

DOI 10.36074/logos-24.05.2024.058

## TECHNICAL VOCABULARY IN FOREIGN LANGUAGE ACQUISITION: SEEKING EFFECTIVE METHODS FOR UNIVERSITY STUDENTS

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**Summary.** Memorizing and retaining vocabulary can be challenging for students of technical universities, particularly when faced with a large volume of words to learn. Teachers and learners may struggle to find effective strategies for vocabulary acquisition and retention, leading to difficulties in comprehension and communication. The research aims to explore the challenges that technical students of higher education establishments encounter when acquiring specialized terminology, investigate the difficulties faced by foreign language instructors in teaching technical vocabulary, and identify the most effective methods for mastering technical terminology as advocated by contemporary pedagogical theory and practice. Addressing these problems requires employing effective language learning strategies, so teachers can employ various didactic means to help students overcome difficulties in retaining foreign language technical vocabulary.

**Introduction.** In an increasingly globalized world, engineers must possess effective communication skills to collaborate across national and cultural boundaries. English serves as the lingua franca for professionals driving technological advancements, facilitating research, collaboration, instruction, and overall success in the field of engineering. Mastery of English enables engineers to effectively communicate their ideas, collaborate on projects, and engage in interdisciplinary research with colleagues worldwide. As technology advances globally, engineers must be able to communicate effectively across national and cultural boundaries.

The issue of instructing technical vocabulary as the cornerstone of terminological proficiency among students at technical universities has consistently been pertinent in contemporary foreign language teaching

methodologies. Moreover, the cultivation of skilled professionals remains a paramount objective in higher education institutions. The standard for evaluating the preparedness of graduates from technology and engineering programs hinges on their professional and communicative acumen, with terminological competence serving as a crucial component thereof.

**Analysis of recent research and publications.** The examination of issues of teaching and learning of terminological vocabulary as a primary aspect of foreign language acquisition for professional purposes has garnered significant attention from scientific community. According to the researchers, in particular V. Börner, the process of acquiring vocabulary always involves four key steps, namely: perceiving word form; understanding the meaning of words; memorizing a word; communicative use of a word [5]. Highlighting the main principles of the most effective study of new lexical material, in order to facilitate memorization, O. Tymoshchuk advises the following didactic techniques: competent selection of lexical units; the use of mnemonic techniques, connecting foreign words with any images of the native language; using the possibilities of the subconscious; creation of a favorable emotional background; correct distribution of the educational load; contextual memorization of new lexical items; consistency; regular repetition of new words and phrases and systematic control over their assimilation; constant use of new words in the language [4].

Considering text as main means of learning, O. Tarnopolskyi devoted many studies to the issue of replenishing students' foreign language vocabulary through intensive and extensive reading of texts. The scientist asserts that this activity is the main source of increasing the receptive and reproductive vocabulary of learners [3].

Studying the peculiarities of teaching terminology at non-linguistic university, the scientific team of university instructors of foreign languages (K. Degtiarova, L. Kibenko, V. Zhyvolup, A. Karas, I. Lyakhova) put emphasis on the importance of terminology in view of the professionally oriented approach. They paid special attention to working with authentic professional-oriented texts by specialty, which help students to accumulate and systematize the lexical minimum sufficient for the ability to work with professionally significant information. Their research also offers exercises aimed at students' assimilation of new terminology [2].

It can be stated that the scientists are studying certain problems related to the acquisition of foreign language vocabulary, looking for ways to improve the effectiveness of the teacher's work.

**Purpose and objectives of the article.** It is obvious to practitioners that within the current scope of scholarly inquiry into language instruction methods, insufficient emphasis is placed on teaching technical vocabulary, that is fundamental to communication in professional discourse. Numerous unresolved

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issues persist, prompting our research objectives: 1) explore the obstacles encountered by technical students of higher education establishments in acquiring specialized terminology; 2) examine the challenges encountered by foreign language instructors when imparting technical vocabulary; and 3) identify the most efficacious methods for mastering technical terminology among those advocated by contemporary pedagogical theory and practice.

**Results and discussion.** Engineering disciplines require a specific set of vocabulary that is not commonly used in everyday language. This specialized vocabulary can be challenging for students to acquire, especially if they are not exposed to it frequently or if their current vocabulary base does not include these terms. The lexical system of the professional language, the logical and conceptual framework of the engineering field, and the ongoing expansion of their own terminological lexicon are all challenges that future specialists must face.

The acquisition of vocabulary by students of engineering can be overwhelming due to several factors. Firstly, the field of technologies is characterized by complicated and specialized terminology, which may be unfamiliar to students, particularly, in their first years of study. Secondly, technical curricula encompass a broad spectrum of topics, each requiring its own specialized vocabulary. This extensive vocabulary across various subjects, such as mathematics, physics, mechanics, electronics, and computer science, can overload students. Thirdly, engineering lexicon is intricately linked to complex concepts and principles. Therefore, students must not only memorize words but also comprehend their connections to theoretical frameworks, practical applications, and problem-solving strategies, thereby adding complexity to vocabulary acquisition.

