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Преподавание английского подъязыка строительства: база данных и ее применение в институциональной образовательной виртуальной среде

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Аннотация. В настоящей статье рассматривается интеграция специализированной словарной базы

данных в курсы английского языка, разработанные специально для строительного сектора. Рассматриваются разработка и внедрение этой базы данных, а также ее применение в институциональной образовательной виртуальной среде. Учитывая специфические языковые потребности специалистов в области строительства и используя иммерсивные платформы виртуального обучения, преподаватели могут улучшить результаты студентов и устранить

пробелы в профессиональном общении, связанном со строительством.

Ключевые слова: английский язык для строителей, подъязык, база данных вокабуляра, институциональная обуча-

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Original article

Teaching English for Construction: Vocabulary Data Base and Its Implications in the Institutional Educational Virtual Environment

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Abstract. This scientific article explores the integration of a specialized vocabulary database into English

language tailored courses for the construction sector. The development and implementation of this database are examined, along with its implications in institutional educational virtual environments. By addressing the specific linguistic needs of construction professionals and leveraging immersive virtual learning platforms, educators can enhance language learning outcomes and bridge

communication gaps in construction-related contexts.

Keywords: English for construction, sublanguage, vocabulary database, institutional virtual learning

environment, professional communication

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INTRODUCTION

The construction industry is characterized by its global reach and diverse workforce, comprising individuals from various linguistic and cultural backgrounds. Effective communication among stakeholders, including architects, engineers, contractors, and labourers, is essential for project coordination, efficiency, and safety. However, language barriers often pose significant challenges, leading to misunderstandings, errors, and delays. As English continues to serve as the lingua franca of the construction industry, there is a growing recognition of the importance of language proficiency, particularly in specialized domains such as construction terminology. This article explores the development and implementation of a specialized vocabulary database aimed at enhancing English languagefor construction professionals within institutional educational virtual environments.

Traditional English language teaching methodologies may not adequately address the specialized vocabulary and jargon prevalent in the construction sector. Therefore, there is a need for targeted instruction that focuses on equipping learners with the requisite linguistic tools specific to their field. A comprehensive understanding of construction terminology is essential for effective communication, problem-solving, and decision-making on construction sites. Moreover, proficiency in English enhances career prospects and facilitates participation in international projects. By incorporating specialized vocabulary instruction into English language programs, educators can better prepare students for the linguistic demands of the construction industry.

The development of a specialized vocabulary database involves a systematic process of collecting, categorizing, and validating construction-related terms and expressions. Input from subject matter experts, industry professionals, and language educators is crucial for ensuring the accuracy and relevance of the database. Various sources, including textbooks, technical manuals, industry standards, and authentic materials, are consulted to compile a comprehensive repository of construction terminology. The database is organized hierarchically, with categories and subcategories reflecting different aspects of construction, such as building materials, structural elements, construction techniques, safety protocols, and project management terminology. Special attention is paid to variations in terminology across different English-speaking regions and construction specialties, ensuring the database's applicability in diverse contexts.

The integration of the vocabulary database into institutional educational virtual environments offers unique opportunities for immersive and interactive language instruction.

MATERIAL AND METHODS

The aim of the given research is the description of the development and implementation of a specialized vocabulary database within institutional educational virtual environment which could be applied both in the sphere of education and in the professional field as part of the qualification enhancement. It is essential, therefore, to fill it with professional terms taken from current authentic construction texts and programs in order to make it up-to-date, usable and applicable. For this reason, the research material is authentic texts of explanatory notes to foreign construction projects with a total volume of 690 pages (based on ethical principles, the names of documents are not provided), as well as English-based interfaces of BIM software tools.

The major research methods are quantitative and comparative analysis of the above-mentioned sources. The technical tool for the analysis are a specialized software developed at the Laboratory for Fundamental and Applied Issues of Virtual Education at Moscow State Linguistic University.

THEORETICAL BACKGROUND

As the process of globalization keeps penetrating all spheres of human activities, it is difficult to imagine high-quality professional training of a modern specialist without the integration of foreign languages. According to professionally oriented approach, students should develop competencies such as the ability to speak a foreign language in specific situations of professional communication, as well as the ability to work with information on the specialty taken from authentic foreign sources. Virtual learning platforms provide a dynamic and flexible medium for delivering content, engaging students, and simulating realworld construction scenarios. By leveraging multimedia resources, such as videos, simulations, interactive exercises, and virtual field trips, educators can create authentic learning experiences that contextualize vocabulary in relevant construction contexts. Virtual environments allow students to explore and interact with virtual construction sites, equipment, and tools, facilitating hands-on learning and problem-solving. Moreover, collaborative features enable students to collaborate with peers, receive feedback from instructors, and participate in group discussions, fostering a sense of community and shared learning.

