

## CONCEPTS OF “TIME” AND “SPACE” AS A REPRESENTATION OF HUMAN EXISTENCE IN KAZAKH PHILOSOPHY AND LANGUAGE

### „Laiko“ ir „erdvės“ sąvokos kaip žmogaus egzistencijos reprezentacija kazachų filosofijoje ir kalboje

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## ABSTRACT

The present article aims to examine the concepts of “time” and “space” as representations of human existence in Kazakh thought and language. The study employs an associative experiment as the primary empirical method, complemented by statistical and linguistic analyses based on conceptual analysis techniques. A survey was conducted with 200 Kazakh-speaking participants aged 20 to 70. Key conceptual categories, such as “time as emotion”, “time as a value”, “space as homeland”, and “space as freedom”, were identified through coding and interpreted in light of Kazakh philosophical traditions. Significant differences were observed between age groups: younger participants favoured emotional and abstract associations, whereas older respondents relied on metaphorical and concrete representations. These disparities suggest a generational shift in the cognitive and emotional framing of philosophical categories, likely shaped by sociohistorical experience, linguistic socialisation, and the influence of technological and cultural changes. The study demonstrates that “time” and “space” in Kazakh culture are not neutral constructs but deeply symbolic, ethically charged, and emotionally resonant categories. These findings contribute to a broader understanding of how culture-specific worldviews are encoded in language, offering practical implications for education, intercultural communication, and cultural policy.

**KEYWORDS:** associative experiment, culture and language, Kazakh cognition, linguistic worldview, philosophical categories.

## ANOTACIJA

Šio straipsnio tikslas – ištirti „laiko“ ir „erdvės“ sąvokas kaip žmogaus egzistencijos reprezentacijas kazachų mąstyme ir kalboje. Pagrindinis empirinis metodas, taikytas tyrime – asociacinis eksperimentas, kurį papildė statistinė ir lingvistinė analizė, grindžiama sąvokų analizės metodu. Buvo atlikta 200 kazachų kalba kalbančių individų, kurių amžius svyravo nuo 20 iki 70 metų, apklausa. Svarbiausios konceptualios kategorijos, tokios kaip „laikas kaip emocija“, „laikas kaip vertybė“, „erdvė kaip tėvynė“ ir „erdvė kaip laisvė“, buvo identifikuotos kodavimo būdu ir interpretuotos atsižvelgiant į kazachų filosofines tradicijas. Pastebėta reikšmingų skirtumų tarp amžiaus grupių: jaunesni apklausos dalyviai pirmenybę teikė emocinėms ir abstrakčioms asociacijoms, o vyresni respondentai atsakydami rėmėsi metaforinėmis ir konkrečiomis reprezentacijomis. Šie skirtumai rodo kartų kaitą filosofinių kategorijų kognityviniame ir emociniame kontekste, kurią greičiausiai suformavo socialinė-istorinė patirtis, kalbinė socializacija ir technologinių bei kultūrinių pokyčių įtaka. Tyrimas rodo, kad „laikas“ ir „erdvė“ kazachų kultūroje nėra neutralūs konstruktai, tai giliai simbolinės, etiškai įkrautos ir emociškai rezonuojančios kategorijos. Šie rezultatai prisideda prie platesnės sampratos, kaip kultūrai būdingos pasaulėžiūros yra užkoduotos kalboje, darančios įtaką švietimui, tarpkultūrinei komunikacijai ir kultūros politikai.

**ESMINIAI ŽODŽIAI:** asociacijų eksperimentas, kultūra ir kalba, kazachų kognicija, kalbinis pasaulėvaizdis, filosofinės kategorijos.

## 1. INTRODUCTION

The spatiotemporal relationship between humans and nature underpins all human interactions with the environment and plays a critical role in shaping their worldview. The ontological integration of humans into the objective world serves as a prerequisite for the formation of “space” and “time” as conceptual categories. Such ideas have been articulated by ethnographers, anthropologists, philosophers, psychologists, and other scholars (Röck 2019). The philosophy of “time” and “space” represents one of the key domains of philosophical thought, addressing fundamental aspects of existence and cognition.

