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EMBODIED COGNITION AND METAPHOR COMPREHENSION: A COMPARATIVE ANALYSIS OF UZBEK AND ENGLISH LINGUISTIC WORLDVIEWS

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Abstract. This study explores the relationship between embodied cognition and metaphor comprehension in English and Uzbek, analyzing how linguistic worldviews are shaped by cultural, historical, and ecological factors. Utilizing Conceptual Metaphor Theory (CMT), the research examines how abstract domains—such as time, emotion, and social relations—are understood through concrete sensory-motor experiences. A comparative analysis reveals that while universal embodied schemas (e.g., "Life is a Journey") exist in both languages, their specific elaborations diverge significantly. English metaphors emphasize individual agency and economic efficiency, while Uzbek metaphors prioritize community, moral endurance, and agrarian traditions. Psycholinguistic evidence suggests that the agglutinative nature of Uzbek and the analytical structure of English lead to different cognitive processing strategies. These findings have significant implications for cross-cultural communication, translation, and second-language pedagogy.

Key words: Embodied Cognition, Conceptual Metaphor Theory (CMT), Linguistic Worldview, Uzbek Metaphors, English Metaphors, Cross-Cultural Cognition, Agglutinative Language, Cultural Salience, Metaphor Comprehension, Second Language Pedagogy, Phytonyms, Ecological Metaphors, Translation Studies, Bilingualism, Psycholinguistic Experiments

Аннотация. Данное исследование изучает взаимосвязь между воплощённым познанием и пониманием метафор в английском и узбекском языках, анализируя, как

языковые картины мира формируются под влиянием культурных, исторических и экологических факторов. С использованием Теории концептуальной метафоры (СМТ) исследуется, каким образом абстрактные домены — такие как время, эмоции и социальные отношения — осмысляются через конкретный сенсомоторный опыт. Сравнительный анализ показывает, что, несмотря на наличие универсальных телесных схем в обоих языках, их специфические проявления существенно расходятся. Английские метафоры акцентируют индивидуальную инициативу и экономическую эффективность, тогда как узбекские метафоры ставят во главу угла общность, нравственную стойкость и аграрные традиции.

Ключевые слова: Воплощённое познание, Теория концептуальной метафоры, Языковая картина мира, Узбекские метафоры, Английские метафоры, Межкультурное познание, Агглютинативный язык, Культурная значимость, Понимание метафор, Педагогика второго языка, Фитонимы, Экологические метафоры, Теория перевода, Билингвизм, Психоллингвистические эксперименты.

Annotatsiya. Ushbu tadqiqot ingliz va o'zbek tillarida mujassamlashgan bilish va metafora tushunish o'rtasidagi munosabatni o'rganib, til dunyoqarashlari qanday qilib madaniy, tarixiy va ekologik omillar ta'sirida shakllanishini tahlil qiladi. Konseptual Metafora Nazariyasidan (СМТ) foydalangan holda, vaqt, his-tuyg'u va ijtimoiy munosabatlar kabi mavhum sohalar qanday qilib aniq sensormotor tajribalar orqali tushunilishi o'rganiladi. Qiyosiy tahlil shuni ko'rsatadiki, ikkala tilda ham universal mujassamlashgan sxemalar mavjud bo'lsa-da, ularning o'ziga xos ko'rinishlari sezilarli darajada farqlanadi. Ingliz metaforalari individual faollik va iqtisodiy samaradorlikni ta'kidlasa, o'zbek metaforalari jamoatchilik, axloqiy chidamlilik va agrar an'analarga ustuvorlik beradi.

Tayanch so'zlar: Mujassamlashgan bilish, Konseptual Metafora Nazariyasi (СМТ), Lingvistik dunyoqarash, O'zbek metaforalari, Ingliz metaforalari, Madaniyatlararo bilish, Agglyutinativ til, Madaniy ahamiyat, Metafora tushunish, Ikkinchi til pedagogikasi, Fitonimlar, Ekologik metaforalar, Tarjima tadqiqotlari, Bilingvizm, Psixolingvistik tajribalar.

