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Teaching of students technology early professional orientation of schoolchildren

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Abstract. The necessity of early professional orientation of schoolchildren on the engineering profession and a new type of teacher was proved. Theoretically substantiated and experimentally tested pedagogical conditions of training of students - future teachers of technology early professional orientation of schoolchildren in the system of university preparation of teacher of a new type. This development of courses of special disciplines, aimed at developing of future teachers of readiness for early career guidance activities; development of interactive group projects for schoolchildren of different age groups (including primary school), expanding their understanding of the world of professions; practical testing of career guidance projects dealing with children's audience.

1. Introduction

Today, in a rapidly changing world, the demands of the society to form a conscious motivation for their future professional activity as a result of the students' early professional orientation increase. Engineers and teachers are especially in demand and are under the close attention of the state. To popularize engineering and teacher education, much is being done at the federal level. These are various specialized programs: All-Russian competitions "Engineer of the Year", "Teacher of the Year", grant and scholarship programs for engineering students and pedagogical departments. Nevertheless, the question of the early professional orientation of schoolchildren to the profession of an engineer or a teacher of a new type is very relevant and requires starting to form a readiness for professional self-determination already in grades 1-4. At the same time it is necessary to rely on the view taken in science on the activities of the teacher [1 - 3] and the professional development of the individual [4, 5].

At the same time, if there are a lot of methodological developments for high school students using various career guidance methods and techniques [6], then for junior level of such developments it is clearly not enough.

The problem of research: what are the pedagogical conditions for teaching students of pedagogical departments the technologies of early vocational guidance of schoolchildren in the system of university training of a new type of teacher.



The purpose of the research: to develop pedagogical conditions for teaching students - future teachers the technologies of early vocational guidance of schoolchildren in the system of university teacher training of a new type.

Methodological basis of the research: competency-activity approach, the approach of innovativeness of educational activity.

2. The basic part

The Primary School plays a significant role in the overall educational system. In these years there is a general development of the child's personality, its inclusion in the system of social relations, the beginning of the formation of a culture of activity and behavior, the formation of its intelligence. It is during this period that the cognitive activity of a person becomes the leading one and determines its development. Students at the primary level are curious, respond quickly to new information, which is conducive to expanding their understanding of the world of professions. Later on, based on the received material, the student will be able to analyze the professions himself more sensibly. And the more professions a child will know, the fewer mistakes he will make later in the process of forming his professional trajectory.

In addition, the introduction of the Federal Education Standard of the new generation implies the implementation of the program for the formation of universal educational activities (UAL) in children of primary school age. Otherwise, in elementary school it is necessary to form the ability to learn, i.e. Extract information, extract from it the necessary knowledge, the ability to correctly navigate the world of professions, consciously approach the choice of their future profession. At the same time, knowledge and consideration of the psychological characteristics of children of primary school age allow us to correctly structure the structure and content of vocational guidance in primary classes. For example, children of this age should be gradually introduced into the sphere of professions, learn to navigate in this area and remember that in grades 1-4, only the brightest, most effectively presented information is remembered.

Thus, in modern socio-economic conditions for universities is the task of training a new type of teacher capable of performing early career guidance work among junior schoolchildren, taking into account the factors determining the formation of professional intentions of the individual and the sources of their identification.

In Kazan (Privolzhsky) federal university, in 2011 an innovative model for the training of subject teachers in profile institutes is being implemented in Russia [7]. For example, teachers of chemistry, respectively, are trained at the Chemical Institute. A.M. Butlerova. Scientific and pedagogical activity in the training of teachers of chemistry at the Chemical Institute made it possible to distinguish three pedagogical conditions for teaching students the technologies of the early vocational guidance of schoolchildren.

