A COMPARATIVE STUDY OF IDIOMS RELATED TO EMOTIONS IN UZBEK AND ENGLISH USING ARTIFICIAL INTELLIGENCE TECHNOLOGIES

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ABSTRACT

This article presents a comparative analysis of idiomatic expressions conveying emotional states in Uzbek and English languages and uses artificial intelligence technologies to study linguistic research. The application of AI-based natural language processing tools reveals patterns in idiomatic usage that traditional methods may overlook which brings new insights for contrastive phraseology research. The findings contribute to cross-cultural communication studies and computational linguistics research because they produce practical insights for translation work and language teaching practices and machine translation systems which handle figurative language.

Keywords: idioms, emotions, artificial intelligence, comparative linguistics, phraseology, conceptual metaphors, cross-cultural communication.

INTRODUCTION

The study of idiomatic expressions constitutes one of the most challenging yet rewarding areas of linguistic inquiry, particularly when approached from a comparative perspective that bridges typologically distant languages such as Uzbek and English. People use idioms which function as unchangeable expressions to express cultural knowledge and historical information and shared psychological views about human life [1]. The semantic domain of idiomatic expressions includes multiple areas but emotions represent the most essential human experience because they show how different language groups think and express their internal feelings. The development of artificial intelligence technologies during the past thirty years has created new possibilities for linguistic research because researchers can study extensive text collections to find hidden patterns and create advanced language comprehension systems [2]. The field of comparative phraseology works together with computational linguistics to create a research area that offers valuable theoretical and practical benefits which researchers can use to study emotional expression through language in different cultures while developing better artificial intelligence systems that understand figurative language.

The current linguistic research comes from multiple factors which connect to ongoing developments in the current linguistic field. First, the globalized world creates more intercultural communication demands which require research on how different languages show emotional expressions because idiomatic phrase misinterpretations lead to communication breakdowns and cultural misunderstanding [3]. Second, the fast growth of machine translation and natural

language processing tools needs research which compares idioms because it provides essential data to develop algorithms that understand non-compositional meaning. The Uzbek language needs more research because its phraseological resources remain underexplored when compared to major global languages so this study will fill that research gap. The research study will perform a systematic comparison between emotion-related idioms from Uzbek and English while using AI technologies as research tools to discover structural and semantic and cultural similarities and differences between the two idiomatic systems.

METHODOLOGY AND LITERATURE REVIEW

The research methods of this study use traditional methods of comparative linguistic analysis together with modern computational techniques to develop a dual analytical framework which enables researchers to study cross-linguistic phraseological patterns. The study uses contrastive analysis as its main research method to conduct systematic comparisons between idiomatic expressions in both languages which reveal their linguistic similarities and differences across multiple levels of language structure [4]. The approach uses conceptual metaphor analysis which follows the cognitive linguistic framework established by Lakoff and Johnson who argue that people understand abstract concepts through their more tangible life experiences [5]. The research uses artificial intelligence in multiple ways which include: using natural language processing tools for corpus-based analysis to discover and classify emotion-related idioms within extensive text collections, deploying word embedding models for semantic analysis to study how idiomatic expressions are distributed, and evaluating how modern AI translation systems process figurative language in the Uzbek-English language pair.

Researchers have worked to understand phraseological phenomena through established traditions which both Western and post-Soviet linguistic scholars use to study the subject. Vinogradov's research on Russian and Uzbek phraseology established a framework which later researchers adapted to study Turkic languages through his system of classifying phraseological units based on their semantic connection strength between components [6]. Rahmatullayev established essential methods to describe and classify Uzbek idiomatic expressions through his first work on Uzbek phraseology which enabled future research through comparative analysis [7]. The Cambridge tradition of English phraseology established through Moon's research provides corpus-based methods which work effectively with computational techniques while Kövecses's cognitive methods specifically study how people use figurative language to express their emotions [8]. Researchers have only recently begun to use AI technologies for linguistic studies because initial research showed how neural network models could identify idiomatic meanings which earlier computational methods failed to detect yet researchers still struggle with each language type's unique challenges for understanding figurative expressions [9].

