THE ROLE OF THE INDIVIDUAL IN THE HISTORY OF RUSSIAN-BULGARIAN RELATIONS OF SAFU

Nina Patronova[1,*]

[1,*]*Northern (Arctic) Federal University named after M.V. Lomonosov, Russia, email: n.patronovaa@narfu.ru*

Abstract. The aim of the article is to present the history of the development of cooperation between the Northern (Arctic) Federal University named after M.V. Lomonosov and the Institute of mathematics and Informatics of the Bulgarian Academy of Sciences, and what role Professor Sava Ivanov grozdev played in this.

Key Words: *international relations between SAFU and Bulgarian universities, cooperation in science and education, forms of cooperation, the role of the individual, Sava Ivanov Grozdev.*

The history of the development of international cooperation between universities, as well as the history of the development of most processes in society, is a complex process of interaction between a large number of people at a certain historical time in a certain geographical area.

And this process is not a fatal, faceless process, but a complex and contradictory phenomenon in which not only certain masses of people participate, but also individual personalities, especially outstanding ones, who leave the imprint of their bright and unique personality on the entire course of events.

In this regard, one of the aspects of knowledge of the history of the development of Russian-Bulgarian relations of SAFU is the disclosure of the question of the nature and degree of influence of the individual on the development of these relations.

Over the years, close ties in the field of science and education have developed between M. V. Lomonosov NARFU and universities in Bulgaria, and Professor Gvozdev Sava Ivanov played a huge role in this.

In 2005, Professor Sava Grozdev became the coordinator of the Russian-Bulgarian project "Methods and information technologies in education" (MITE), in which the Institute of mathematics, information and space technologies of SAFU (now the higher school of information technologies and automated systems of SAFU) has been actively involved since 2010.

The scientific component of this project at NARFU is the work of the mite project laboratory, whose task is to provide scientific support for innovations related to the Informatization of mathematical education in the Arkhangelsk region; organize and conduct a regional round of the international competition "Mathematics and design" among schoolchildren and students; organize Russian-Bulgarian academic exchanges of schoolchildren, mathematics teachers, students, postgraduates and teachers; conduct scientific events together with the Institute of mathematics and Informatics of the Bulgarian Academy of Sciences; organization of joint research in the field of Informatization of mathematical education.

Thanks to this cooperation, a whole scientific field has developed in SAFU, whose achievements have received international recognition. Employees of the Department of experimental mathematics and Informatization of education have been repeatedly invited by the departments of education, universities of Russia, Kazakhstan and Bulgaria to give lectures, conduct seminars and master classes on the use of dynamic geometry systems in teaching mathematics. The results of joint research are widely presented not only at international scientific conferences in Russia, but also in other countries: Spain, Bulgaria, Macedonia, and Armenia.

Thanks to participation in the MITE project, the level of publication activity of our University's employees and students (RSCI, Scopus, ProQuest, Web of Since) has also significantly increased. Scientific achievements of Sava Ivanov Grozdev, as well as employees of the Department of experimental mathematics and Informatization of education, obtained in the framework of the MITE project, are implemented in the educational process of SAFU within the master's programs "Mathematical education", "Information technologies in education", as well as in a number of courses of additional professional education implemented at the center for innovative training of SAFU.

As part of the scientific direction, which was initiated by Sava Grozdev, 3 dissertations for the degree of candidate of pedagogical Sciences were defended by teachers of the Department of experimental mathematics and Informatization of education of NARFU. In addition, due to its relevance, the majority of master's theses have been defended by graduates studying in the field of Teacher education.

During the years of cooperation, two international conferences were organized: "Informatization as a target orientation and strategic resource of

education", which was largely devoted to the issues of Informatization of education, and "Theoretical and applied aspects of mathematics, Informatics and education", which were founded by the Institute of mathematics and Informatics of the Bulgarian Academy of Sciences and the Lomonosov NARFU.

The current conference "Synergetics and reflection in teaching mathematics" was the third in this list of conferences, the founders of which are the Institute of mathematics and Informatics of the Bulgarian Academy of Sciences and the M. V. Lomonosov NARFU.

The educational component of the MITE project from 2015 to the present is an educational project for schoolchildren "Experimental mathematics", the main purpose of which is to attract students to additional study of mathematics, participate in mathematical competitions, develop their creative abilities and research skills by involving them in the formulation and solution of research problems by means and methods typical of the field of experimental mathematics. All these years, the circle has been popular with schoolchildren, most of whom become winners and prize-winners at various tournaments and competitions from regional to international levels.

