

V International Forum on Teacher Education

Innovative Methods in the Professional Activity of Teacher

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Abstract

There may be a lack of opportunities to implement innovative methods for career guidance in higher education. Therefore, the aim of the research is to introduce an innovative methodology for vocational guidance aimed at attracting talented youth to a technical university. The leading method is the implementation of the State Program "Kazan Open University of Talents 2.0" joined with the Technical University (KNITU-KAI). Innovative methods and programs on vocational guidance for the formation of professional self-determination of talented youth were used in this study. The results of this research allowed identifying the potential competences of gifted children and determining the number and quality of entrants to the Technical University (KNRTU-KAI). The materials of the article are valuable for the development of the theory of general pedagogy and they will be particularly useful for school and university teachers.

Keywords: innovative methodology, talented youth, teacher, career guidance, competence, potential of youth.

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Introduction

The effective work of any higher educational institution is based on a successful vocational guidance program aimed at informing, as well as assisting in the choice of a profession for secondary and secondary special education students. Vocational guidance work is essential at the university because the formation of the professional personality motivates students to develop and improve their skills. As a result, it also helps to fulfil the function of educational institutions of professional recruitment and supplying the market with qualified graduates.

Purpose and objectives of the study

The aim of the research is to introduce an innovative methodology for vocational guidance aimed at attracting talented youth to a technical university.

Literature review

According to statistics for the last ten years, from 60% to 70% of young professionals after graduating from a higher educational institution do not work according to the specialty received at the university. The decisive factors in choosing a profession are still the position of parents and acquaintances, as well as public opinion, expressed in the approval or censure of certain professions in mass media and the Internet. Thus, it can be concluded that vocational guidance in Russian universities is inefficient and requires the introduction of new innovative methods and programs (Efimova, 2012).

For today, vocational guidance should be understood as a purposeful, multifaceted, comprehensive activity to prepare young people for an informed choice in accordance with their personal interests, abilities, and social needs of different professions and different levels of qualifications (Noskov, Pavlova, & Yakovleva, 2016).

It is important to notice that modern professional orientation is the system for training young people where they can make a conscious and independent choice of profession as well as where their individual characteristics and needs can be taken into account, on the one hand, and the labour market on the other. The range of problems and obstacles associated with vocational guidance in the youth environment is expanding day by day, however, at the same time, opportunities for career guidance as an element of the information and education system are increasing (Pryazhnikov, 2007).

Methodology

The following methods were used during the research:

- General-theoretical methods (analysis, with synthesis; concretization, generalization). Methods of analysis and synthesis were used to compose questions and identify topics for the survey, based on the generalization of the collection and analysis of theoretical information on the problems of the implementation of projects aimed at the development of technical creativity of youth, the history of the emergence and implementation of similar projects, the method of concretization allowed to formulate questions of personal sheets on the basis of the possibility to confirm the received data and to identify possible ways of solving the problem;

Special methods should be divided into the following groups:

-Diagnostic (method of questioning, survey). The questionnaire was conducted according to the established rules of confidentiality, the target group - high school students and students of Kazan universities, the target group is completely representative, the participants reflect the social segment - the youth of the Republic of Tatarstan, the questionnaire questions were open and closed, and therefore the results were processed manually by the authors of the study (Zeer, Pavlova, & Sadovnikova, 2004);

-Empirical (studying the experience of the work of educational organizations, pedagogical observation, comparative method) methods allowed to consider in detail the educational and vocational guidance programs implemented by educational organizations at various levels, to identify the positive and negative aspects of the practical activities of social institutions aimed at the introduction of elements of technical creativity in the educational process, as well as motivating students to develop their scientific potential.

-Methods of data processing (methods of mathematical statistics and graphical representation of results). The results of the questionnaire were processed in Excel and PowerPoint programs for the purpose to demonstrate accessible results. Charts, tables and graphs were created to fully reflect the results of the survey.

-Interpretation (structural-functional analysis). It allows to reveal the structural and functional dependence between various elements of vocational guidance work, to evaluate and formalize the stages of implementation of activities aimed at attracting entrants, and to identify the effectiveness of various innovative methods implemented within the framework of this study and in the pedagogical experience as a whole.

Experimental and experimental base of the research is the Kazan National Research Technical University. A.N. Tupolev. The research tools are a forum and a school contest (Kazan National Research Technical University named after A. N. Tupolev – KAI, n.d.).

The study of the problem was conducted in three stages:

At the first stage, a theoretical analysis of existing methodological approaches in philosophical, psychological, pedagogical scientific literature and dissertations as well as theory and methodology of pedagogical research was carried out; the problem, purpose, and methods of investigation are highlighted, and a plan for experimental research is compiled.

At the second stage, experimental work was carried out; the conclusions obtained during the experimental work were analyzed, tested and clarified.

At the third stage the experimental work was completed, the theoretical and practical conclusions were refined; the results obtained were generalized and systematized.