Pedagogical Studies

Thea primary focus of the given research is English for specific purposes in construction as the vast majority of regulatory documents as well as special software tools, which are used by international companies in this field, are compiled mostly in English. At the same time, the domestic construction industry has developed its own terminological apparatus for many years, which is the core of the Russian construction language for specific purposes. A graduate of a construction university needs to possess knowledge of both Russian and English terminology if they want to succeed in the construction business. Although, in our previous works we described the analysis of some educational texts taken from currently used textbooks and explanatory notes to construction projects in English, where the share of professional terms to the total number of lexical units was measured. According to the obtained results, educational texts contain less terminological units (27%) than authentic professional documents (42%). It shows that such a discrepancy between the content of the studied educational materials and the content of actual authentic professional texts in English is caused primarily by the lack of active interaction between teachers and specialists in the field of construction who speak English, since the main purpose of teaching foreign language communication is to give an idea of a language for specific purposes that will help a future specialist to verbalize knowledge easily and exchange it with other members of the professional community [Pisarik, Gorozhanov, 2021].

The concept of sublanguages, a pivotal term in this discourse, warrants a retrospective exploration to elucidate its evolution and usage, thereby delineating its correlation and synonymy within Russian and foreign linguistics. The inception of scholarly interest in sublanguages dates back to the early twentieth century, primarily focused on imparting technical English to specialists. Charles Kay Ogden's pioneering effort in 1925 with Basic English exemplifies this endeavor, aimed at simplifying technical language for international communication [Ogden, 1944]. Despite criticisms, Ogden's initiative underscored the recognition of the necessity for professionals to master specialized language beyond everyday usage.

This historical context underscores the persistent quest for effective communication within specialized domains, affirming the enduring relevance of sublanguages in facilitating knowledge exchange among experts.

In the post-war period, since 1945, international relations among nations have undergone a marked escalation, fuelled by rapid economic growth. This growth catapulted the United States to a position

of unparalleled influence across social, political, military, and scientific domains, solidifying the English language as the lingua franca of international discourse. The burgeoning scientific and technical knowledge spurred collaboration among specialists worldwide, prompting a renewed interest in the study of sublanguages.

In the mid-twentieth century, Russian linguistics witnessed a surge in interest regarding professional language and its nuances. This period also saw the emergence of the theory of functional styles, championed by Vinogradov, which conceptualized language as a socially significant and situationally versatile tool. Within this framework, the scientific style emerged as a distinct functional style, characterized by the transmission and dissemination of scientific knowledge through the use of general scientific terms and abstract vocabulary [Vinogradov, 1955].

Vinogradov's delineation of the scientific style laid the groundwork for the introduction of the term "sublanguage" in Russian linguistics, particularly within the realm of scientific discourse. Comparative analyses of language subsystems revealed both universal patterns and national-specific features in their structure, content, and functions. The term "Fachsprache," introduced by the German scholar V. Porzig in 1957, served as an equivalent to the concept of LSP (language for specific purposes), highlighting the correlation between specialized language and distinct domains of human activity [Porzig, 1957].

In 1971, the Soviet and Russian linguist N. D. Andreev emphasized the intricate relationship between sublanguages and their ontology - the terminological base. Andreev defined sublanguage as a collection of linguistic elements, primarily lexical ones, and their interrelations within texts with a unified theme, operating within specific professional communities [Andreev, 1971]. Concurrently, the concept of "language for specific purposes" emerged in foreign language studies, particularly within the context of English language teaching. Coined by Tom Hutchinson and Alan Waters in 1987, this concept underscored the necessity of language proficiency for training and professional activities, reflecting a shift towards a functional paradigm in language education. Hutchinson and Waters advocated for a personalized approach to language instruction, tailoring teaching methodologies to individual needs and motivations, a concept now recognized as personality-oriented in linguodidactics [Hutchinson, Waters, 1987].

Since the late 1960s, the development of sublanguage theory and language for specific purposes has been a focal point in linguistics and linguodidactics. From the 1990s to the present, researchers have continued to investigate sublanguages across

technical, natural, and humanitarian sciences. In foreign linguistics, the term "sublanguage" was occasionally equated with "artificial languages," such as Basic English, due to their lexical and grammatical constraints. However, this narrow perspective fails to acknowledge the diversity inherent in sublanguages, characterized by unique vocabularies and terminological richness.

In modern linguistics, there is considerable research dedicated to exploring the relationship between the concepts of sublanguage and language for specific purposes. Modern linguists offer diverse interpretations of these terms, revealing a nuanced understanding of their roles and functions.