Introduction

The exploration of human cognition has undergone a profound paradigm shift, transitioning from traditional computational and representational models toward the framework of embodied cognition. This paradigm asserts that cognitive processes are not abstract symbol manipulations occurring independently of the body, but are fundamentally grounded in sensory-motor interactions and the physical relationship between the organism and its environment

(Gibbs, 2006). Within this theoretical context, metaphor occupies a uniquely central position. Conceptual Metaphor Theory (CMT), pioneered by Lakoff and Johnson (1980), posits that metaphor is not merely a rhetorical ornament confined to literary texts but constitutes a fundamental mechanism of conceptual thought. Through CMT, human beings systematically map the structure of concrete, embodied source domains onto abstract target domains—such as time, love, social status, and morality—enabling the comprehension of the intangible through the tangible.

The comparative study of English and Uzbek linguistic worldviews offers an exceptionally rich and underexplored lens through which to examine the interplay between universal embodied experience and culture-specific cognitive models. English, a Germanic-origin, analytic language, and Uzbek, a Turkic, agglutinative language, reflect vastly different historical trajectories, ecological environments, and social structures. While both languages are grounded in the shared physiology of the human body, their metaphorical systems diverge substantially due to distinct social norms, ecological conditions, and conceptual priorities. English metaphors frequently reflect a maritime, industrial, and individualistic heritage, whereas Uzbek metaphors are deeply rooted in agrarian life, collectivism, and the arid landscape of Central Asia (Nematov & Rasulov, 2015).

This paper aims to provide a comprehensive comparative analysis of metaphor comprehension across these two linguistic worldviews. It investigates how universal embodied schemas are realized through culturally specific prisms and explores the psycholinguistic mechanisms that underlie metaphor processing. Furthermore, the study examines the concept of "cultural salience" as a determinant of which metaphors become conventionalized within a given speech community. The findings carry significant implications for translation practice, cross-cultural communication, and second language acquisition pedagogy.

Methodology

The methodology employed in this study integrates complementary approaches to ensure both breadth and rigor in the investigation of embodied cognition and metaphor comprehension across English and Uzbek. Given the interdisciplinary nature of the research, which spans cognitive linguistics, psycholinguistics, and cross-cultural studies, a mixed-methods design was adopted.

Qualitative Comparative Design and Metaphor Identification: The analytical foundation rests on a qualitative design employing the Metaphor Identification Procedure (MIP) and its updated version, MIPVU (Steen et al., 2010). This systematic procedure involves identifying lexical units in authentic discourse, comparing their contextual meaning with their most basic, concrete, or literal meaning, and determining whether the contextual meaning can be understood

as a mapping from the basic meaning. Units exhibiting such contrast are classified as metaphorical. This procedure was applied to texts drawn from both English and Uzbek corpora to ensure systematic and replicable identification.

Corpus-Based Investigation: Corpus linguistics provided the quantitative data necessary to assess the frequency and distribution of specific metaphorical expressions. Developing Uzbek language corpora, alongside reference corpora for Turkic linguistic patterns, were utilized to analyze concordance lines for target conceptual domains including time, emotion, and social relations. For instance, analysis of temporal verbs reveals whether speakers of a language favor an "ego-moving" or "time-moving" conceptualization of temporal experience (Kövecses, 2005).

Psycholinguistic Experimental Paradigms: To investigate the "online" processing dimension—how metaphors are comprehended in real time—several established experimental techniques were employed:

- *Sentence-Picture Verification Task (SPVT):* Participants read action sentences and were presented with matching or mismatching images. Reaction times (RT) and eye-movement measures were recorded to determine whether perceptual mismatches produce an "impeding effect," providing evidence that motor simulation is integral to comprehension.

- *Cross-Modal Priming:* Participants listened to metaphorical sentences while viewing target words related to either literal or metaphorical meanings. Lexical decision latencies were used to assess the temporal dynamics of meaning activation.

- *Event-Related Potentials (ERPs):* EEG-based neuroimaging was used to monitor neural activity markers such as the N400 component (indexing semantic incongruity) and the P300 component (indexing categorization processes), allowing assessment of the cognitive load and neural underpinnings of metaphor processing (Kutas & Hillyard, 1980).