Within the framework of cooperation between SAFU and the Institute of mathematics and Informatics of the Bulgarian Academy of Sciences, S. I. Grozdev organized annual advanced training courses at this Institute, which trained teachers and postgraduates of SAFU, experimental teachers working at 20 experimental sites in the Arkhangelsk region within the framework of the MITE project.

One of the forms of cooperation between SAFU and Bulgarian universities was the invitation of teachers to give lectures and conduct classes in various forms.

Within the framework of the development program of M. V. Lomonosov NARFU, Bulgarian colleagues were repeatedly invited to give lectures at NARFU.

Thus, Professor Sava Grozdev's lectures for teachers were devoted to the organization of work with gifted children in the field of mathematics, for schoolchildren, and for students and schoolchildren popular scientific lectures on the topic "Can a computer generate problems?" about setting new and exciting mathematical problems.

In turn, the teachers of narfu took an active part in various seminars and advanced training courses held under the initiative and guidance of S. A. Grozdev, in particular, as lecturers of courses: "Designing of information-educational environment as an integration tool of activities of Higher and General Education institutions" (2014), "Designing of a motivating educational environment in institutions of general and vocal education" (2016), "Modern

education in the digital economy: concepts, models, technologies" (2018), as well as the annual summer school for students on cryptomathematics Foundation "minu Bolkansky", starting in 2015.

In different years, various competitions were held in the Arkhangelsk region on the basis of SAFU, proposed by Bulgarian colleagues, organized by S. Grozdev, R. Nikolayev and others.

These are math tournaments for school children: "Chernorizets Khrabr", "Perperikon" and the Olympiad in financial and actuarial mathematics for schoolchildren and students.

The international mathematical tournament "Perperikon", held for nineteen years, has established itself as one of the most significant mathematical races for schoolchildren, as those who achieve the highest results receive different preferences when entering some Bulgarian universities.

In the Arkhangelsk region in 2020, the perpericon tournament was held by SAFU for the seventh time (**http://itprojects.narfu.ru/perperikon/**).

The topic of the perpericon tournament is very diverse both in content (problems on various topics of school and Olympiad mathematics: combinatorial, algebraic, plot, mathematical analysis and geometry problems) and in level of complexity (level 1-7). Students love these Bulgarian math competitions, and every year more than a thousand students take part in them. This year, 1,483 students of grades 5-11 of secondary schools took part in the tournament at 37 sites in cities and district centers of the Arkhangelsk region.

The international Olympiad on financial and actuarial mathematics among schoolchildren and students has also proved its viability. The purpose of this competition is to draw attention to the importance of mathematical knowledge for improving the financial literacy of the population.

The Olympiad was established to increase the motivation of schoolchildren and students to study mathematics in 2016. Its history and ideological basis are described in detail in articles [1], [2].

The topic of the Olympiad concerns the mathematical foundations of analyzing and evaluating information and making optimal decisions in the following situations: price dynamics and inflation; loans and early repayment conditions; movement of funds in the salary account; investments; insurance; term deposits; interest rate dynamics; investment management. The Olympiad is held in 4 age categories: grades 5-6, grades 7-9, grades 10-11 (12), students and citizens.

In the Arkhangelsk region in the 2016-2017 academic year, it was attended by – people, and in 2019-2020, due to the fact that the range of participants in the Olympiad for schoolchildren (from 1st to 11th grade) and in connection with its remote holding, more than 1200 students and schoolchildren

took part in the Olympiad (**http://itprojects.narfu.ru/finmath/about.php**, **https://narfu.ru/hsitas/o-vysshey-shkole/gordost/detail.php?ID=340796**).

From all the above, it should be concluded that Professor S. Grozdev plays a huge role in the development of international relations between SAFU and Bulgarian universities.

Recognition of Sava Grozdev's achievements was awarded to him on November 19, 2014 at the solemn expanded meeting of the scientific Council of the Lomonosov Moscow state University the title of honorary doctor of the Russian Academy of Sciences.

References

[1] Nicolaev R., S. Grozdev, Bulgarian Olympiad in financial and actuarial mathematics in Russia, *Mathematics and Informatics,* 2019, Bulgaria, Sofia, № 62/6, pp. 676–694.

[2] Grozdev, S., R. Nikolaev, N. Patronova, M. Shabanova, Results of the second international Olympiad in financial and actuarial mathematics for school and university students, *Mathematics and Informatics*, Bulgaria, Sofia, 2018, Vol. 61, No. 5, pp. 423–443.