“Time” constitutes a fundamental ontological category, comparable in significance to “space”, matter, and motion. Research characterises temporal perception as a culturally discriminative trait (Tejada-Gallardo et al. 2021). Cultural differences manifest in the measurement, segmentation, and conceptualisation of “time”. As an inherent component of

linguistic content, “time” is reflected across various levels of language structure: as a morphological category (tense), as lexemes with temporal meaning (lexical level), and as temporally marked syntactic constructions (syntactic level).

The study of spatial concepts reveals that ancient understandings laid the foundation for subsequent interpretations of “space” as a category throughout history (Massey 2020). Early conceptions of “space” were predominantly geometric or physical in nature, lacking considerations of societal, communicative, intellectual, and particularly cultural dimensions. However, disregarding these aspects makes it impossible to establish criteria for cultural “space” as a distinct form characterised by continuity, homogeneity (or heterogeneity), structural organisation, boundedness, finitude or infinitude, and other defining features.

Digital technologies have reconfigured societal perceptions of “time” and “space”, thereby generating new conditions for the construction of identity (Giddens 2023). Virtual environments have enabled the simulation of movement across spatiotemporal domains (Chen, Wang 2022); accordingly, the question arises as to whether traditional conceptualisations are capable of being sustained within a digital milieu.

The current study endeavours to explore traditional Kazakh identity through the conceptual frameworks of “time” and “space”. Focusing on Kazakh society proves particularly relevant as it undergoes profound transformations driven by globalisation, technological advancement, and intensified migration processes. These developments challenge traditional worldviews and necessitate a reconceptualisation of the fundamental categories through which individuals perceive, experience, and articulate reality (Reese et al. 2019). “Time” and “space” function not merely as cognitive universals but as culturally and philosophically mediated models for understanding human existence. From this perspective, Kazakh philosophical thought – rooted in nomadic traditions that conceptualise “time” and “space” as sacred existential dimensions – engages in a dynamic dialogue with contemporary global paradigms (Altayev, Imanbayeva 2021).

Given these transformations, it is crucial to examine how concepts of “time” and “space” function as cognitive and linguistic representations of human existence, particularly within Kazakh culture and in its interactions with global trends. The present article aims to trace the evolution of these categories in philosophical and linguistic thought, analyse their manifestation in language, and explore how they respond to and reflect the challenges of the modern world. The present study is relevant in several respects. The associative experiment involved 200 informants, compared with 50 in the only preceding study (Beknazarova 2022); this expansion of the sample made it possible to capture variability that had previously remained unrecorded. Age stratification, which was not included in Ainur Zhanaliev, Garifolla Yessim, Zugura Rakhmatullina (2024), is introduced here for the first time. Conceptual metaphor theory has been tested primarily on Indo-European material; its applicability to Turkic-language data has not yet been sufficiently examined. Previous studies have not sufficiently addressed this subject, leaving a gap in the literature that the article seeks to fill.

### **1.1. Literature Review**

The conceptualisation of “time” and “space” has been examined across several scholarly domains, all of which are pertinent to the present study. Collective identity emerges at the intersection of continuity and rupture; temporal self-awareness and spatial attachment jointly shape its formation. It is precisely this intersection that provides a productive analytical point of departure (Clark 2019). Regarding the relationship between “space” and “identity”, continuity is particularly crucial among the components of contemporary identity. Building upon the perception that self-awareness possesses temporal significance, the continuity of identity represents a dynamic connection between temporal and spatial relations. Individual identity maintains continuity because human memory encompasses both temporal and spatial

dimensions (Obradović, Bowe 2021). Consequently, within the collective identity formed by individual identities, continuity addresses how the coherence of collective identity can be maintained across “time” and “space”.

In academic research, spatial and temporal concepts are often treated as independent axioms (Lakoff, Johnson 2020). However, their immeasurable nature makes direct study impossible. The increasing prevalence and precision of measurement instruments have substantially altered the human perceptions of “space” and “time” (Buzsáki, Tingley 2018). The growing influence of technological innovations – from artificial intelligence to online communication – has further transformed the relationship between language and reality. The technological evolution raises critical questions about how traditional categories such as “time” and “space” are conceptualised, preserved, or restructured within linguistic and cultural consciousness. Research in various fields underscores the strong connection between these abstract concepts and their linguistic representation, suggesting that patterns of temporal and spatial discourse reflect deeper cognitive structures of thought and perception (Hanink, Koontz-Garboden 2025).

