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**СПЕЦИФИКА СОВРЕМЕННОГО ОБУЧЕНИЯ ПРОФЕССИОНАЛЬНОЙ ЛЕКСИКЕ
СТУДЕНТОВ НЕЯЗЫКОВОГО ВУЗА**

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**THE SPECIFICS OF TEACHING PROFESSIONAL VOCABULARY IN HIGHER
EDUCATION FOR STUDENTS OF NON-LINGUISTIC DISCIPLINES**

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В статье рассматриваются методологические подходы к обучению профессиональной лексике студентов неязыковых вузов. Анализируются современные стратегии, включая современные цифровые инструменты и интерактивные методы. Особое внимание уделяется междисциплинарной интеграции, актуальности учебных материалов и мотивации студентов.

Ключевые слова: неязыковые специальности, методика преподавания, иностранные языки, научные тексты, языковая практика, тренировка словарного запаса, образовательный процесс, искусственный интеллект, нейронные сети, междисциплинарный подход.

The article explores methodological approaches to teaching professional vocabulary to non-linguistic university students, focusing on mechanics and mathematics. It analyzes modern strategies, including modern digital tools (neural networks, AI) and interactive methods (Quizlet, role-playing). Emphasis is placed on interdisciplinary integration, relevance of teaching materials, and student motivation.

Key words: non-linguistic specialties, methods of teaching, foreign languages, scientific texts, vocabulary practice, vocabulary training, interactive learning, Quizlet, educational process, artificial intelligence, neural networks, interdisciplinary approach.

Success in teaching students at a non-linguistic university largely depends on the creativity and skills of the teacher, overall practical experience, the vastness, and depth of knowledge of the subject. However, requirements for a teacher are not limited to just these skills in the modern world. As Dudley-Evans and St. John (1998) point out, teaching English for specific purpose requires taking into account the professional context and the communicative needs of students. [5]

Teaching students of non-linguistic specialties cannot always be an easy task. Forming an acceptable lexical vocabulary related to the student's hypothetical future profession seems a fair objective: professional vocabulary is widely used by the scientific community and employers in a specific field of knowledge. However, most often it is not enough to simply follow the curriculum approved by the university. The teacher also faces the need to combine the active use of technical innovations during the educational process, to use recent teaching methods and tools, so that the students could later use these methods on their own after graduation.

In order for modern university education not to be reduced to monotonous exercises from a textbook on the topics of the program, a modern teacher should actively develop his own competencies in the following areas:

- 1). Maintain communication with students using online resources; freely operate with the most relevant international collections of educational materials that correspond to the topics of the program;
- 2). Be able to provide students with full access to the necessary resources online;
- 3). Use the most advanced IT developments, including neural networks and artificial intelligence.

Students of the Faculty of Mechanics and Mathematics of BSU study professional and scientific vocabulary for four semesters. In just four terms, they need to master a vast amount of highly specialized terminology of applied math and programming, theoretical mathematics and computer science, as well as lexical units of a common language for everyday communication. The scientific texts we analyze in the course of classes are characterized by a number of specific features: they have a strict formal style, clear logic and sequence of presentation, clear structure striving for objectivity, high information density. The material is presented very clearly and unambiguously, with a lot of non-adapted authentic texts. Students need to learn lots of international terminology concerning mathematics, symbols and numbers, while artistic techniques are practically excluded. These features help to create a clear and precise text that can be easily understood by students even at the initial stage of learning a foreign language. However, it is necessary to pay attention to the complexity of working with mathematical terms: being unambiguous in one sphere of human activity, terms in another applied field of science may have a different meaning and receive their own specific interpretation due to the context: for instance, terms such as "group", "field", "function", "ring", "queue", "tree", "key", "heap", "node", "model", "round", "stack" and others relate to different fields of knowledge in real life, mathematics and computer science. In this regard, modern linguistic scientists state that "in the process of teaching, the teacher emphasizes that the indicated unambiguity in the ratio "terminological concept" – "subject" should be clearly linked to the realities of a particular field" [3, p. 11].

When working with obviously specific scientific texts on higher algebra, mathematical analysis and computer science, the teacher proceeds from the following assumptions:

- 1). Students' knowledge of their field is broader than the teacher's knowledge. In order to successfully cope with teaching a foreign language to students of natural sciences, a teacher (who often does not have deep knowledge in fundamental fields of science) needs to be aware of the boundaries of his knowledge and should strive for research. In this case, a useful and equivalent exchange of competencies can take place during the lesson: students can help to understand the subtleties and nuances of the scientific and technical field of science, and the teacher will be responsible for developing and improving the language practice of his group.

- 2). Even students of technical and mechanical-mathematical profile may experience self-doubt and insufficiently formed motivation at the initial stage of studying when mastering new competencies. They may also have difficulties with remembering scientific and technical vocabulary.

- 3). Development of interdisciplinary relations between a foreign language and a mother tongue is very important. Students need to understand general details in a professional text and relate them to the studied material in relevant disciplines, which have been taught to them previously. A compiled curriculum in foreign languages should harmoniously mirror the curriculum of mathematics, physics, programming and computer science, complementing the topics already studied in the native language, providing new depth and details. At the same time, only with the interest of the university officials and teachers of related departments can this approach be implemented in the unification of training programs.

- 4). In addition, it would be useful to mention the timely adjustment of university manuals and teaching materials used by students. Factual inaccuracies and outdated information are very noticeable in the field, which is subject to rapid growth and development. For example, Santiago Esteras' Cambridge textbook

"InfoTech: English for Computer Users" is a well-known manual to teachers of Information Technologies. It is widely used in non-linguistic universities at the faculties of scientific and technical specialties. However, having withstood several reprints, it has not been edited according to the drastic change of technological advancements, and its honorable author obviously hasn't kept track of time: some information in this textbook is outdated, as updates of the material have not been released. Therefore, the search of new relevant information also falls upon the shoulders of students.

