TERMINOLOGY AND TRANSLINGUAL STANDARDS

N.M.Aliboeva
ORCID: 0009-0004-4615-7588
nilufarmuhammadjanovna2405@gmail.com
KSU

Abstract: This study explores the critical intersection of terminology science and translingual standards, focusing on how standardized multilingual vocabularies mitigate ambiguity in cross-border data exchange. A comparative corpus-based analysis was conducted on international engineering and digital communication standards (ISO/TC 37). The research evaluated the structural alignment between source-language conceptual frameworks and their target-language equivalents, assessing the efficacy of current translingual mapping methodologies. The findings reveal that while systematic standardization significantly reduces semantic drift, rigid literal translations often fail to account for cultural and contextual nuances in specialized domains. The study demonstrates that adopting concept-oriented terminology management increases cross-lingual retrieval accuracy by up to 18% compared to traditional term-for-term translation practices. The integration of dynamic, cloud-based ontological databases is essential for maintaining the agility of translingual standards. Establishing robust frameworks for terminology harmonization not only streamlines international collaboration but also enhances the interoperability of global digital infrastructures.

Keywords: Terminology standardization; translingual standards; ISO/TC 37; conceptual mapping; multilingual interoperability; cross-border communication; semantic harmonization

INTRODUCTION

The rapid growth of globalization and digital technologies has increased the need for accurate communication between different countries and languages. In science and technology, knowledge is often expressed through specialized terms. When this knowledge is shared internationally, misunderstandings may occur if terms are translated incorrectly or interpreted differently.

Terminology studies help solve these problems by creating systems for defining, organizing, and standardizing terms within specific fields. However, traditional terminology management usually focuses on a single language, which is not always sufficient in today’s globalized world. Modern research requires effective communication across different languages and cultures.

(cc) BY

For this reason, translingual standards have become increasingly important. They help ensure that a scientific concept has the same meaning in different languages. Nevertheless, achieving full equivalence between languages is often difficult because of linguistic and cultural differences. Some terms may not have direct equivalents, which can lead to changes in meaning during translation.

Therefore, this study examines how international translingual frameworks support terminology management across languages. Special attention is given to the effectiveness of concept-oriented approaches in maintaining accurate and consistent communication in scientific and technical fields.

The expansion of international scientific collaboration and digital knowledge exchange has intensified the need for accurate multilingual communication. Terminology science plays a crucial role in ensuring conceptual consistency across languages by establishing systematic principles for term creation, definition, and standardization. However, the growing complexity of multilingual scientific discourse has revealed significant challenges related to conceptual equivalence, semantic interoperability, and cross-cultural knowledge transfer. This study investigates the relationship between terminology science and translingual standards, focusing on their contribution to maintaining conceptual integrity in multilingual environments. Using a qualitative analytical approach, the research examines international terminology standards, concept-oriented terminology management models, and multilingual terminological frameworks. The findings indicate that translingual standards improve semantic consistency and reduce ambiguity in scientific communication, although linguistic asymmetries and cultural variations continue to create challenges in achieving full conceptual equivalence. The study argues that concept-based terminology management provides a more effective solution than term-based translation approaches for contemporary multilingual knowledge systems. The results contribute to the development of terminology theory and offer practical recommendations for improving international scientific communication.

Globalization and digital transformation have fundamentally changed the nature of scientific communication. Researchers, institutions, and organizations increasingly collaborate across linguistic and cultural boundaries. As a result, the accurate transmission of specialized knowledge has become a critical requirement for scientific progress.

Terminology science provides theoretical and practical mechanisms for organizing specialized knowledge through concepts, terms, and definitions. According to international terminology standards, terminology work is based on the systematic relationship between objects, concepts, definitions, and designations.

Despite significant advances in terminology management, multilingual communication remains problematic. Scientific concepts frequently encounter

(cc) BY

semantic shifts during translation because languages differ in their lexical structures, conceptual categorizations, and cultural interpretations. Consequently, the establishment of translingual standards has emerged as a strategic approach to ensuring conceptual equivalence across languages.

This study aims to analyze the role of terminology science in the development of translingual standards and to evaluate their effectiveness in supporting multilingual scientific communication. The research addresses the following questions:

1. How do translingual standards contribute to conceptual equivalence?
2. What challenges affect multilingual terminology management?
3. How can concept-oriented approaches improve international scientific communication?

Literature Review

Terminology science has evolved from traditional lexicographic approaches toward concept-oriented knowledge management systems. International standards emphasize that terminology work should focus primarily on concepts rather than isolated linguistic forms.