RESULTS AND DISCUSSION

The comparative study shows that Uzbek and English languages share similar ways of expressing emotions through idiomatic expressions yet they differ in their emotional expression methods. Both languages use somatic metaphors to express anger through body part references but they specify different body parts which carry different cultural meanings. English idioms such as "to make one's blood boil" or "to

see red" conceptualize anger through cardiovascular and visual imagery which reflects the physiological manifestations of this emotion as understood in Western cultural tradition. Uzbek uses body-based references for emotional expression but the language creates a unique system which uses liver (jigar) as the main emotional center the language shows this through the expression "jigarim qora bo'ldi" (my liver became black) which shows strong negative feelings that include anger and grief [7]. The way different cultures view the body creates unique emotional idioms which present difficulties for both translation work and communication between cultural groups. The application of AI-based semantic analysis to corpora containing these expressions shows that Uzbek liver-based idioms and English heart-based idioms share some common usage patterns yet their usage patterns remain distinct because the two languages express similar emotions through different conceptual frameworks.

The research on idioms which show happiness and joy identifies a second major linguistic difference that exists between languages which maintain similar structural patterns. Both languages possess numerous expressions for positive emotional states, which reflect the universal human experience of happiness. English idioms such as "on cloud nine," "over the moon," or "walking on air" use vertical and spatial metaphors to show happiness through elevated physical position which cognitive linguists have identified as showing the basic conceptual metaphor HAPPY IS UP [5]. Uzbek idioms for happiness use spatial imagery about spatial relationships although they prefer to use light and sweetness and heart and soul (qalb, ko'ngil, jon) metaphors which include terms like "ko'ngli ochildi" (his/her heart opened) or "jonina yoqdi" (it pleased his/her soul) [7]. The AI-assisted analysis of large text corpora demonstrates that these metaphorical preferences are statistically robust across different genres and registers, which indicates that these patterns represent fundamental ways people use language in their thoughts instead of being temporary fashion choices.

The research investigates how modern AI systems translate emotional idioms between Uzbek and English to demonstrate both their current achievements and their continuing challenges with processing idiomatic expressions. The neural machine translation systems show better performance than statistical machine translation systems yet they still have difficulty translating non-compositional expressions because they either create literal translations that miss idiomatic meanings or they use target language idioms that do not match the source expression both semantically and pragmatically [10]. The Uzbek-English language pair shows acute limitations because parallel training data exists in smaller amounts than for major European languages which have different language structures. The analysis suggests that improvement in AI handling of idioms requires not merely larger datasets but incorporation of linguistic knowledge about metaphorical mappings and cultural conceptualizations that underlie idiomatic expressions in different languages. The findings thus have implications both for translation technology development and for theoretical understanding of how human cognitive processes in figurative language might be modeled computationally.

The comparative examination of idioms expressing fear and anxiety in both languages reveals particularly illuminating patterns that further underscore the culturally mediated nature of emotional conceptualization. English idiomatic expressions for fear frequently employ metaphors of temperature and physical

immobility, as evidenced in phrases such as "frozen with fear," "cold feet," or "scared stiff," suggesting a conceptual framework wherein fear is understood as a force that renders the body cold and incapable of movement. Uzbek idioms for fear, while sharing certain universal physiological references, demonstrate a pronounced tendency toward metaphors involving the soul's departure or displacement, as in "jonidan to'ydi" (became satiated with one's soul, meaning extremely frightened) or "yuragiga g'ulg'ula tushdi" (anxiety fell into the heart), reflecting a conceptualization wherein fear threatens the integrity of the self by dislodging its essential spiritual component. The AI-assisted analysis of contextual usage patterns across extensive text corpora indicates that these divergent metaphorical foundations influence not only the selection of idiomatic expressions but also their collocational behavior, pragmatic functions, and register distribution, with Uzbek fear idioms appearing more frequently in narrative and literary contexts while English equivalents demonstrate broader distribution across formal and informal registers alike.