Findings

The concept of development of vocational guidance leads to the qualitative change in the work of the university. Therefore, in the Republic of Tatarstan, as in all Russia, various events are held to support and develop talented youth, to implement innovative career-oriented methods that serve as a tool for self-evaluation and a system for preparing young people for a conscious choice of a profession that meets the labour market conditions to date (Karimova, Skripova, Selivanova, Ilyasov, & Vedernikova, 2017).

One innovation is a method of vocational guidance - cluster interaction of Technical University (KNRTU-KAI) with the University of Talents "The State Program Strategic Management of Talents in the Republic of Tatarstan for 2015-2020" (The Forum "Opening of Talents", n.d.).

The University of Talents is the communication and educational platform of the state program that develops a pool of programs for accessible non-formal education, which provides methodological and consulting support to gifted children, young people, mentors of the Republic of Tatarstan, helping to build their career and life trajectories, in order to consolidate gifted children and youth in the Republic of Tatarstan and optimal integration into the life of society. Within the framework of the strategic cooperation of the KNRTU-KAI with the University of Talent, a number of career-oriented activities were implemented, such as the "Opening Talents" Forum and the Design Engineering Contest "General Designer".

The Forum "Opening of Talents" is the central platform of the Republic of Tatarstan for the annual analysis of approaches and exchange of experience in the field of development and talent management. Participants of the Forum are children, youth, mentors, as well as experts from the regions of Russia, leading companies interested in developing the potential and competencies of young people. (The Forum "Opening of Talents", 2018a).

Contest of projects on engineering creativity "Master Builder" is a measure, aimed at the development in children and young people skills of constructing a life in various directions: engineering, technology, social, economic and others (The Forum "Opening of Talents", 2018b).

The objectives of the contest "Master Builder":

- attracting talented children and young people to the process of project engineering creativity, generating ideas, solving actual problems;
- integration of young people into the economy through the solution of real problems: identifying, supporting and supporting talented children and youth prone to engineering creativity;
- formation of a steady interest in engineering professions, assistance to students in choosing a future profession;
- creation of space for project creativity in the field of engineering and high technologies;
- creation of favourable conditions for the application of full-fledged knowledge and the assimilation of new ones necessary for the development of the solution;

- development of skills for public presentation of their ideas and solutions;
- the organization of intellectual communication among young people and the exchange of information in the sphere of professional interests and other areas;
- acquaint young people with the tasks of the near future of science, engineering and technology;
- creation of conditions for the preparation of a new generation (general designers who can become the authors of breakthrough projects of the future defined in the strategic and scientific and technological development of the Russian Federation and the National Technological Initiative of the Russian Federation (The Forum "Opening of Talents", 2018c).

The Contest "General Designer" was held for the first time in 2017 on the basis of the Kazan National Research Technical University named after A.N. Tupolev and showed an excellent result. In this Contest, 954 people participated in the 2016/2017 academic year, where 21 Contest participants, having the status of the winner and the winner, entered the KNITU-KAI. Comparative analysis of the number of incoming Contest participants students in the technical higher education institution is reflected in Table 1 (Kazan National Research Technical University named after A. N. Tupolev – KAI, n.d.)

Table 1. Comparative analysis for 2015-2017 on the number of Contest participants enrolled in KNRTU-KAI

Year's	Number of budget places (full-time department)	Number of Contest participants-students
2015	1125	4
2016	1012	13
2017	1012	21