Furthermore, engineering students are expected not only to learn new words on professional topics but also to apply them in real-world scenarios, such as project design, report writing, and communication with peers and professionals. This pressure to use vocabulary accurately and effectively can contribute to feelings of overwhelm. Lastly, engineering students often face demanding schedules filled with many subjects, courseworks, projects, labs, leaving limited time for foreign language vocabulary study and practice. Balancing these academic requirements with learning the extensive technical lexicon can exacerbate feelings of devastation and stress. By acknowledging the overwhelming nature of vocabulary acquisition in engineering and providing targeted support, educators can help students navigate this aspect of their academic journey more effectively.

Analysing the teaching and learning process, seeking the most effective strategies for training the technical vocabulary, the language teachers, in our opinion, should pay attention to some difficulties that may arise in this field. One of the primary obstacles is the lack of time for repetition, which is crucial for



vocabulary retention. Without regular review and practice, newly acquired words tend to fade from memory over time, highlighting the importance of consistent exposure and reinforcement in the learning process. Another significant challenge is the difficulty of understanding vocabulary within its contextual framework. Words often carry multiple meanings or nuances that are not immediately apparent, making it challenging for learners to grasp their full significance without sufficient context. This issue underscores the importance of engaging with vocabulary in meaningful sentences, phrases, or conversations to fully appreciate its usage and meaning.

The technical vocabulary in engineering fields can be highly specialized and intricate, making it challenging for instructors to simplify and explain concepts effectively to students who may not have prior knowledge in the subject matter. At the same time, students may lack foundational knowledge in the subject area, making it difficult for them to grasp technical terms and concepts without sufficient background understanding. Understanding technical terminology often requires certain knowledge of the broader context in which the terms are used. The foreign language instructors may struggle to provide relevant context and real-world examples to help students comprehend the meaning and usage of technical terms.

The instructors may face problems in finding appropriate resources, such as textbooks on certain speciality, multimedia materials, and industry-specific content, to support the teaching of technical vocabulary effectively, and it is a crucial issue. The lack of suitable resources poses a demanding assignment, as instructors must design didactic materials on their own without access to relevant resources. This makes class preparations exhausting and time-consuming, potentially leading to teacher's professional burnout. Moreover, the rapidly evolving nature of engineering fields adds complexity to this issue, as it can be difficult to find up-to-date resources that reflect the latest advancements and trends. Therefore, addressing the resource gap becomes imperative for instructors seeking to enhance students' proficiency in technical vocabulary and prepare them for success in their future careers.

The limited time within the curriculum presents another significant problem for language educators when it comes to covering extensive technical vocabulary adequately. Balancing the teaching of technical terms with other language skills such as grammar, speaking, listening, and writing can be particularly formidable task. Language educators must carefully prioritize which technical terms to focus on and integrate them strategically into language lessons without neglecting other essential language competencies. Moreover, finding engaging and effective instructional methods to teach technical vocabulary within the constraints of

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limited class time creates pedagogically complicated situation. The language educators often need to employ innovative teaching approaches and prioritize the most relevant technical terms to ensure comprehensive language learning outcomes for their students.

The sheer volume of vocabulary to be learned can also be overwhelming, especially for those who have insufficient knowledge of foreign language from school. Attempting to memorize too many words at once can lead to cognitive overload, hindering the retention of information. This complexity emphasizes the need for strategic learning approaches that prioritize manageable portions of vocabulary at a time. Technical terms learned in isolation may be quickly forgotten if not applied in real-life situations or language practice. The lack of application opportunities can significantly impact retention, suggesting the importance of integrating new words into meaningful contexts for effective learning. Even when vocabulary is initially learned, retrieving it when needed can be a daunting task. This difficulty in retrieval can be mitigated by employing retrieval cues or prompts, which serve as memory triggers to facilitate recall. Boredom or disinterest in the learning process can also impede the terminology retention. Engaging and motivating learning activities are essential for maintaining interest and commitment to the learning endeavour, thereby enhancing the likelihood of retaining new words.

Teaching complex vocabulary to university engineering students presents unique challenges and opportunities. Language teachers can leverage a variety of strategies to effectively deal with the specific needs of this group, strengthening both their linguistic skills and their understanding of engineering concepts.

One effective strategy is contextual learning, where complex vocabulary is introduced within the context of engineering concepts, principles, and applications. By providing examples, case studies, and real-world scenarios, students can better understand the relevance and meaning of new vocabulary, making the learning process more engaging and meaningful.

Visual aids, diagrams, charts, and models play a crucial role in illustrating sophisticated engineering concepts and vocabulary. These visual representations not only enhance comprehension but also cater to the visual learning preferences of many engineering students, facilitating better retention of information.

Multimodal resources, including textbooks, articles, videos, simulations, and online platforms, offer a rich array of materials for presenting complex technical terminology. By incorporating multimedia elements such as animations and virtual labs, teachers can engage students and reinforce understanding in a dynamic and interactive manner. Utilizing interactive technology and digital resources, the language teacher creates engaging vocabulary activities, quizzes, or games. Online

platforms and mobile apps can provide additional practice and opportunities for self-directed learning.

