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A COMPARATIVE LINGUISTIC ANALYSIS OF ARTIFICIAL INTELLIGENCE DISCOURSE TERMINOLOGY IN ENGLISH AND UZBEK

Shokirjonova Bibinirbegim Ruslonbek kizi

Urgench RANCH University of Technology

Abstract : The rapid expansion of artificial intelligence (AI) technologies has led to the emergence of a specialized and dynamically evolving terminological system that plays a crucial role in scientific, educational, and public discourse. This article presents a comparative linguistic analysis of artificial intelligence discourse terminology in English and Uzbek, focusing on structural, semantic, and functional aspects of term formation and usage. The study aims to identify similarities and differences in the development, adaptation, and standardization of AI-related terminology in both languages.

Keywords: artificial intelligence discourse, terminology, comparative linguistics, English–Uzbek analysis, term formation, semantic equivalence

Artificial intelligence has become one of the most influential domains of contemporary science and technology, significantly shaping modern communication, knowledge production, and professional discourse. Along with technological advancement, AI has generated a rapidly expanding body of specialized terminology that reflects new concepts, processes, and cognitive models. Language, as a dynamic system, responds to these innovations by developing new lexical units or adapting existing ones. English occupies a dominant position in global AI discourse, functioning as the primary source language for terminological creation and dissemination. Consequently, many languages, including Uzbek, rely heavily on English when incorporating AI-related terms. This process raises important linguistic questions concerning term formation, semantic equivalence, borrowing strategies, and the integration of foreign terminology into national language systems. The present study aims to conduct a comparative linguistic analysis of artificial intelligence discourse terminology in English and Uzbek. By examining structural, semantic, and functional features of AI terms, the research seeks to reveal how both languages conceptualize and linguistically represent artificial intelligence-related knowledge.

Terminology constitutes a specialized subsystem of language designed to ensure precise and unambiguous communication within professional domains. According to terminological theory, a term is a linguistic unit that denotes a specific concept within a particular field of knowledge. Unlike general vocabulary, terms are expected to be stable, systematic, and context-independent. In emerging fields such as artificial intelligence, terminological systems develop rapidly and often lack full standardization. This results in synonymy, polysemy, and conceptual overlap, especially in languages that adopt terminology through borrowing rather than internal word formation.

AI discourse encompasses scientific, technical, educational, and popular texts that discuss artificial intelligence concepts and applications. This discourse is characterized by a high density of specialized terms, metaphorical naming, and interdisciplinary borrowing from mathematics, neuroscience, linguistics, and philosophy. From a linguistic perspective, AI discourse is significant because it illustrates how language responds to cognitive and technological innovation. Comparative analysis of AI terminology across languages provides insight into cross-linguistic conceptualization and knowledge transfer. The research corpus consists of approximately 120 English AI-related terms and their Uzbek equivalents. The data were collected from:

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Scientific articles and textbooks on artificial intelligence

University-level educational materials

Official glossaries and digital technology platforms

Examples include terms such as *artificial intelligence*, *machine learning*, *neural network*, *algorithm*, and *deep learning*.

The study employs the following methods:

Comparative linguistic analysis

Structural and morphological analysis

Semantic equivalence analysis

Discourse-functional analysis

Each term was analyzed in terms of its form, meaning, origin, and usage context in both languages.

English AI terminology predominantly relies on:

Compound nouns (*machine learning*, *neural network*)

Derivational morphology (*automation*, *classification*)

Metaphorical extensions (*neural*, *learning*, *intelligence*)

Such structures allow English to efficiently encode complex concepts using concise lexical units. Metaphor plays a crucial role in conceptualizing abstract computational processes through human cognitive analogies.

Uzbek AI terminology exhibits a mixed formation pattern:

Direct borrowings (*algoritim*, *model*, *neuron*)

Calques (*sun'iy intellekt* for *artificial intelligence*)

Hybrid formations (*ma'lumotlar bazasi*, *o'rganish algoritmi*)

While Uzbek possesses rich morphological resources, reliance on borrowed forms remains prevalent due to the rapid pace of technological development.

The analysis identifies three main types of equivalence between English and Uzbek AI terms:

Full equivalence (*artificial intelligence* – *sun'iy intellekt*)

Partial equivalence (*learning* – *o'rganish*, with semantic narrowing)

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Non-equivalence (terms without established Uzbek counterparts)

Partial equivalence often results in semantic shifts, where the Uzbek term lacks the full conceptual scope of its English counterpart. Semantic ambiguity arises when borrowed terms are used inconsistently across different contexts. For example, the term *model* may refer to statistical, computational, or conceptual representations, while its Uzbek equivalent *model* may require contextual clarification. In scientific discourse, English AI terminology maintains a high level of precision and standardization. Uzbek educational texts, however, often demonstrate terminological variation, reflecting ongoing processes of adaptation and normalization. AI terms also perform pragmatic functions by signaling expertise, authority, and technological advancement. In Uzbek discourse, the use of untranslated English terms sometimes serves as a marker of professionalism, although it may hinder accessibility for non-specialist audiences.

The comparative analysis reveals that English AI terminology functions as a global reference system, while Uzbek AI terminology is still in a formative stage. Structural borrowing dominates over internal term creation, which may limit linguistic autonomy in the long term. However, the increasing presence of calques and hybrid formations indicates a gradual move toward systematic terminological development. The findings emphasize the need for coordinated terminological planning and standardization in Uzbek AI discourse to ensure clarity, consistency, and linguistic sustainability.

This study has demonstrated that artificial intelligence discourse terminology in English and Uzbek exhibits both convergence and divergence in structural and semantic patterns. English AI terminology is characterized by systematic formation and metaphorical conceptualization, whereas Uzbek AI terminology reflects adaptive strategies shaped by borrowing and linguistic innovation. The research concludes that while English remains the dominant source of AI terminology, Uzbek has significant potential to develop a coherent and standardized terminological system. Future research should focus on corpus-based quantitative analysis and the role of AI-generated terminology in shaping national language policy.

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