The investigation of idioms related to sadness and grief provides additional evidence for the systematic nature of cross-linguistic variation in emotional phraseology while simultaneously revealing unexpected areas of convergence that merit theoretical attention. Both Uzbek and English possess extensive inventories of expressions for negative emotional states associated with loss, disappointment, and melancholy, yet the metaphorical elaboration of these states proceeds along distinct pathways shaped by cultural traditions of emotional expression and suppression. English idioms such as "down in the dumps," "feeling blue," or "heavy-hearted" consistently employ spatial, chromatic, and weight-based metaphors that conceptualize sadness as a downward movement, a particular color, or an increased burden upon the body. Uzbek expressions for sadness, while occasionally employing similar directional metaphors, more characteristically draw upon imagery of darkness, constriction, and particularly the state of the heart and liver, as in "ko'ngli buzildi" (the heart became disturbed) or "dili qora" (black heart/soul, indicating profound sadness). Notably, the application of sentiment analysis algorithms to bilingual corpora containing these expressions reveals that despite their distinct surface manifestations, the underlying emotional valence and intensity gradations show remarkable correspondence, suggesting that AI technologies may eventually be capable of identifying deep semantic equivalences that transcend superficial structural differences and enable more nuanced cross-linguistic mapping of emotional vocabulary.

The analysis of idiomatic expressions pertaining to love and affection constitutes another dimension of this comparative study that yields significant insights into the divergent cultural conceptualizations of interpersonal emotional bonds in Uzbek and English linguistic traditions. English idioms expressing love and romantic attachment frequently employ metaphors of insanity, illness, and loss of rational control, as manifested in expressions such as "madly in love," "lovesick," "head over heels," or "crazy about someone," reflecting a cultural framework wherein intense romantic emotion is conceptualized as a departure from normal cognitive functioning and a surrender of rational autonomy to overwhelming passion. Uzbek idiomatic expressions for love, while acknowledging the powerful and sometimes overwhelming nature of romantic attachment, more characteristically emphasize metaphors of unity, sacrifice, and the merging of vital essences, as evidenced in phrases such as "jonidan ham aziz ko'rmoq" (to love more than one's own soul),

"yuragiga jo bo'lmoq" (to settle into someone's heart), or "ko'zining oqu-qorasidek asramoq" (to protect like the white and black of one's eye, meaning to cherish deeply). The computational analysis of these expressions across literary and conversational corpora reveals that Uzbek love idioms demonstrate stronger associations with familial and communal contexts, frequently extending beyond romantic relationships to encompass parental, filial, and patriotic attachments, whereas English love idioms show more pronounced concentration in specifically romantic domains, suggesting fundamental differences in how these linguistic communities conceptualize the boundaries and categories of affectionate bonds that AI systems must learn to navigate for accurate cross-cultural translation and interpretation.

CONCLUSION

This comparative study of emotion-related idioms in Uzbek and English, conducted through the integrated application of traditional linguistic methods and artificial intelligence technologies, has yielded several significant findings that contribute to both theoretical phraseology and applied computational linguistics. The analysis demonstrates that while both languages possess rich and varied systems for the idiomatic expression of emotions, these systems reflect distinct cultural conceptualizations of the body, metaphorical thought patterns, and communicative priorities that have developed through centuries of linguistic and cultural evolution. The somatic focus of Uzbek emotional idioms, particularly the prominent role of the liver as an emotional center, contrasts markedly with English patterns that privilege the heart and cardiovascular system, indicating that even universal human experiences such as emotions are filtered through culturally specific conceptual frameworks that leave distinctive traces in phraseological systems. The application of AI technologies has proven valuable for identifying and quantifying these patterns across large textual corpora, while simultaneously revealing the current limitations of machine translation systems in handling figurative language across typologically distant languages. Future research should expand the scope of this investigation to include additional emotional categories, develop more sophisticated computational models capable of capturing cross-linguistic metaphorical correspondences, and explore pedagogical applications of these findings for language teaching and translator training. The ultimate goal of such research is to foster more effective intercultural communication by deepening our understanding of how different linguistic communities verbalize their emotional experiences, while simultaneously advancing the development of AI systems that can bridge these differences with greater accuracy and cultural sensitivity.

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