The first condition is the development of courses of special disciplines aimed at forming the future teachers' readiness for early career guidance. In accordance with this condition, new disciplines are included in the curriculum for the training of teachers of chemistry of a new type in the direction of "Pedagogical Education, Profile Chemistry" in addition to the traditional disciplines "Theory of Teaching Chemistry" (1st year) and "The Methodology of Chemistry" (2, 3 courses) : "Innovations in chemical education" (for courses 1 and 3), "Didactic games in teaching chemistry" (for 1 course), "International education systems" and "Education system of Tatarstan" (for 4 courses), the material of which allows students to acquaint with modern technology and career guidance activities. As a result of mastering these disciplines, the students form important competences for their successful career guidance activity in accordance with the Federal Education Standard of the new generation. We mention some of them: awareness of the social importance of their future profession; Ability to implement education, upbringing and development, taking into account social, age, psychophysical and individual characteristics, including special educational needs of students; readiness for pedagogical support psycho-educational process; the ability to design individual educational routes of students; readiness for the formation of students' abilities to professional self-determination.

The second condition is the development by the future teachers of group interactive projects [8] for students of different age groups (including primary school) expanding their understanding of the world of professions. Its essence is that since by the beginning of schooling a verbal-logical thinking begins to form in a person, including the ability to operate with words, understand the logic of judgments, be able to argue one's own point of view, all career-oriented projects must assume interactivity and a logical explanation of the phenomena and processes that are demonstrated. Of course, the age characteristics of students in grades 1-4 have some differences, both among themselves and in comparison with middle and senior students. For example, long stories, conversations about professions at this age are not effective. When developing projects for primary school, it is necessary to take into account the specificity of students' cognitive interests (what they are really interested in): play, listen and discuss fairy tales, draw, solve puzzles and puzzles and the like.

The third condition is the practical approbation of vocational guidance projects in communication with the children's audience. For example, students of 2-4 courses - future chemistry teachers have developed and tested a number of projects on early vocational guidance. So in the Children's City of the professions "KidSpace" (Kazan) interactive chemical expositions for children of the 1st and 2nd grades were held, in the Technical Creativity Houses for Children and Youth (in the cities of Kazan and Ulyanovsk) - an interactive for pupils of 3-4 classes, in the museum Kazan chemical school - for students of grades 5-6.

Conclusion. The pedagogical conditions for teaching students-future teachers the technologies of early vocational guidance of schoolchildren in the system of university teacher training of a new type are theoretically grounded and experimentally tested. This is the development of courses of special disciplines aimed at forming the future teachers' readiness for early career guidance; The development of group interactive projects for students of different age groups (including primary school), expanding their understanding of the world of professions; Practical approbation of career-oriented projects in communication with the children's audience.

3. References

- [1] Zimnyaya I A 1997 *Pedagogical psychology* Rostov n/D: Deniks 480 p
- [2] Gilmanshina S I, Sagitova R N and et. 2015 Professional Thinking Formation Features of Prospective Natural Science Teachers Relying on the Competence-Based Approach *Review of European Studies* Vol 7 No 3 pp 341-49
- [3] Gilmanshina S I, Gilmanshin I R, Sagitova R N and Galeeva A I 2016 The Feature of Scientific Explanation in the Teaching of Chemistry in the Environment of New Information of School Students' Developmental Education *International Journal of Environmental and Science Education* Volume 11 Issue 4 pp 349-58
- [4] Klimov E A 2004 *Psychology of professional self-determination* Moscow: Academy 302 p
- [5] Samigullina G S, Gilmanchina S I, Gaisin I T, Gilmanshin I R, Akchurina I R 2015 *Professional and Creative Development of Natural Geographic Course Teachers within the Process of Professional Retraining* International Education Studies 8(4)
- [6] Sibgatova K I, Gilmanshina S I, Khalikova F D, Gilmanshin I R et al. 2015 Peculiarities of Pupils and Vocational College Students' Career Guidance Modeling in the Integrated System "School – College – Enterprise" *Asian Social Science* 11(1) pp 386-91
- [7] Gilmanshina S I, Sagitova R N, Gilmanshin I R 2016 Innovative Component of Preparation of Bachelors and Masters in The System of University Natural Science Education *The European Proceedings of Social & Behavioural Sciences EpSBS* Volume XII, pp 55-59
- [8] Gilmanshina S I, Gilmanshin I R 2015 Building axiological competence of graduate students by means of project-based learning *IOP Conference Series: Materials Science and Engineering* Volume 86 **012029**