “Road maps” of each university.

“Road Maps” is a plan of measures to implement the competitiveness program. Higher education institutions participating in the Project report on the implementation of their competitiveness programs to the International Council and the Ministry of Education and Science of the Russian Federation. Universities’ realization of plans of actions of “Road maps”, including entering into world ratings of universities, are important conditions of subsidies to universities (Order of the Ministry of Education and Science of the Russian Federation of November 11, 2013 № R-190).

Thus, one of the directions of modernization of higher education, which is provided by each competitiveness program, is a strategic initiative to attract gifted students, which includes some of mechanisms to work with them.

Information presented on the official websites of universities, scientific and methodological materials has also become sources for studying practices of higher education institutions.

In our study we used such approaches as the method of analyzing of regulatory documents of universities, research papers of leading scientists involved in the problems of gifted education, as well as the content analysis, comparison, synthesis and generalization of innovative pedagogical experience in Russia and abroad.

3 Results

Universities form an integrated multi-level system that enables gifted students and educators to realize their talents. The purpose of the system is to attract gifted young
people to continue their studies at one of the leading universities of Russia, to develop, and support. Thus, the management system of each university is a model “search – development – support”.

The results of the analysis of the activity of universities in work with gifted young people are presented in Table 1.

Table 1. Mechanisms of search, development and support gifted young people in universities

| Instruments                                      | Search                                                                 | Development                                                                 | Support                                                                 |
|-------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------------------------------------------------|
| Search                                          | Interaction with the school system, career guidance work.              | Scientific research activity: Research centers, laboratories, conferences. | Medals, diplomas, certificates, prizes, grants.                         |
|                                                 | Expanding the range of subject Olympiads, contests, projects work     | Special departments, youth talent centers                                   |                                                                       |
| Development                                     | Creation of premium preparation zone (elite education)               | Thematic summer and winter schools                                         |                                                                       |
|                                                 | Project-based training                                                | Project-based training                                                     |                                                                       |
|                                                 | Development of original curricula characterized by high flexibility and individualization, strengthening the role of practice, independent and project work |                                                                       |                                                                       |

All universities aim at finding gifted youth through a system of annual international, national and regional festivals and competitions, which involves a large number of students. The main focus of all the above mechanisms is to create the conditions for pupils and students to display their gifts, talents, and abilities.

This level of work with gifted people is systematic and complex, which allows the university to provide a contingent of future applicants with a high level of training, motivation for academic and research activities.

The second level of management is “development”. The university training of gifted young people organically combines traditional and innovative forms. The leading role in their development is given to the traditional form – “Research and Development”. As one of the most important qualities of the university is the integration of science and education, it undoubtedly has a high potential in the organization of research activities of students to develop their giftedness.

Individual educational programs are implemented for students who demonstrate high results in various fields, which is a kind of model for achieving personal goals of a student. The educational trajectory of a gifted student is reflected in a flexible and variable approach to their characteristics and abilities, with the possibility of adjusting and improving the trajectory of learning depending on the needs. The aim is to provide the student with opportunities for obtaining knowledge and competences, purposeful use of the existing potential for professional development.

The development of students’ intellectual abilities in universities is the result of such an innovative format as an elite education. The system of elite education is designed for those students who think about their future career, are ready to spend their time and energy, creating the foundation for their future now. Elite education is implemented in different ways in universities. For example, in educational programs for which a large number of applicants with a high level of school education enroll, sepa-
rate groups of elite training (academic elite groups) are formed. Elite education programs implemented in these groups consist of the main educational program and special additional optional subjects, which are not studied by students studying non elite program.

Another option for “elite” students is to attend their regular academic classes and, also, to study in elite groups. Individual elite groups are created from students of several related fields (specialties) rather than one.

Elite education is the training of future leaders who are ready for innovation and entrepreneurship, who can distinguish the challenges of modern society, who have knowledge in scientific and technological breakthrough, and who can think systematically, critically and creatively in a dynamically changing world and have the skills to organize a team and lead a project [4].

Project training technology is also being implemented in universities for gifted youth's development. This technology will allow the university to significantly improve the quality of education and the competitiveness of this category of students in both the Russian and international labor markets.