Turkological research on conceptual metaphors remains fragmentary. Within Kazakh linguocultural studies, the concept of *zher* (land/earth) occupies a central position in national self-consciousness. In Kazakh-language primary sources, this centrality is clearly evident: the concept of *\*tugan zher\** (“native land”) forms the core of the national conceptual sphere and is verbalised in heroic epics and in genres of toponymic folklore (Olzhabayev et al. 2022; Olzhabayev, Soylemez 2024). An analysis of mythological cognition embedded in Turkic toponyms reveals an underlying mechanism in which hydronyms preserve archaic spatial orientations associated with sacrality and aquatic symbolism (Sadirova et al. 2024). Chronotopic analyses of Kazakh literary prose demonstrate that temporal and spatial representations carry an evaluative dimension (Zhiyenalina et al. 2024). Canonical Kazakh thinkers conceptualised “time” and “space” in ethical categories; in their interpretations, conscience functioned as a temporal regulator of memory and moral judgment (Iskakova 2023; Ryskaliyev et al. 2023). A genealogical approach to philosophical prose interprets existential categories – fate, irreversibility, and moral transition – as elements of a cultural symbolic structure (Kossyn 2024). Ethnographic evidence documents a cyclical perception of “time” shaped by seasonal migrations and ritual calendars (Dosmurzinov 2023; Zeinullin et al. 2026). At the same time, empirical verification through controlled elicitation has been limited to a single associative study involving 50 Kazakh speakers (Beknazarova 2022).

Thus, language constitutes a crucial internal factor shaping a culture’s temporal orientation. Beyond traditional measurement-based approaches, the study of cultural metaphors offers an effective methodological alternative for understanding how different cultures conceptualise abstract notions (Jang et al. 2023). Cultural metaphors refer to phenomena or activities that most members of a national culture cognitively or emotionally identify with (Kövecses 2021). Metaphorical constructs reveal how cultures perceive different societal aspects and conceptualise abstract domains, including “time” and “space”. Building on this research direction, scholars have examined “space” as a metaphor for temporal perception (Gu et al. 2019), viewing “time” as a void through which individuals move between events. Studies also point to cultural variations in these spatial-temporal mappings. Specifically, American cognition typically represents “time” horizontally (past to future) with left-to-right movement (Worrell, Andretta 2019). Conversely, Chinese cultural models frequently employ vertical orientations with upward temporal progression (Fiddler 2024). Both models, however, derive from the written traditions of sedentary cultures; the cyclical-linear hybridity of the nomadic chronotope remains unaccounted for in them. The present study is intended to address this gap. Marked differences in temporal conceptualisation have prompted investigations into their underlying determinants (Pitt, Casasanto 2020). Research has identified multiple cultural factors influencing temporal perception, including value systems, religious traditions, social structures, and linguistic patterns (Kapitańska 2024).

Environmental determinants, such as climatic conditions and socioeconomic circumstances, similarly contribute to cognitive variation. In relation to Turkic-speaking nomadic societies, these determinants have not been studied systematically; consequently, the generalizability of the models examined to date remains limited.

Culture-specific metaphors explain why various cultural groups perceive “time” differently. For instance, most cultures conceptualise the past as behind and the future as ahead, aligning with the body’s forward movement (Michaels 2025). With regard to metaphorical representations, cultural differences in the perception of “time” are closely linked to how “time” is described. English speakers commonly measure duration through metaphors of linear distance (“a long time”), whereby “time” is conceptualised as a spatial path; in Spanish, by contrast, duration tends to be quantified (“much time”), with “time” construed as a substance (Alcaraz Carrión, Valenzuela 2021). In Kazakh, both strategies converge. Duration is encoded both in terms of distance (“ұзақ уақыт”, lit. “long time”) and quantitatively (\*köp uaqyt\*, “much time”); thus, the contrast described above intersects directly with the material examined in the present study. The observed divergence stems from distinct conceptual metaphors shaped by linguistic and cultural influences. Empirical studies demonstrate that individuals more accurately estimate “time” when using measurement frameworks consistent with their native language’s constructions (Götzelmann 2021). Additional linguistic features contribute to cultural variations in temporal perception. Writing system differences have been extensively examined as potential explanations for cross-cultural variation in temporal orientation. The Kazakh case, having undergone a succession of script changes – from Arabic script to Latin, Cyrillic, and again Latin – offers a non-trivial test of this hypothesis on Turkic material.

