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Foreign Language Training Organisation for Natural Sciences and Mathematics Students

Summary

The article deals with issues related to the methodological problems of organising training in translation from a foreign language into a native language by the 1st-2nd year students. At the same time, teaching methods improvement is an everyday task of the Foreign Languages Department of natural history faculties and the teaching staff for developing science in modern society.

Modern understanding of language opens new perspectives for studying the relationship between languages and the possibility of translation. Teaching foreign languages for non-language specialities in domestic pedagogical institutions of higher education shows that despite the general recognition of the need to develop communicative orientation in foreign language teaching, teachers' focus is to develop students' skills for reading and professional literature translation. This orientation of education does not contribute enough to students' mastery of professionally-oriented communication.

At present, the problem of improving the quality of higher education, which guarantees professional training quality and translator competitiveness in the domestic and foreign labour markets, is becoming increasingly important and is one of the main tasks of our time.

Modern socio-economic conditions in the world community require educational institutions to develop a clear account of the social order mechanism for a graduate.

The implementation level of this social order determines the quality and specialist training competitiveness.

Nowadays, there is a powerful communicative shift in the planet's geolinguistic situation, as a result of which English has acquired the status of the international communication language. Proficiency in English at the present stage of social development is a necessary condition for any individual's entry into the global communicative space. This statement also applies to the competitive, creative, modern technical translator.

Keywords: foreign language, training, natural sciences, mathematics, scientific programs, technical cooperation

1. Introduction

According to the newly elected President of the National Academy of Sciences of Ukraine, Academician AG Zagorodniy, the priority tasks on the need to move to a new level of international scientific and technical cooperation and integration into European scientific programs and research spheres are to focus on the following key areas:

1. Ensure world level of scientific research;

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2. Develop research infrastructures and integrate them into international, primarily European research infrastructures;
3. Deepen the integration of science and education;
4. Develop and make extensive use of opportunities for international cooperation. Integrate into the European Research Area (ERA) and (EOSOC) (Zahorodnii, 2020, p. 3).

Foreign knowledge is the main condition for today's success. As future specialists in natural sciences and mathematics, students need to know a foreign language, which provides opportunities for information exchange and allows them to develop and realise their creative potential. The task of freelance teachers is to prepare a specialist with a high knowledge of a foreign language, which will promote cooperation and co-creation in a globalised world and increase the chances of becoming a successful specialist. A foreign language is a means of communication and a knowledge instrument, an exchange of experience.

Scientist G. Turchynova points out the need to know the language and notes that knowledge of the language "is one of the means to improve training quality of and education of future professionals in the university, capable of research, creative application in their profession of the modern world scientific achievements and professional self-development" (Turchynova, 2018, p. 84).

2. The Structure and Mechanism of Normative Resolutions

National Pedagogical Dragomanov University is at the forefront of this process. Thus, in 1991 at the Faculty of Natural Sciences and Geography teacher training department, the new specialities: "Geography and Foreign Language", "Biology and Foreign Language", "Chemistry and Foreign Language", at the Faculty of Physics and Mathematics – "Mathematics and Foreign language" were opened. The main theoretical works of domestic and foreign scientists, taking into account the practical experience in the foreign language teaching organisation for natural sciences and mathematics students, are embodied in the concept of specialised education in higher education.

This document defines the basic concepts and approaches to solving the specialised teaching problem

of the subject: purpose, outline of the essence, principles of specialised training, structure and training forms. Foreign language in the system of modern education occupies a special place within the social, cognitive and developmental functions for learning about the world around us and expanding its boundaries.

The works of K. Yenakiyeva, O. Kadomtsev, A. Voronchuk, K. Shabatina, A. Yurzhenko, F. Gorbach, N. Sazonova, N. Hnatiuk, O. Yarova were devoted to the peculiarities of students foreign languages teaching at the Faculty of Natural Sciences and Geography, A. Postoy, B. Khomenko. The department's achievements contributed to studying the foreign language in Computer Science, Physics and Mathematics and other faculties (Khropko & Lozovytskyi, 1995, p. 143).