The key idea of project training is an individual educational trajectory of a student, his curriculum, which he forms based on the project tasks. For this purpose, universities have a rich resource - the opportunity to study at the sites of open and distance education institutions, as well as additional education, where a student can listen to any appropriate e-learning course, use mass open online courses (MOOC) of any university in the country or the world in the desired discipline.

The peculiarity of project education is its interdisciplinary nature, when a team of students of different majors and levels of training - engineers, programmers, economists, marketing specialists, designers - is formed to implement one project. A huge advantage of joint activity is that students acquire the skill of teamwork.

The project is created and implemented by order of a large industrial corporation, on graduation from the university; the employer receives both a ready project and a team of trained professionals, who logically continue to implement the concept of the project while already being part of this large enterprise.

Foreign colleagues are also interested in some new educational approaches that go beyond the traditional classroom setting. Distance education has emerged as a valuable option for several of special populations of learners whose needs are more difficult to meet in the classroom, of which gifted students are one. Many varieties of distance education and the technologies that support them and examine research on the effectiveness of the approaches in different settings have been explored. Research on the distance education programs offered by the Johns Hopkins University Center for Talented Youth is summarized and best practices, based on the findings, are proposed in the scientific paper [16].

A distinctive feature of 5 universities such as “ETU LETI”, “Kazan Federal University”, “Tomsk State University”, “Sechenov University”, “University of Tyumen” is the creation of special centers for work with gifted youth based on educational institutions. The table 2 presents the main directions of activity of subdivisions, as well as their goals and task.
Table 2. Coordination of work with gifted youth by structural divisions of universities

| University                          | The structural unit of the university to work with gifted youth | Aims and objectives                                                                                                                                 |
|-------------------------------------|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| ETU “LETI”                          | Leadership Development and Talent Support Centre for Students   | 1. Organization of work with students and schoolchildren with expressed motivation and abilities for scientific and research activities to improve the level of educational and professional training of students, develop creative thinking, independence, ability to quickly adapt to the labor market.  
2. Organization of work with schoolchildren, identification, and support of students with propensities and abilities for scientific, research, and engineering activities in the field of science and high technologies. |
| Kazan Federal University            | Center for Gifted Schoolchildren                               | Planning, preparation, and carrying out of actions aimed at the formation of the professionally oriented contingent of applicants for all subdivisions of the university, professional orientation of students, organization of pre-university training, and additional education of students on a cycle of general disciplines and increase of the initial level of knowledge of applicants. |
| Tomsk State University              | Project “Creation of a tutorship support system for students with high educational potential”. | 1. identifying groups of students with high educational potential.  
2. testing of diagnostic tools of high educational potential.  
(At the moment 2 instruments have been tested:  
- The system of prognostication of talent based on the digital trace (human profile in the social network “Vkontakte”). The system involves the prediction of giftedness on three grounds: motivation, intelligence, and creativity. The accuracy of the algorithm is over 85%.  
- Diagnostics of professional personality type. The tool is a career guidance questionnaire. According to these diagnostics, there are 6 professional personality types: realistic, research, artistic, social, entrepreneurial and conventional. As a result of the diagnostics, 2 basic and 2 secondary professional types of personality are identified in the student, which allows judging more accurately about the propensity for a certain type of professional activity, type of career, and professional environment). |
| Sechenov University                 | Research Career Center                                         | 1. Formation of the optimal trajectory of scientific career for talented and outstanding students  
2. Step-by-step training of trainees to research in advanced scientific fields  
3. Integration of young scientists into the international scientific community |
In our opinion, it is the special subdivisions in the structure of the university that ensure systemic and consistent work with gifted people, create a system of continuous education for young people and offer an individualized educational trajectory aimed at training an elite specialist who meets the level of modern requirements of innovative areas of science and technology. The activity of such subdivision in the structure of the university is effective in the work with gifted youth, as it allows solving several tasks at once: identification and development of gifts, systematic training, availability of appropriate methodological support, and the most important is the human resources potential.

On the website of each university, there is a formed register of scholarships, awards, grants, which is one of the most important mechanisms to support and encourage gifted youth.