Realizing how difficult it can be for first-year students to master a foreign language of a future profession, the teacher must form and develop certain skills and abilities that allow students to study the field of science in a foreign language. The best results can be achieved if the teacher selects the appropriate teaching methodology and aligns it with the teaching objectives, defines the learning goals, follows the methodological logic of the lesson structure and accurately determines the best time to apply some required practical techniques. In this case, students will not only memorize complex and unfamiliar terms, but also learn how to use them meaningfully to achieve personal and professional success, solving the communicative tasks they face [4].

In order to build a successful vocabulary teaching strategy within the framework of the curriculum, it is important for a teacher to take into account the specifics of the organization of the educational process in a non-linguistic university. The main unit of instruction is an authentic professionally oriented text characterized by certain lexical, syntactic, stylistic and morphological features which ensure the achievement of educational objectives set by the teacher. Efficient process of understanding and analyzing foreign language information is directly related to the level of students' proficiency in basic translation strategies and also grammatical features of texts related to the specialty. The teacher must have a thorough knowledge of working methods concerning foreign languages in higher education institutions. The teacher should also have a solid foundation of subject knowledge and constantly improve professional competence.

Speaking about methodological strategies and techniques for teaching new vocabulary in a non-linguistic university, it should be noted that opinions of teachers, scientists and methodologists differ quite a lot from each other. Some believe it is more appropriate to start explaining complex terms, before students directly begin studying the original text; others prefer that students read the text before there is a discussion on terminology in a practical lesson [4].

There are two more approaches that can replace the traditional "pre-text" method of working with vocabulary, recommended by most experts. The first approach is that complex terms should be explained in class using a glossary in a foreign language while reading the text. Most terms are defined in the text itself at their first mention, without using a translation into a native language to train the linguistic guessing skill. With this approach, some students will independently recall the meaning of the term if it occurs again in the text. Another option is to analyze terminology after reading the text, when the main focus is on self-study of unfamiliar words in the process of reading. For a more lively, exciting and adventurous work on unexplored terms, a teacher can offer the students interactive ways to learn new vocabulary with the help of neural network assistants and artificial intelligence programs: ChatGPT, DeepSeek, Gemini, AI-arena, H5P, Miro, Magic School, KhanAcademy, Twee, Dewiar, Kahoot, Quizlet and many other applications and games. When teaching vocabulary to the first and second year-students of the Faculty of Mechanics and Mathematics, I use the Quizlet program, which has proven itself brilliantly in Live and Blast modes. Students are happy to use Quizlet multimedia flashcards both at home and during our lessons. From time to time, my groups play Live and Blast in the course of a lesson to train better knowledge of new words, in teams and individually. The program picks out from one to three winners according to the calculated progress, so each student has the motivation to learn new words faster than anyone else in the group. After such informal training, my students usually write spellings better.

The final stage of working with a new vocabulary involves the activation of lexical units from passive understanding to active usage in colloquial speech. At this step, great importance should be given to communicative types of tasks that activate the use of lexical units in the given context. Assignments of this type help students to use professional vocabulary in simulated situations which resemble life scenarios as closely as possible.

The main types of tasks for vocabulary training can look like this:

– Dialogues, simulations, and role-playing games in pairs (communicative situation of "Project discussion" – one student plays the role of a customer, the other – of a developer);

- Discussions and debates where work is carried out on argumentation, opposition and discussion on a professional topic (communicative situation "Pros and cons of high-level programming languages" – e.g. Java vs C++, using the terms *syntax*, *libraries*, *machine learning*, *optimization*, *neural networks*, etc.);
- Project work using authentic sources with English-language resources (you can ask your students to get ready with the presentation on any topic of the curriculum – e.g., the Pythagorean theorem in computer graphics, using the terms *convex*, *concave*, *angles*, *tangent*, *pattern*, *database*, etc.);
- Q&A tasks to train the skills of logical and consistent presentation of thoughts, tactics of rapid response to problematic issues (communicative situation – "Solve the problem and explain the solution");
- Brainstorming / Brainstorming (communicative situation – "Generation of ideas on a given topic" – e.g. list the areas of application of differential equations in life, come up with a way to optimize the algorithm, etc.);
- Gap Tasks with the exchange of information to find a solution to the problem (communicative situation – one student sets the condition of the problem, the second solves it; the third student describes the problem, the fourth suggests finding a way out, etc.);
- Presentations for logical structuring of the topic (communicative situations – "Polygons in mathematics and polygons in art/architecture/cinema/cuisine/ computer science/geology, etc.);
- Watching and discussing video clips/educational films explaining theoretical foundations or describing scientific experiments and their results;
- Writing a short essay on a problem topic using the studied terms;
- Writing a review or an abstract of a scientific article using the studied terms, etc.

It can be concluded that any of these approaches is worthy for a teacher to use in their teaching and learning activities – the choice depends on the tasks to be solved when planning a lesson. Reading and understanding foreign language texts of the specialty is closely related to teaching all other types of speech activity, and should be integrated throughout the entire foreign language training at the university.

Thus, over time, students develop a voluminous and versatile vocabulary, which increases the professional competencies of future specialists. By the end of their two-year studies, students successfully carry out personal and professional communication in practice: get acquainted with the latest authentic achievements in their field with minimal reference, conduct research without being afraid of the foreign language in a professional field; participate in partner projects involving immersion in a foreign language environment, and happily conduct their own projects.

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