Modern students' foreign language teaching of natural sciences and mathematics is the students' preparation for further educational or professional activities related to the use of a foreign language as an object of future (professional) activity or as a means of professional communication.

This year of mathematics was declared in Ukraine last year. Mathematics does not belong to the natural sciences but is widely used in them both to formulate their content and to obtain new results. Mathematics is a fundamental science that provides the linguistic means of other sciences. Prominent Italian physicist and astronomer, one of the natural science founders, Galileo Galilei (1564–1642), said, "The Book of Nature is written in the language of mathematics". Almost two hundred years later, the German classical philosopher, Emmanuel Kant (1742–1804), argued that "in every science, there is as much truth as there is mathematics".

Finally, almost one hundred and fifty years later, almost in our time, the German mathematician and logician David Gilbert (1862–1943) stated: "Mathematics is the basis of all exact natural science."

Teaching foreign languages to students of natural sciences and mathematics in domestic pedagogical institutions of higher education shows that despite the general recognition of the need to develop a communicative orientation in foreign language teaching, teachers focus on developing students' reading skills and translating professional literature. This education orientation does not contribute enough to students' mastery of professionally-oriented communication real practice.

Teaching foreign languages for natural sciences and mathematics students in domestic higher education pedagogical institutions shows that despite the general recognition of the need to develop a communicative orientation in foreign language teaching, the focus of teachers is to develop students' skills for reading and translating professional literature. This education orientation does not contribute enough to students' mastery of professionally-oriented communication real practice.

Insufficient attention is paid to developing intercultural communication skills and discussing existing intercultural and professional differences, which does not allow talking about full-fledged foreign language communicative competence formation.

Note the important reasons that reduce the foreign language training of natural sciences and mathematics student's effectiveness are:

- different levels of training in a foreign language (insufficient training in most freshmen or its complete absence and the group of students with special training – of specialised schools graduates with in-depth study of a foreign language);
- Inability of students to use previously acquired knowledge and skills in a foreign language in professionally-oriented conditions and situations (failures in learning);
- Most traditional textbooks have outdated content and lack modern foreign languages and professional-oriented textbooks for certain pedagogical specialities (lack of authenticity);
- Insufficient provision of foreign languages for students of non-language specialities by modern means and weak material base for the use of education new information technologies (lack of desire to work in the library);
- Insufficient number of hours for practical classes in a foreign language and their irrational distribution (lack of time with the teacher);
- Junior students have a low level of motivation to learn a foreign language due to their lack of awareness of the prospects and this discipline opportunities for professional and personal development (lack of motivation);
- Lack of interdisciplinary coordination by the general foreign languages university department and profile departments that provide training

for future teachers of natural sciences and mathematics (interdisciplinary links);

- Outflow of qualified personnel from the Department of Foreign Languages (IM), associated with low salaries and lack of real career prospects (lack of teachers).

The purpose of this publication is to acquaint with the methodological developments concluded at the Foreign Languages Department of natural faculties in textbooks for professionally oriented English language teaching and natural sciences and mathematics students and achieve a level sufficient for practical use of this language in future professional activities (Kuzmenko et al., 2012, p. 134).

The system of foreign language training natural sciences student's modernisation in pedagogical free economic zones determines the further specification of the goals of teaching foreign languages, aimed at the development of:

- 1) motivation to learn a foreign language, based on an understanding of its necessity for the future teaching profession and research activities;
- 2) compensatory skills, which are based on communicative strategies and tactics knowledge that allow for limited possession of foreign language skills to adapt to the communicative situation;
- 3) information skills on search, classification, systematisation, further processing and interpretation of the received foreign language information for its use in future professional activity at the decision of communicative tasks;
- 4) complex skills: a) to communicate at a certain level of foreign language proficiency; b) perceive by ear and visually authentic texts of different kinds; c) use the acquired knowledge of a foreign language for their professional growth; d) operate with original foreign language material; e) organise self-study of a foreign language and foreign language communication skills self-improvement (Rudnytska, 2017, p. 132).