According to T. V. Khomutova, a sublanguage represents a segment of a natural language that describes a specific domain of human activity, free from lexical and grammatical constraints imposed by everyday communication or the communicative situation [Khomutova, 2007]. A. V. Superanskaya posits that special sublanguages serve as the ontological foundation for professional activities, transcending every day and literary communication boundaries. Furthermore, certain types of fiction texts imbued with retro components can also be categorized under sublanguages [Superanskaya, 2003].

Both T. V. Khomutova and O. A. Zyablova emphasize the dependence of language for specific purposes on the resources of the general literary language. O. A. Zyablova highlights that while language for specific purposes, like a sublanguage, forms an ontological base for professional communication rooted in the national language, it is delineated by its functional limitations and precision in interpreting specialized vocabulary [Zyablova, 2005].

From the standpoint of applied linguistics, there exists a notable correlation and synonymy between sublanguage and language for specific purposes in terms of their functionality and usage. Both concepts contrast with the national language used in everyday communication and literature, serving distinct domains of specialized discourse. Additionally, they share common interpretations in language didactics as artificially created languages for educational purposes and in linguistics as components of natural language describing professional ontology. Therefore, within modern linguistics, the terms "sublanguage" and "language for specific purposes" can be regarded as synonymous, underscoring their integral roles in facilitating specialized communication. In our research, the term "English for specific purposes" is employed to denote the specialized use of English within particular professional contexts.

STUDY AND RESULTS

As the paper focuses on the organization of training English for construction in the framework of Institutional Educational Virtual Environment, it is necessary to clarify this notion and give its brief description.

We will define Institutional Educational Virtual Environment after A. I. Gorozhanovas 'populated' organized and self-organizing (synergetic) dynamic professional institutional information space, which serves the purpose of incrementing positive knowledge, and also performs a number of particular tasks, consists of connected nodes which are hosted on the Internet and are accessible through authorized user accounts with roles hierarchy, provides for its further development and for improving its quality with increasing experience gained in it in the form of feedback and remains an individualized tool for gaining experience during study (work) in the given organization [Gorozhanov, 2019, p. 23]. The main task of Institutional Educational Virtual Environment is to help future professionals take their first step into a full-fledged existence in Educational Virtual Environments (we will designate it for clarity a 'macro-environment', in relation to which an Institutional Educational Virtual Environment can be a node or a 'micro-environment', since it can consist of nodes itself). In the framework of this research, a vocabulary data base will be created as a node of Institutional Educational Virtual Environment which will be used for training English for construction.

This concept is being actively developed at the Laboratory of Fundamental and Applied Issues of Virtual Education at MSLU, and it is aimed at combining disparate educational software products into a single system in which each element, that is, a node, has its own functional purpose. According to this approach, there are nodes – entry points, which can act as LMS, on the basis of which students acquire primary skills of working with educational software. It is also possible to identify commercial nodes that the university develops for teaching various disciplines on a paid basis. The educational database being described in this paper will relate more to the node the entry point, since it is intended to teach students English for construction. This database itself can act as a node, since it exhibits many of its properties: it is available on the Internet, it is accessible through an account, and it can be replenished with new entries by the students themselves, thus it improves its quality as the number of its users increases.

To showcase the educational significance of the database in teaching, let us delve into an example of its application at the Laboratory of Fundamental and Applied Issues of Virtual Education at MSLU. The



Fig. 1. View Control Bar

database development involved compiling a list of English nouns (phrases with the main noun) intersecting three knowledge areas: "Information Technology," "Pedagogy," and "Linguistics," or directly linked to face-to-face lecture materials. While not entirely formalizable, this condition served as a guideline, encouraging student initiative. The primary English noun had to be unique, with equivalents provided in German and Russian, along with usage examples in both languages within common sentences. A web page was created within Moodle for easy navigation, presenting an alphabetical list of approved terms. This facilitated student interaction with the database, preventing duplication. The database comprised 379 entries, totalling over 130,000 printed characters. Additionally, it acted as a basis for a compensatory mechanism, motivating students unable to complete tasks for various reasons to engage and contribute, thus enlivening Moodle courses and fostering teamwork skills and a sense of responsibility for their digital product contribution [Gorozhanov, 2015].

According to the interpretation of the scholars N. D. Andreev and V. D. Bondalyetov, who first described the professional sublanguage, this subsystem represents "a set of various linguistic elements and their relationships in texts with homogeneous themes" [Andreev, 1965]. Later, by expanding and refining the concept, linguists identified the determining features of sublanguages, allowing them to distinguish them from the commonly used national language. Thus, one of their key characteristics was defined - the saturation of texts with terminology [Superanskaya, 2003]. Considering this feature, modern researchers propose the following definition of sublanguages of professional communication it is a special linguistic subsystem, emerged based on the commonly used language, drawing common characteristics from it at all levels of the language system, however, having specialized vocabulary and limited scope of use (ontology) and users in both official and unofficial professional communication [Khomutova, 2007].