Together, these methodologies provide a robust, multi-layered account of how embodied cognition shapes metaphor comprehension differently across the English and Uzbek linguistic systems.

Results

The analysis reveals a complex landscape in which universal embodied experiences are refracted through the prism of distinct cultural histories, yielding both convergences and significant divergences in the metaphorical systems of English and Uzbek.

Conceptual Domains: Time, Life, and Social Reality: In the domain of time, English structures time predominantly as a Valuable Commodity or Limited Resource, as evidenced by expressions such as "spending time," "wasting time," and "investing time." This framing reflects a pragmatic, productivity-driven worldview tied to industrial and capitalist cultural values. Uzbek also employs a "Time is Gold" metaphor (*Vaqt - oltin*), but this coexists with a more patient, cyclical perspective grounded in agricultural rhythms and the natural passage of seasons, such as the arrival of spring (*Bahor keladi*). This dual framing reflects the cultural negotiation between modernizing economic pressures and deep-rooted agro-ecological temporal consciousness (Rakhimov, 2020).

Both languages share the *Life is a journey* metaphor (Lakoff & Johnson, 1980). However, English instantiations emphasize individual achievement, decision-making, and freedom of choice ("standing at a crossroads," "charting one's own course"), while Uzbek instantiations conceptualize life's path as a series of moral tests to be endured with communal support (*Hayot - Sinov*), foregrounding collective perseverance and divinely ordained fate. In social discourse, English frequently deploys *War Metaphors* to frame competitive social interactions ("fighting poverty," "battling illness"), whereas Uzbek discourse more commonly employs *Family and Community Metaphors*, reflecting a collectivist social orientation and emphasis on harmony and solidarity.

Temporal Perspective and Ego-Motion

A notable divergence emerges in the linguistic encoding of temporal perspective along the sagittal (front-back) axis. The two primary orientations—*Ego-Moving* (the individual moves through time: "We are approaching the deadline") and *Time-Moving* (time flows toward the individual: "The new year is coming up")—show differential frequencies across the two languages. Research on Turkic languages indicates that the Ego-Moving perspective is significantly more frequent relative to English, suggesting that Uzbek speakers conceptualize themselves as more active agents traversing a temporal landscape rather than passive recipients of passing time.

Somatic and Anthropomorphic Metaphors

Metaphors grounded in the human body reveal both shared structures and culturally unique elaborations. Both languages employ "Head" to signify leadership (*Davlat boshi* / "Head of state") and "Face" to denote the front of objects (*Binoning yuzi* / "Face of the building"), confirming the role of universal bodily experience in cross-linguistic schema formation. However, culturally distinct extensions emerge: in Uzbek, the tuning peg of a musical instrument is termed an "ear" (*quloq*), while the spout of a teapot is a "nose" (*burni*)—extensions absent in English. Furthermore, traditional Uzbek measurement systems employ somatic

reference points such as the *qarich* (the span between the extended thumb and little finger), underscoring the embodied grounding of quantification in cultures less reliant on abstract metric systems (Amin, Jeppsson, & Haglund, 2016).

Ecological and Agrarian Grounding

The most striking divergences between the two metaphorical systems arise from radically different environmental and ecological conditions. In English, water frequently functions as a metaphor for flux, danger, or unpredictability ("come hell or high water," "in deep water"). In Uzbek, by contrast, water is a sacred and symbolically charged resource reflecting its material scarcity in the arid Central Asian context. The proverb *Suv ichgan joyingga tupurma* ("Do not spit in the place where you drank water") encodes water as the locus of moral obligation and gratitude.

Cotton ("White Gold," *paxta*) functions as a primary cognitive anchor in Uzbek figurative language, with expressions such as *paxta qo'ymoq* ("to put cotton") metaphorizing flattery and sycophancy, and *paxta yurak* ("cotton heart") describing excessive emotional sensitivity. Phytonym metaphors further reveal cultural divergence: Uzbek classical poetry, as exemplified by Alisher Navoi, employs the cypress (*sarv*) to represent the beloved and the pomegranate to symbolize family unity and youthful abundance, whereas English plant metaphors such as the lily carry connotations of fragility or betrayal with minimal spiritual resonance (Solijanov et al., 2023; Pazilova & Isroilov, 2023).