In our opinion, a foreign language should become not only an object of mastering the material but also a means of developing the professional skills of natural sciences and mathematics students in final exams. It involves expanding the concept of foreign language learning professional orientation, which includes another component – professionally-oriented content of educational material. This component reveals the

essence of professionally-oriented foreign language learning, which is its integration with professional disciplines, to obtain additional professional knowledge and professionally significant personality traits formation.

Foreign language + mathematics:

1. Teacher: A) Teacher, B) Tutor,
2. Diplomat: A) Consul, B) Councillor, C) Attaché,
3. Translator: A) Translator political scientist, B) Translator editor, C) Translator synchronistic,
4. Civil servant: A) Customs officer, B) Stewardess,
5. International Journalist: A) Correspondent, B) Commentator, C) Reporter,

Modern education processes informatisation involve the widespread use of information and communication technologies (ICT) in the study of the foreign language by students of natural sciences and mathematics for the formation of communicative competence, development of creativity and abilities, creating conditions for their self-education (Panov, 2008, pp. 571–574).

Today, teacher is dealing with a new generation of students for whom modern technology has become an integral part of their daily lives. The teacher must teach a foreign language using ICT, with which he can use a wide range of authentic materials and tasks. ICT model the conditions for the formation of language skills, differentiate learning, and increase the interest and motivation of students to IM.

There are many different ways to use ICT in foreign language teaching, including multimedia applications in textbooks, work in a computer language laboratory, interactive whiteboards, multimedia equipment, and more.

The expediency of creating and using modern teaching materials for learning foreign languages is beyond doubt. Teachers of the department have developed foreign language courses for work in classrooms and independent students' work in mathematics, computer science, biology, chemistry, and geography.

The textbooks "Mathematics" and "English for IT students" are designed to study English in the professional direction of first- and second-year students majoring in mathematics and computer science. The tasks are designed considering future specialists' communicative needs in computer science and mathematics.

The manuals provide the formation of speech competence, help to master professional terminology and activate the ability to practically apply the acquired knowledge. The manuals are recommended for study both in the classroom and independently. They are concluded under the foreign language's curriculum requirements for preparing a bachelor in computer science and mathematics and cover the basic lexical minimum.

The purpose of development is to develop an understanding and analysis of scientific texts skills on the main problems of computer science and mathematics, the ability to talk and participate in discussions in English, and to form a specialist socio-communicative position in computer science and mathematics.

The textbook "Mathematics" consists of 7 sections, each of which contains a separate problem – the topic and includes authentic texts from foreign scientific literature. The texts offer lexical exercises and tasks for developing speech skills in real communication situations.

The second collection, "English for IT students", consists of 10 chapters, each of which contains a separate problem – the topic and includes authentic texts from foreign scientific and technical literature. Lexical exercises and tasks for developing speech skills in real communication situations are offered. These are exercises for interpreting specific professional terms, for translation from the native language into English and vice versa. At the end of each topic, various creative tasks are offered to consolidate the studied material. The manual contains information on higher education in the UK and Ukraine, requirements and curriculum at the university, project work, and a list of Internet resources.

It is recommended for students to study both in the classroom and independently. The textbooks are designed for learning English at the level of B2, necessary for professional use and future research work of students.

3. Conclusion

Foreign language teaching purposes realisation of the mathematical and natural-geographical direction higher education applicants at the National Pedagogical Dragomanov University aim to develop foreign language communicative competence (language/lin-

guistic, speech, sociocultural, sociolinguistic, general education), which involves not only mastering the amount of foreign language knowledge, skills and abilities, but also develops students' ability to apply this knowledge and skills in real life situations, promotes future professional development and growth and the ability to establish, develop relationships, collaborate with others in today's globalised world.

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