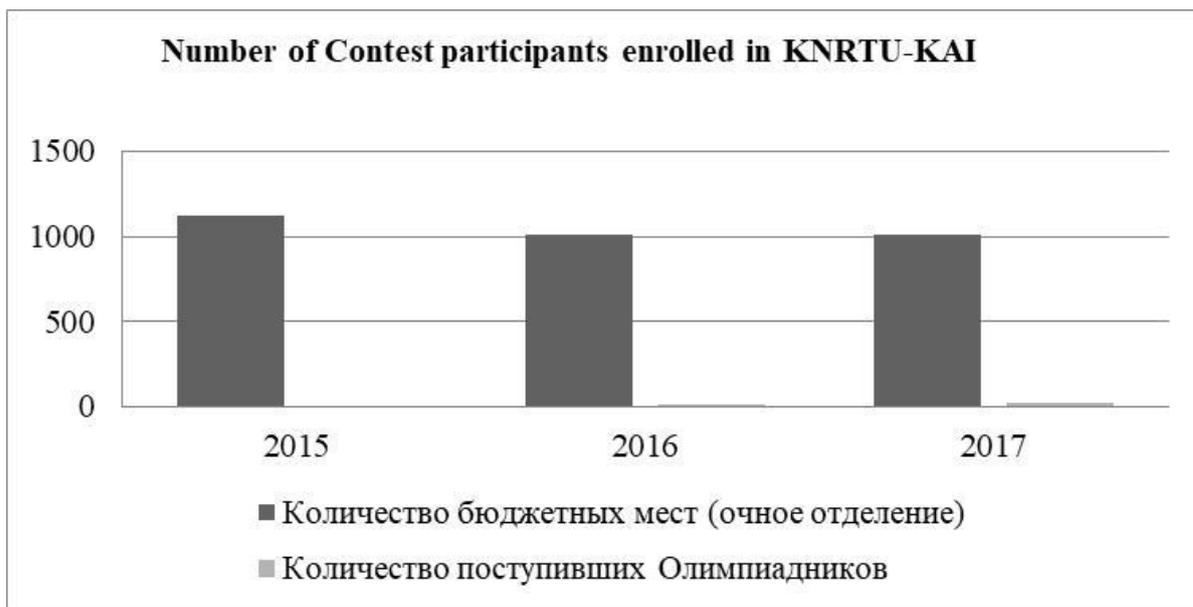


Figure 1. Number of enrolled Contest participants in the KNRTU-KAI

The next innovative method in vocational guidance was the Forum "Talent Discovery", which makes it possible to identify the criteria for realizing the potential of gifted children in the Republic of Tatarstan. This Forum was held from December 13-15, 2016 on the basis of KNITU-KAI at the German-Russian Institute of New Technologies. The forum was attended by talented young people of the Republic of Tatarstan in the number of 250 people, where 30 gifted children submitted documents to the KNITU-KAI, having the results of the Unified State Exam on mathematics, physics and the Russian language in the amount of more than 240 points. The "discovery of talents" with the participation of the students with a high score who participated in the Forum served as the growth of the average score of the Unified State Examination in the KNITU-KAI. The results of the average score from 2015-2017 are presented in Table 2 (Ministry of Education and Science of the Republic of Tatarstan, n.d.).

Table 2. Average score of the Unified State Examination in KNRTU-KAI

Indicator name	2015	201	201	Dynami

	year	6 year	7 year	cs
Average score of the Unified State Examination (general competition + BVI)	68.6	71.0 1	72. 93	+1,92
Average score of the Unified State Examination (general competition)	68.5	70.5	72. 09	+1.59
Average mark of the Unified State Examination The rating score of the HSE	67	69.1	71. 4	+2.3

In this table, we can see the dynamics of the growth of the average USE score for a technical university (KNITU-KAI) in 2017 by 1.59 higher than in 2015.

During the Forum the questioning was conducted according to the established rules of confidentiality, in connection with which the processing of the results allowed forming the percentage ratio of the criteria factors for the implementation of talented youth in the Republic of Tatarstan, which can be seen clearly in Figure 2.

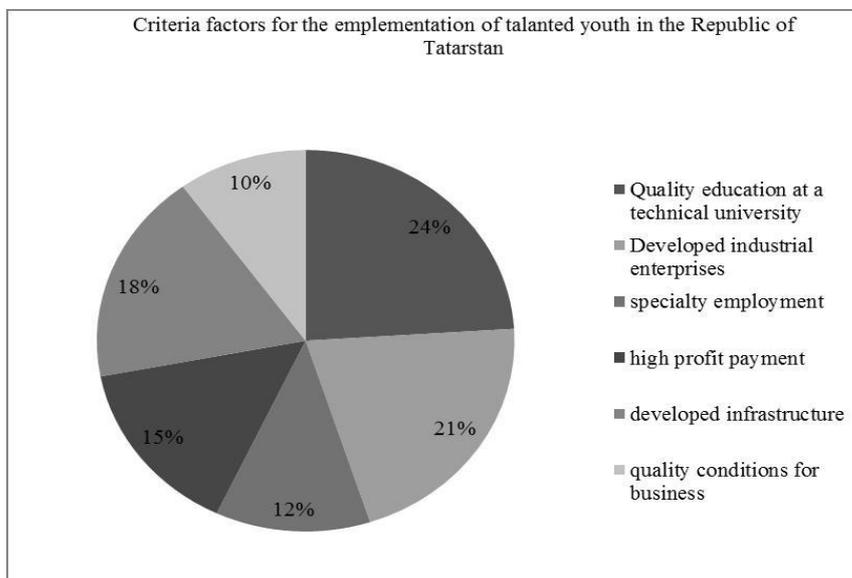


Figure 2. Criteria for realizing the potential of gifted children in the Republic of Tatarstan.

The leading positions among the main criteria for realization and potential opportunities for talented children in the Republic of Tatarstan are quality education in a technical college and the development of industrial enterprises, which will provoke successful employment after graduating from a technical university (KNITU-KAI).

Discussions

The presented innovative methods of vocational guidance are applicable to achieve the goals, namely, to assist young people in professional self-determination on the basis of their individual characteristics and preferences, as well as attracting young people to the profession. Today the new methods of vocational orientation are presented as the real opportunities for building an open connective educational system, allowing each young person to choose his own trajectory of learning and further ways of realizing his potential in a certain field (Prahova, Zaichenko, & Krasnov, 2015).

Conclusion

Professional self-determination is one of the main challenges for students and their success in adult life. At the current stage of development, the vocational guidance system is based on the cluster approach using high technologies which are designed to coordinate the actions of the government of the Republic of Tatarstan and educational institutions. Thus, this study aimed at the formation of professional self-determination of talented youth.

The results of innovative methods and programs for vocational guidance were presented, which allowed identifying the criteria for realizing the potential of gifted children and establishing the number and quality of entrants to the Technical University (KNRTU-KAI).

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