Interactive activities and exercises are another powerful tool for encouraging active engagement with technical vocabulary. Group discussions, problem-solving tasks, role-plays, debates, and collaborative projects not only promote the use and application of learnt words and phrases in context but also foster critical thinking and communication skills.

Language support tailored to the specific linguistic needs of engineering students is essential. This includes offering explanations of word roots, prefixes, and suffixes, as well as strategies for deciphering unfamiliar terms through morphology and context clues. In the process of professional language training, students should know well both general scientific and interdisciplinary terms, as well as concepts from the field of study – highly specialized terms. Based on the students' language competency, the teacher carefully chooses the volume and content of the terminological dictionary throughout the terminology study. It becomes appropriate and even obligatory to keep student's personal vocabulary notebook with words related to a particular profession and its translation when working on a reading and writing with a professional focus. This vocabulary serves as a means to organize terminology knowledge and makes it easier for learners to obtain it. In order to facilitate better acquisition, the foreign language instructor should explain the fundamentals of the term, its structure, link to other terms in the specified field of use, and whether or not the phrase may be replaced with a synonym. After meticulous lexical work, language teacher organises speaking activity to guarantee that terminological units are used in constructive speech. Such support helps students navigate the complexities of the language and enhances their ability to understand and use new vocabulary effectively.

Opportunities for technical writing practice are invaluable for students to apply learnt terms in real-world contexts. Feedback and guidance on vocabulary usage, clarity, and precision in written communication can significantly improve students' ability to convey technical information accurately and effectively. Additionally, collaborative projects that involve technical writing can foster peer learning and provide students with exposure to diverse writing styles and approaches. Incorporating authentic writing tasks that mirror professional scenarios allows students to develop confidence and proficiency in using technical vocabulary appropriately. Moreover, engaging students in reflective exercises where they analyze their own writing and revise based on feedback encourages metacognitive awareness and continuous improvement in their vocabulary acquisition and technical writing skills.

According to the ideas of scaffolded learning [6], vocabulary instruction can be gradually built upon, ensures that students have a solid foundation to

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understand and assimilate new words. Starting with more familiar words in a chosen technical branch and progressively introducing more advanced terminology helps students build a comprehensive vocabulary base. The instructors can incorporate various techniques such as word maps, concept circles, and semantic webs to visually represent the relationships between words and concepts. Additionally, providing contextualized examples and real-world applications of technical vocabulary enhances students' understanding and retention of new terminology. This incremental approach not only supports students in acquiring technical vocabulary but also stimulates their confidence and autonomy in using these terms effectively in professional contexts.

The crucial task in technical vocabulary obtaining is to cultivate a positive learning environment where students feel supported and motivated to learn. With this aim, educators must praise efforts, celebrate progress, and encourage perseverance in the acquisition of terminology in professional sphere. Connecting vocabulary learning to students' interests, experiences, and cultural backgrounds, the teachers can help students overcome difficulties in retaining foreign language vocabulary and foster more effective and enduring language learning outcomes.

Regular review and repetition of complex vocabulary are key to reinforcing learning and retention. Techniques such as spaced repetition, flashcards, quizzes, and review games can help students revisit and practice previously learned terms over time, ensuring long-term retention.

Finally, integrating authentic engineering materials into language instruction exposes students to authentic language use in professional contexts. Technical manuals, research articles, conference papers, and industry reports provide real-world examples of how technical terminology is used, enabling students to develop their ability to understand and use such vocabulary in professional settings. We share the point of view of many methodologists that students in every specialization should study professionally focused terminology in a methodical and consistent manner. The structure of foreign language curriculum at technical university is usually designed so that learning new vocabulary is implemented while working on specialist texts. The consistency of this kind of activity guarantees the progressive acquisition of a particular system of professional vocabulary. That is why relevance, originality, accessibility, practical orientation, and cognitive and professional interests are requirements that must be met by the texts in the professional technical branch. This method of choosing readings helps improve vocabulary and foster a greater comprehension of terminological relationships.

**Conclusion.** In conclusion, the engineering students' knowledge of terminology is not only a way to successful international cooperation, but also a way to a deeper mastery of the future specialty. The acquisition and retention of foreign



language vocabulary in engineer sphere is a multifaceted challenge for both students and instructors at higher education establishments of technical branches. Overcoming the challenges requires a comprehensive approach that combines different learning techniques, contextual engagement, and supportive learning environments. Considering all these issues and implementing the targeted teaching strategies and support can help mitigate the overwhelming nature of the technical vocabulary acquisition for engineering students. By employing a combination of contextual learning, visual aids, multimodal resources, interactive activities, language support, technical writing practice, scaffolded learning, repetition and review, and the use of authentic materials, language instructors can effectively teach complex vocabulary to university engineering students, meeting their specific demands and improving their skills in technical vocabulary and professional communication.

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