



CULTURE-SPECIFIC METAPHORS IN ENGLISH AND UZBEK SCIENCE COMMUNICATION.

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ABSTRACT

*Metaphors are essential cognitive tools in science communication, transforming abstract or unobservable phenomena into concrete, relatable images. However, the effectiveness of a metaphor is fundamentally tied to its cultural resonance. This comparative study analyzes the use of **Culture-Specific Metaphors** in English and Uzbek popular science discourse. English often leverages globally disseminated metaphorical frameworks, particularly those rooted in technology, warfare, and modern commerce (e.g., genetic code, immune defense), ensuring broad, albeit often Western, accessibility.*

Introduction

Science is replete with terms that transcend literal description, relying instead on metaphor to bridge the gap between abstract reality and human perception. Crucially, the sources for these metaphors are not universal; they are drawn from the physical and cultural experiences of the speech community. When communicating across linguistic and cultural boundaries, the choice of metaphor becomes a key pragmatic challenge. A metaphor highly effective in one culture due to its immediate familiarity may be opaque or misleading in another. To truly master the art of cross-cultural science popularization, practitioners must investigate the culturally specific metaphorical tools available in English and Uzbek discourse. "Metaphors are not just stylistic flourishes; they are conceptual structures that map one domain of experience onto another, fundamentally shaping how a scientific concept is understood." [1, 320].

1.0 Global Metaphorical Frames in English

1.1 Technology and Warfare as Source Domains

English popular science frequently draws upon two highly pervasive source domains: **Technology** and **Warfare**. These domains are readily available globally due to the dominance of Western media and technological development.

- **Technology (Computer Frame):** Concepts like the cell's "operating system," the DNA's "genetic code," and the brain's "wiring" all map biological functions onto familiar computational and communication structures. This frame promotes an understanding of life as mechanistic and programmable.
- **Warfare (Military Frame):** The description of the immune system as "fighting" invaders, where white blood cells "patrol" and "defend" the body, is a prime example. This framing provides a compelling narrative of conflict and defense, simplifying complex cellular interactions into a moral and dramatic story.

The pragmatic function of these frames is cognitive efficiency and narrative appeal. They leverage common, high-exposure concepts to swiftly establish an explanatory framework. "The reliance on

globalized technological and military frames in English science writing ensures rapid comprehension by a large, internationally segmented audience, often at the expense of subtler biological nuance." [2, 340].

1.2 Spatial Metaphors and Abstraction

English also frequently uses spatial metaphors to describe abstract concepts. For example, discussing global warming involves notions of "tipping points," "escalation," or "bottlenecks." These are common in Western discourse and are based on everyday physical experiences (e.g., pouring water, walking up a hill). They are often easily translated but their *referential* salience may differ across cultures.

2.0 Culture-Specific and Endogenous Metaphors in Uzbek

2.1 Agrarian and Communal Source Domains

In contrast to the highly technological and militaristic frames of English, Uzbek popular science, particularly when targeting audiences with strong connections to traditional lifeways, may find greater resonance in metaphors derived from local, **agrarian, and communal source domains**.

- **Craftsmanship/Artisanal Frame:** Describing biological or chemical processes in terms of *hunarmandchilik* (craftsmanship) or *dehqonchilik* (farming/cultivation) may offer a more intuitive path to understanding than complex computer science terms. For example, describing the intricate structure of a molecule as being "woven" or "crafted" rather than "programmed" anchors the concept in familiar skilled labor.
- **Communal and Structural Frames:** Metaphors related to family or community organization may be used to describe biological cooperation or organizational structure, potentially making processes like ecosystem dynamics or complex social interactions more relatable than purely mechanistic descriptions.

The pragmatic function of these metaphors is **cultural anchoring** and **relevance**. By using familiar, culturally central sources, the writer minimizes cognitive friction and increases the likelihood of the scientific concept being accepted as relevant to the reader's immediate world. "Metaphorical choices in Uzbek discourse often demonstrate a preference for source domains that connect abstract science to observable, shared cultural practices, facilitating a powerful sense of ownership over the disseminated knowledge." [3, 188].

2.2 The Challenge of Metaphorical Translation

The greatest challenge in cross-cultural science communication arises when an English culture-specific metaphor is translated literally into Uzbek. A phrase like "the Internet of Things is a **wild west**" loses all its meaning unless the audience shares the specific cultural history and connotations of the American frontier. Similarly, translating a nuanced Uzbek agricultural metaphor directly into English may result in a cumbersome or incomprehensible image. Therefore, effective popularization demands not just translating the words, but **translating the conceptual frame**, often requiring the popularizer to substitute the source domain entirely to match the target culture's experience.

Conclusion

Metaphorical language in popular science is a pragmatic necessity, but its power is inherently culture-bound. English communication successfully utilizes globalized source domains such as technology and warfare for narrative impact and broad efficiency. Uzbek communication, while integrating these global frames, maintains the possibility of utilizing endogenous metaphors rooted in local agrarian and artisanal experiences to increase cultural relevance and comprehension for its native audience. Understanding this contrast is critical, as the choice of a metaphorical frame is an act of rhetorical persuasion that determines whether scientific knowledge feels foreign and abstract, or immediate and integral to the reader's world.

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