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## THE TECHNOLOGY FOR CREATING A TERMINOLOGICAL THESAURUS AND PROSPECTS FOR ITS USE IN EDUCATION

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### Abstract

This article examines the theoretical and methodological foundations for creating terminological thesauri, their linguistic and semantic characteristics, and the possibilities for modeling them using modern information technologies. It explores the systematization of hierarchical, paradigmatic, and semantic relationships between terms. Furthermore, the prospects for automatically generating thesauri with the help of artificial intelligence, machine learning, and natural language processing technologies are substantiated. The research scientifically highlights the significance of terminological thesauri in systematizing knowledge within the educational process, personalizing learning activities, and enhancing the quality of education.

**Keywords:** Thesaurus, terminology, information technology, artificial intelligence, education, linguistics.

### Introduction

Since terminological thesauruses are developing in close connection with information technologies in the educational process, in the research works of scientists E. Kiriyaov and M. Abzhalova, they are manifested as an important tool for systematizing scientific knowledge, identifying connections between concepts, and increasing the effectiveness of the educational process. In particular, the creation of thesauruses of agricultural terms provides an opportunity for further organizing educational materials, ensuring


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interdisciplinary connections, and a holistic understanding of the topics by students. Therefore, the creation of terminological thesauruses of agricultural terms is relevant as an important component of individual education, sectoral education, and the educational process as a whole. They are significant not only in traditional teaching methods, but also in digital educational platforms, online courses, and intelligent learning systems, as well as in scientific research conducted in the field of agriculture.

Terminologik tezauruslarni yaratish texnologiyasining asosiy tamoyillari, ularning ta'lim jarayonidagi funksional imkoniyatlari va istiqbolli yo'nalishlari har tomonlama tahlil qilinadi. Ushbu jarayonda tezaurus tuzilishining lingvistik, semantik va texnologik asoslari ko'rib chiqilib, ularning ilmiy-texnikaviy jihatdan rivojlantirilish mexanizmlari ham o'rganiladi. Shu qatorda, terminologik tezauruslarning foydalanuvchilar uchun qulay interfeysga ega bo'lishi, intuitiv qidiruv tizimlari bilan ta'minlanishi hamda interaktiv ta'lim resurslari bilan integratsiyalashuvi masalalari ham muhokama etiladi.

Furthermore, special attention will be paid to the integration of thesauruses with modern information technologies and their development based on artificial intelligence and machine learning approaches. Specifically, the possibilities of automatically creating thesauruses using natural language processing technologies and updating them in real time will be discussed. This creates a foundation for thesauruses to function not merely as static databases but as dynamically evolving intelligent systems. This study will also reflect on the practical applications of terminological thesauruses in the educational process, their role in the systematic teaching of learning materials, and their impact on pedagogical methodology. Their compatibility with electronic textbooks, digital libraries, and educational artificial intelligence systems, as well as their role in supporting students' individual learning approaches, will be analyzed. Overall, this research thoroughly illuminates the place of terminological thesauruses in modern education and scientific inquiry, serving to define their development prospects.

Thus, the rapid development of information technologies and the expansion of digital knowledge resources are increasing the demand for lexicography and data

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systematization. Thesauruses play a crucial role in the process of correctly understanding and systematically classifying linguistic units and their semantic relationships. They are used not only to organize vocabulary but also as an effective tool in information retrieval, computational linguistics, machine translation, and in educational and research processes.

Thesaurus dictionaries help to define terms in various fields, study their interrelationships, and systematize knowledge. Their importance is observed to be growing, especially in the current era of advanced artificial intelligence and natural language processing technologies.

The linguistic and network-oriented aspects of thesauruses, their main features, their integration with information technologies, and their development prospects will be comprehensively analyzed. Additionally, the role of thesauruses in modern education and science, their function in automated systems, and future development directions will be considered.

A thesaurus is a special type of dictionary that systematically reflects the semantic relations between lexical units and concepts in a certain field of science, language, or academic discipline. Unlike traditional explanatory dictionaries, this linguistic source is not limited to just defining words, but also covers their semantic connections such as synonyms, antonyms, hyperonyms, hyponyms, holonyms, and meronyms. For example, the connection between terms with the same or similar meanings, such as "harvest" and "harvest," "irrigation" and "soil moistening," is expressed through synonyms. Antonyms express opposite concepts: "productivity" is the opposite of the concept of "drought," and "sowing" is the opposite of the concept of "harvesting." Hyperonymy is used to indicate general concepts: crop - a general category that includes specific species such as wheat, vegetables, and fruits. These special types are hyponyms. Holonymic relations are manifested through terms that form a whole. For example, the concept of "farm" includes such components as "cow barn," "irrigation system," "feed storage." On the contrary, the meronymic relation expresses the whole-part relation: cow - whole, its components are such terms as udder, horn, and hoof.

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From the point of view of modern linguistics, thesauruses are considered as an important scientific tool for studying lexico-semantic systems, systematizing language units, and determining their semantic relations. In particular, thesauruses are widely used for conducting research in such areas of linguistics as lexicography, semasiology, onomasiology, as well as for semantic data processing in the fields of artificial intelligence and computational linguistics.

Thesauruses have a wide range of applications and are important in natural language processing (NLP), machine translation systems, semantic indexing of texts, information retrieval mechanisms, terminological analysis, and speech recognition technologies. For example, search engines like Google or Yandex use thesauruses to provide the most relevant results based on keywords entered by the user. Similarly, in computer linguistics systems such as WordNet, the semantic field and semantic relations of words are determined based on a thesaurus.

Thesauruses are one of the main semantic resources, especially in the processes of automated processing of scientific and technical texts, computer linguistics, and the presentation of knowledge based on artificial intelligence. For example, machine translation systems such as Google Translate, Yandex Translate, DeepL, ChatGPT, and Tilmoch use thesauruses to identify different meanings of a word depending on the context and provide appropriate translation options. Therefore, the study of their structure, principles, and possibilities of application is a relevant scientific issue at the intersection of modern linguistics and information technologies.

Thus, using thesauruses in the educational process serves as a vital tool for enriching students' vocabulary, fostering a deeper understanding of texts, and developing the skills to express thoughts clearly and freely. Notably, their integration with modern information technologies is ushering in a new stage in education. For instance, intelligent thesaurus systems based on artificial intelligence support independent learning by automatically providing students with synonyms, antonyms, contextual explanations, and recommendations.

The implementation of such systems into online learning platforms, electronic textbooks, and mobile applications makes the educational process more

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interactive, personalized (i.e., tailored to the needs of each student), and engaging. This increases student motivation and has a positive impact on the quality of education.

Furthermore, for students and researchers conducting scientific research, thesauruses are of great assistance in conceptual analysis, clarifying scientific terms, and understanding the logical connections between topics. From this perspective, developing intelligent and multilingual thesaurus systems and continuously improving them with the help of artificial intelligence is considered one of the promising directions in the fields of education and science.

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