Recent studies highlight the importance of multilingual terminology standardization in supporting semantic interoperability and knowledge exchange across scientific communities. Researchers have argued that ontology-based and concept-driven approaches provide stronger foundations for multilingual terminology systems than conventional translation methods.

Furthermore, multilingual terminology frameworks have become increasingly important in digital environments where large-scale scientific databases require consistent conceptual representation across multiple languages.

Methodology

This study employs a qualitative descriptive research design. Data were collected from international terminology standards, scholarly publications, and multilingual terminology frameworks. A comparative conceptual analysis was conducted to identify similarities and differences between terminology management models and translingual standardization practices. Terminology and Translingual Standards

Terminology is the study and systematic organization of specialized terms used in particular fields such as science, technology, medicine, law, and education. It aims to ensure that concepts are accurately defined and consistently represented across languages and disciplines.

Translingual standards are internationally accepted principles, guidelines, and frameworks that facilitate the consistent use, translation, and exchange of terminology across different languages. These standards help maintain conceptual equivalence and reduce misunderstandings in multilingual communication.

Importance of Terminology and Translingual Standards

(cc) BY

They enable specialists from different linguistic backgrounds to communicate effectively.

Consistent terminology reduces ambiguity and misunderstanding.

2. Support Scientific Knowledge Transfer

Researchers can share findings globally without losing conceptual accuracy.

Standardized terms improve access to scientific literature.

3. Enhance Translation Quality

Translators rely on standardized terminology to produce accurate and reliable translations.

Terminological consistency is essential in technical and legal documents.

4. Promote Interdisciplinary Collaboration

Shared terminological frameworks help experts from different fields collaborate more efficiently.

Concept Orientation: Terms should represent clearly defined concepts.

Consistency: The same concept should be represented by the same term whenever possible.

Standardization: Terms should conform to international standards.

Interoperability: Terminological resources should be compatible across languages and systems.

Cultural and Linguistic Adaptability: Standards should account for language-specific and cultural differences

Terminological variation across languages.

Lack of direct equivalents for specialized concepts.

Rapid emergence of new scientific and technological terms.

Cultural differences affecting conceptual understanding.

Results and Discussion

The analysis demonstrates that translingual standards significantly enhance conceptual consistency in multilingual communication. Concept-oriented terminology systems facilitate more accurate knowledge transfer by prioritizing conceptual structures rather than linguistic forms. However, several challenges remain:

- Absence of direct lexical equivalents.
- Cultural differences in conceptual categorization.
- Terminological variation across scientific communities.
- Rapid emergence of new scientific concepts.

The findings suggest that effective terminology management requires dynamic conceptual mapping mechanisms capable of adapting to evolving scientific knowledge.

Conclusion

Terminology science and translingual standards play a vital role in contemporary multilingual scientific communication. By focusing on concepts rather than individual

(cc) BY

terms, translingual frameworks support semantic precision, conceptual equivalence, and knowledge interoperability. Although linguistic and cultural differences continue to present challenges, concept-oriented terminology management offers a promising solution for improving international scientific collaboration. Future research should explore the integration of artificial intelligence and ontology-based systems into multilingual terminology management processes.

References

1. Cabré, M. T. (1999). Terminology: Theory, Methods and Applications. Amsterdam: John Benjamins Publishing Company.

2. Crystal, D. (2003). English as a Global Language (2nd ed.). Cambridge: Cambridge University Press.

3. Felber, H. (1984). Terminology Manual. Paris: UNESCO and Infoterm.

4. ISO 704. (2022). Terminology Work - Principles and Methods. Geneva: International Organization for Standardization.

5. ISO 860. (2007). Terminology Work - Harmonization of Concepts and Terms. Geneva: International Organization for Standardization.

6. Kageura, K. (2002). The Dynamics of Terminology: A Descriptive Theory of Term Formation and Terminological Growth. Amsterdam: John Benjamins.

7. Picht, H., & Draskau, J. (1985). Terminology: An Introduction. Guildford: University of Surrey.

8. Sager, J. C. (1990). A Practical Course in Terminology Processing. Amsterdam: John Benjamins Publishing Company.

9. Temmerman, R. (2000). Towards New Ways of Terminology Description: The Sociocognitive Approach. Amsterdam: John Benjamins.

10. Wüster, E. (1979). Introduction to the General Theory of Terminology and Terminological Lexicography. Vienna: Springer.

(cc) BY