This article focuses primarily on the English sublanguage of construction, its teaching, and also describes another defining feature, namely, the degree of creolization of construction-themed texts, which necessitates combining verbal and non-verbal means of expression in its teaching.

In modern linguistics, creolized texts are those in which various semiotic codes are combined,

meaning that heterogeneous means are closely intertwined - linguistic (language or speech) and paralinguistic (paraphemic or iconic) [Sorokin, Tarasov, 1990]. Paraphemic language means include drawings, photographs, tables, diagrams, sketches, etc., which in turn differ in their degree of attachment to the verbal component of the text, their role in organizing its content, and their functions in the text [Anisimova, 2003]. The dominance of paralinquistic means is particularly evident in the written communication of the architecture and construction sphere. Thus, in explanatory notes for projects, it is impossible to perceive linguistic explanations and drawings separately, as only in combination do they form a complete and most accurate description and understanding of the project as a whole, referring to

Based on the above, it is clear that the degree of creolization of the construction sublanguage is quite high, as only the presence of non-verbal means (diagrams, drawings, sketches, etc.), their decoding, and interpretation can ensure a complete understanding of the transmitted textual information, which needs to be taken into account in the development of educational materials.

Digitization and optimization of processes in the field of architecture and construction, as well as the intensification of professional communication at the international level, inevitably lead to the need for retraining and qualification enhancement of existing specialists. The increasing use of BIM (Building Information Modeling) technologies in civil and industrial design also confirms the inevitability of the process of additional training of specialists, in particular, in the English language, since most BIM programs, such as Revit, ArchiCad, Allplan, etc., do not have interfaces in Russian.

This study proposes the development of a database on the Moodle LMS platform as part of an online course aimed at enhancing the qualifications of professionals in the field of BIM design, and also describes an example of its content. The database will contain not only verbal descriptions of the studied phenomena of BIM design but also their graphical representation, as they are inseparably linked; the absence of one of the parts significantly complicates the perception of the phenomenon. This is confirmed by research in the field of creolization of construction-themed texts, where the use of paralinguistic means in creating speech works plays a key role

in understanding verbal descriptions, as mentioned above [Gauzenblaz, 1978].

Thus, the online course for the qualification enhancement of BIM designers will include familiarization with the terminology of the English sublanguage in the field of BIM, combining their verbal and graphical representation.

Responding to the main positions of the Web 2.0 paradigm, the Moodle LMS information node – the database - will contain terms and their graphical representation from the field of BIM design required for successful assimilation of the study material [Gorozhanov, 2019]. As participants progress through the course, they will be able to update existing records and/or add new entries to the database as needed, creating an individual trajectory for learning the terminology of the English construction sublanguage. Paraphemic means accompanying textual records will optimize and expedite their correct understanding and usage. Thus, course participants will have a constantly updating interactive glossary of terms with their graphical representation, significantly facilitating the process of retraining and qualification enhancement.

As an example of database content, let's select a part of the English interface of the BIM modeling software Autodesk Revit "view control bar" (see Figure 1):

The course instructor, who leads and moderates the course, adds a new entry to the database on the topic covered, in our case, the concept of "view control bar" in English, writes its Russian equivalent "строкауправлениявидимостью," and uploads an illustration (see Fig. 1). The task for course participants is to fill in the database cells with descriptions in Russian and English, if necessary, enter additional relevant entries based on the specified parameters:

The view control bar is typically located at the bottom of the Revit window, and it may contain

different tools depending on the view that is currently active;

The *view control bar* contains various icons depending on the type of view being worked with.

The main feature of the course database will be that each new entry must be accompanied by a graphical illustration (diagram, drawing, blueprint, etc.), as such an approach will significantly increase the productivity of the course, and for participants who complete the training, there will be a full-fledged interactive information node, access to which will remain with them forever. As a research perspective, the software implementation of the proposed database and its testing in a professional environment can be mentioned.

CONCLUSION

In conclusion, the development and implementation of a specialized vocabulary database within institutional educational virtual environments offer promising avenues for enhancing English language proficiency among construction professionals. By addressing the unique linguistic challenges faced in the construction industry, such as specialized terminology and creolized texts, educators can better prepare students for effective communication and collaboration in their field. Through the integration of multimedia resources and interactive learning experiences, virtual environments provide dynamic platforms for contextualizing vocabulary and fostering handson learning. Furthermore, the creation of structured databases, such as the one proposed, facilitates organized data storage and retrieval, ensuring efficient access to relevant information for language learners. As the construction industry continues to evolve and globalize, initiatives aimed at improving language proficiency will play a crucial role in promoting efficiency, safety, and innovation within the field

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ИНФОРМАЦИЯ ОБ АВТОРЕ

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