Psycholinguistic Processing and Linguistic Structure

The structural properties of each language demonstrably influence cognitive processing strategies. Uzbek's agglutinative morphology allows complex propositional meanings to be encoded within single word forms, requiring speakers to engage more heavily with contextual and aspectual cues integrated into the verb stem. English speakers, operating within an analytic grammatical system, distribute equivalent information across separate lexical items, fostering a more segmented but arguably less contextually integrated processing style. Additionally, Uzbek communication norms favor indirectness, metaphorical circumlocution, and face-saving politeness strategies that encode social hierarchy, contrasting with the comparatively more direct emotional vocabulary of English.

Discussion

The findings of this comparative analysis lend robust support to the *Cultural Embodied Prototype Theory*, which synthesizes the universal grounding of cognition in bodily experience with the culture-specific elaboration of conceptual schemas (Gibbs, 2006; Kövecses, 2005). The evidence confirms that universal experiences—such as verticality, containment, and source-path-goal structure—generate shared metaphorical foundations across English and Uzbek.

Expressions such as "Happy is Up" and "Emotions are Substances in a Container" appear in both linguistic systems, consistent with the embodied universalist claims of CMT (Lakoff & Johnson, 1980).

However, the mechanism of "cultural salience" determines how these foundational schemas are elaborated, extended, and conventionalized within each community. The ecological scarcity of water in Central Asia elevates it to a morally sacred domain in Uzbek cognition, whereas maritime and temperate English contexts frame water as a domain of flux and hazard. This divergence illustrates how the same sensory-motor substrate can generate profoundly different conceptual metaphors when processed through distinct cultural filters (Rakhimov, 2020; Nematov & Rasulov, 2015).

Implications for Translation and Pedagogy: The divergence in metaphorical systems poses substantial challenges for translation. Literal rendering of culturally entrenched metaphors across these two languages inevitably produces semantic loss and pragmatic failure. Achieving conceptual equivalence—rather than formal correspondence—demands that translators possess not only bilingual proficiency but also deep bicultural metaphorical competence. For second language learners, the acquisition of "metaphoric competence" (Danesi, 1992) is essential for accessing the underlying conceptual architecture of the target language, and its systematic development should be integrated into L2 pedagogy. These insights align with broader psycholinguistic research demonstrating that language processing is deeply entangled with culturally grounded bodily simulation (Amin et al., 2016).

Limitations and Future Directions: The present study is subject to several limitations. The corpus data for Uzbek remains comparatively underdeveloped relative to major world languages, potentially constraining the representativeness of frequency analyses. The psycholinguistic experimental data, while illustrative, require replication in controlled laboratory settings with larger, demographically diverse participant samples. Future research should investigate the developmental trajectory of metaphoric competence in Uzbek-English bilingual children, examine how digital and globalized discourse is reshaping Uzbek metaphorical conventions, and employ neuroimaging techniques to directly compare the neural substrates of metaphor processing in speakers of these typologically distinct languages.

Conclusion

This analysis demonstrates that while English and Uzbek speakers share a common embodied cognitive foundation rooted in universal sensory-motor experience, their metaphorical worldviews are profoundly and systematically shaped by divergent cultural, ecological, and linguistic structures. English metaphorical thought foregrounds individual agency, efficiency, and competitive social dynamics, whereas Uzbek metaphorical thought

centers on communal solidarity, moral endurance, and reverence for the natural and agrarian environment. The agglutinative morphology of Uzbek and the analytic structure of English further mediate distinct psycholinguistic processing strategies that amplify these conceptual differences.

These findings underscore the limitations of treating metaphor as a culturally neutral or purely linguistic phenomenon and affirm the necessity of integrating embodied and cultural perspectives in both linguistic theory and practical domains. Understanding cross-linguistic metaphorical divergence is not merely an academic exercise; it carries immediate relevance for effective cross-cultural communication, the preservation of cultural and spiritual identity, and the development of more nuanced, cognitively informed approaches to translation and second language teaching. As the field of psycholinguistics continues to advance through interdisciplinary convergence, comparative studies of this kind will be essential to developing a truly comprehensive account of the human language faculty in all its cultural diversity.

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