4 Discussion

The study of the experience of working with gifted young people at the leading Russian universities shows that each educational institution has its special management system. The working concept is aimed at finding, developing, and supporting gifted ones. A special environment for students’ intellectual development is being created in each area. However, the content of the environment at each university is different; each university has specific mechanisms to work with the gifted. In five leading universities specially created structural subdivisions implement measures on work with this category of students. Thus, the multilevel approach allows to allow
conditions for maximum disclosure of the intellectual abilities of students and creating a system of continuity in working with them.

Despite some achievements in working with gifted youth, there are problematic issues. The main problem is the training of pedagogical staff that can work with extraordinary students. One should remember that no matter how gifted and capable a person is, he needs pedagogical support at every stage. It is important not only to identify a talent but also to successfully and purposefully develop their abilities and interests.

Thus, according to foreign and national researchers, a fifth of preschool children can be referred to as gifted children. However, no more than 5% of young people in this group are graduating from secondary school. Such squandering of intellectual potential, or, more precisely, its underutilization, occurs for various objective and subjective reasons. But the most important among them is the lack of specially trained educators for this work. After all, not everyone is capable of this; it is also a talent, a gift. The logical chain is obvious: a talented master is a talented child. V. V. Putin noted in his annual message: “The education system should be based on a strong, gifted teacher or educator. Such staff should be carefully selected, taken care of and supported” [17].

According to the firm belief of foreign experts, the performance of students is mostly related to the intellectual baggage and professionalism of the educator. It has been established that those who deal with a highly effective teacher have three times higher performance than those who have less talented ones [18].

The professional readiness of a pedagogue to work with gifted young people is singled out as a separate problem for several reasons. The talented student is characterized by an aspiration to independence and creative activity, statement, and defense of own ideas, refusal of usual ways of the decision of problems, templates, and algorithms. Therefore, the educator working with them should give them all necessary conditions.

Insufficient professionalism of the educator in working with intellectually gifted students is manifested by the fact that the educator:

- Cannot identify talented students, as he does not possess the appropriate diagnostic tools
- Does not know the psychophysiological and social characteristics of this category
- Maybe hostile to a gifted student who may threaten his or her authority, professionalism
- Uses load-boosting tactics, not qualitative changes, to develop intellectual capacity [19].

Thus, it is necessary to train educators who are able not only to carry out teaching activities with this category of students but also to stimulate the development of intellectual abilities of students.

Foreign researchers also emphasize that the professionalism of educators plays a major role in working with intellectually gifted youth.

Foreign colleagues in their research concluded that “teachers trained in gifted education demonstrated greater teaching skills and developed more positive class cli-
mates than did teachers who had no training in gifted education. Students of GT trained teachers reported greater emphasis on higher-level thinking skills and on discussion, and less emphasis on lecture and grades than did students of untrained teachers” [20].

Other researchers presented the analysis of characteristics of effective teachers for gifted students. The findings suggest that “teachers who are judged to be highly effective in working with gifted students prefer abstract themes and concepts, are open and flexible and value logical analysis and objectivity. Results state that teacher personality and cognitive style may play a role in his or her effectiveness in teaching gifted students” [21].

The specific nature of the activity of educators with gifted students consists, on the one hand, in the need to identify their abilities and create a diverse educational environment conducive to the further development of their personal and intellectual and creative potential, and on the other hand, an educator should have a high level of professional psychological and pedagogical training and regularly improve their skills.

Our research allows us to state that despite the large-scale work with gifted youth in the leading universities of Russia, the accumulated experience needs to be improved.

5 Conclusion

Working with gifted young people is a priority area of the Russian state policy. Today, all of the leading universities are organizers of a range of activities to work with them. Universities are implementing both pre-existing instruments for searching, developing and supporting talents interested in the in-depth and expanded study of sciences, and new instruments created in the course of implementing various programs and projects of the last decade.

For more effective work with promising categories of students, it is necessary to provide more targeted support for talents, which can be implemented by creating special centers at each university.

There is no doubt that the key figure in creating an educational environment that promotes the intellectual nature of the gifted is the educator. Therefore, the professional development of him to work with intellectually gifted people is an effective investment in the formation of the intellectual elite of the country.

The results of the study increase the knowledge about the activities of universities in the field of intellectually gifted people's work and can serve as a basis for the adoption of measures to facilitate effective policy implementation in this area.

The conducted research does not exhaust all issues related to the study of the theory and practice of teaching, talented youth's development, and preparation of educators to work with them, which is promising for further study in this area.
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