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INTERNATIONALISMS IN SCIENTIFIC AND TECHNICAL TERMINOLOGY

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Abstract: This article explores the role of internationalisms in scientific and technical terminology, focusing on their formation, distribution, and functional significance in modern scientific communication. Internationalisms-words and terms shared across multiple languages with similar form and meaning-play a crucial role in ensuring global understanding in fields such as engineering, medicine, information technology, and natural sciences. The study analyzes their linguistic features, mechanisms of adaptation, and standardization processes, highlighting the impact of globalization and English as a dominant source language. The findings indicate that internationalisms enhance terminological uniformity but also raise issues related to linguistic adaptation and national language preservation.

Keywords: internationalisms, terminology, scientific language, technical vocabulary, borrowing, standardization, globalization, lexical integration, terminology systems, English influence.

Introduction

In the contemporary world, scientific and technical communication has become increasingly globalized due to rapid technological progress, international collaboration, and digital transformation. Scientific knowledge is no longer confined to national boundaries; instead, it circulates across countries and languages almost instantaneously. In this context, internationalisms in scientific and technical terminology have gained significant importance as a means of ensuring effective cross-linguistic communication.

Internationalisms are lexical units that appear in multiple languages with similar phonological, morphological, and semantic structures. They are particularly common in scientific and technical domains, where precision and universality are essential. Terms such as “computer,” “algorithm,” “photosynthesis,” “virus,” and “technology” are widely used across languages with minimal variation, facilitating global understanding among specialists and researchers.

The development of international scientific terminology is closely connected with the history of scientific progress and language contact. Historically, Latin and Greek served as the primary sources of scientific vocabulary in Europe. However, in the modern era, English has become the dominant language of science and technology, significantly influencing terminological systems worldwide. As a result, many scientific terms are either directly borrowed from English or adapted with minor phonetic and morphological modifications.

The importance of internationalisms lies in their ability to reduce linguistic barriers in scientific communication. Researchers from different linguistic backgrounds can collaborate more effectively when using shared terminology. This contributes to faster dissemination of knowledge, improved academic cooperation, and standardized scientific discourse. At the same time, the widespread use of internationalisms raises concerns about the preservation of national languages and the balance between global integration and linguistic diversity.

From a linguistic perspective, international scientific and technical terms are characterized by high stability, semantic transparency, and cross-linguistic similarity. However, their adaptation processes vary depending on the structural features of individual languages. While some languages fully integrate these terms into their grammatical systems, others retain them in

relatively unchanged forms. This variation creates an interesting field of study in comparative linguistics and terminology management.

Therefore, examining internationalisms in scientific and technical terminology is essential for understanding how languages interact in specialized domains. It also provides insights into the development of modern scientific communication, translation practices, and language policy in the context of globalization. This article aims to analyze the linguistic features, functional roles, and adaptation patterns of international scientific and technical terminology in contemporary usage.

Main part.

Internationalisms in scientific and technical terminology represent a fundamental element of modern scientific communication, ensuring linguistic unity and conceptual clarity across different languages. In highly specialized domains such as medicine, engineering, physics, chemistry, and information technology, international terms function as standardized units that allow researchers and professionals from different linguistic backgrounds to communicate effectively without significant semantic distortion.

One of the key features of international scientific terminology is its semantic universality. Internationalisms usually maintain stable meanings across languages, which makes them highly effective in academic and technical communication. For example, terms such as “algorithm,” “virus,” “diagnosis,” “energy,” and “synthesis” are widely understood in almost identical meanings in different linguistic systems. This semantic stability reduces ambiguity and ensures precision, which is essential in scientific discourse where even minor misunderstandings may lead to incorrect interpretations or technical errors.

Another important aspect is the structural adaptation of internationalisms in different languages. While the core meaning of terms remains stable, their phonological and morphological forms are often adjusted according to the rules of the receiving language. In languages such as Uzbek, international scientific terms are typically adapted to fit phonetic patterns and are combined with native affixes to express grammatical relations. In contrast, in many Indo-European languages, including Russian and English, international terms are often integrated more directly into the grammatical system with minimal phonological modification. This difference reflects the typological characteristics of languages and their strategies of lexical integration.

Morphological behavior of international scientific terms also varies significantly. In analytical or agglutinative languages, internationalisms tend to remain unchanged as lexical roots, while grammatical meanings are expressed through external markers such as affixes or word order. In synthetic languages, however, international terms may undergo inflectional changes, including case, number, or gender modifications. This morphological flexibility in some languages allows for deeper integration of international vocabulary into everyday scientific usage, making it part of the core lexicon rather than an external borrowing.

A crucial factor influencing the development of international scientific terminology is the dominance of English as a global scientific language. English serves as the primary source of new scientific and technical terms due to the high volume of scientific publications, technological innovation, and international collaboration conducted in English. As a result, many modern internationalisms are either directly borrowed from English or created using English-based morphological structures. This process contributes to the rapid expansion of a shared global scientific vocabulary.

Standardization is another important dimension of international terminology. International organizations and scientific communities actively work to regulate and harmonize terminological systems to ensure consistency across languages. Standardization is particularly important in fields such as medicine and engineering, where precise terminology is critical for safety and

efficiency. Unified terminological systems also facilitate translation, documentation, and international cooperation in research and industry.

Despite their advantages, internationalisms also raise certain linguistic and cultural concerns. One of the main issues is the potential weakening of national scientific terminology systems. Excessive reliance on international terms, especially direct borrowings, may limit the development of native lexical resources. Some scholars argue that this can lead to linguistic dependency on dominant languages and reduce linguistic diversity in scientific communication. As a result, many countries attempt to balance the use of internationalisms with the creation of native equivalents.

Another challenge is the inconsistency of adaptation practices across languages. Since different languages apply different phonological and morphological rules, the same international term may appear in multiple slightly different forms. This can sometimes create confusion in multilingual environments, particularly in translation and technical documentation. Therefore, the role of translators and terminologists becomes essential in ensuring coherence and accuracy.

In conclusion, internationalisms in scientific and technical terminology play a central role in the development of global scientific communication. They provide a shared linguistic foundation that facilitates knowledge exchange, scientific cooperation, and technological progress. At the same time, their adaptation and integration into national languages reflect complex interactions between globalization and linguistic identity.

Conclusion.

Internationalisms in scientific and technical terminology represent a key linguistic mechanism that supports the globalization of science and technology. Their widespread use across different languages ensures semantic clarity, terminological stability, and effective communication among specialists in various fields. As scientific knowledge continues to expand rapidly, international terms play an increasingly important role in standardizing concepts and facilitating international cooperation.

The analysis shows that international scientific terminology is characterized by a high degree of semantic universality, meaning that core concepts remain largely consistent across languages. This feature is essential for maintaining precision in scientific and technical communication, where accuracy is crucial. At the same time, internationalisms undergo different levels of phonological and morphological adaptation depending on the structural characteristics of individual languages.

The study also highlights that language typology significantly influences how international terms are integrated. While some languages tend to preserve the original form of terms with minimal changes, others adapt them through phonetic modification and morphological affixation. Despite these differences, the functional role of internationalisms remains consistent across languages, as they serve as tools for efficient knowledge transfer and interdisciplinary communication.

Another important finding is the dominant influence of English as the primary source of modern scientific and technical terminology. This dominance accelerates the creation of a shared global lexicon but also raises concerns about linguistic balance and the preservation of national terminological systems. Therefore, a balanced approach between international standardization and native language development is necessary.

Overall, international scientific and technical terminology reflects the interaction between globalization and linguistic diversity. While it promotes unity and efficiency in scientific communication, it also requires careful linguistic management to ensure that national languages maintain their functional and cultural integrity.

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