“Time” constitutes an essential aspect of human experience, while culture plays a pivotal role in shaping cognition, motivation, emotions, and individual behaviour. Previous research has systematically investigated the relationship between cultural values and variations in temporal orientation across cultures (Alcaraz Carrión, Valenzuela 2022). Among different cultural dimensions, scholars have investigated how collectivism/individualism, regulatory focus, and a belief in control over one’s life correlate with temporal perception. Some studies claim that individualism and collectivism significantly influence cultural differences in future, present, and past temporal orientations (Chen et al. 2022). Individualistic cultures typically exhibit a stronger future orientation, whereas collectivist cultures emphasise present-focused perspectives. That is, collectivist frameworks prioritise concrete, context-specific events in the immediate moment, while individualist paradigms favour abstract events and universal rules applicable across situations. Beyond cultural values, mythologies, and religious systems constitute another critical factor explaining cross-cultural variations in temporal perception (Callizo Romero 2023).

Growing evidence demonstrates that fundamental psychological processes often exhibit cultural specificity, suggesting that the conceptualisation and perception of “time” should similarly vary across cultures (Khatin-Zadeh et al. 2023). However, cultural studies have largely neglected temporal diversity and its differential impacts in cultural contexts. Despite progress in cultural research, the examination of temporal and spatial dimensions remains limited, with a lack of systematic integration of theoretical and empirical knowledge. The accumulated body of scholarship is marked by three structural limitations. First, conceptual metaphor theory has been empirically validated predominantly on Indo-European languages: a bibliometric analysis of 1,257 publications (2002–2022) identified research clusters concentrated in Spain, the United States, China, and Russia (Zhao et al. 2023). This imbalance calls into question the theory’s applicability to Turkic-speaking populations. Societies of Central Asia with nomadic heritage are rarely included in cross-cultural comparative research. Moreover, the very category of the “nomad” has been criticised for its reductionism, as it collapses diverse models of mobility into a single typology (Conte 2025). Second, the impact of bilingualism on the conceptualisation of basic categories in post-Soviet

contexts remains insufficiently explored. Kazakhstan's trilingual policy shapes temporal and spatial imaginaries, generating competing associations with modernity and heritage (Ahn, Smagulova 2022); nevertheless, no study to date has examined whether policy-induced shifts transform foundational conceptual metaphors.

A review of the existing literature reveals a striking paucity of research on the topic. While international studies have explored how metaphors shape cultural conceptions of "time" and "space", the metaphorical frameworks of the Kazakh language have been systematically unexamined. Significant gaps persist in understanding how these categories manifest in Kazakh thought and language, with comparative cultural analyses being particularly scarce. Current research tends to treat "time" and "space" as discrete cognitive categories, overlooking their interdependence in shaping national consciousness.

## **1.2. Problem Statement**

The study aimed to analyse the concepts of "time" and "space" as representations of human existence within Kazakh thought and language. To achieve the stated objective, the following research tasks were formulated:

- 1) to identify dominant conceptual categories associated with "time" and "space" among Kazakh respondents;
- 2) to examine how these categories reflect culturally embedded meanings through an analysis of emotional, metaphorical, abstract, and concrete dimensions in linguistic associations;
- 3) to explore generational differences in the perception and conceptualisation of "time" and "space";
- 4) to interpret the most frequent and culturally significant associations within the framework of Kazakh philosophical and cultural traditions.

## **2. METHODS AND MATERIALS**

### **2.1. Theoretical Framework**

The current study is grounded in an interdisciplinary theoretical framework integrating cognitive linguistics, philosophical anthropology, and cultural semiotics. Central to this foundation is the premise that language not only reflects but also shapes human cognition and worldview (Lakoff, Johnson 2020). The conceptualisation of "time" and "space" is examined through the lens of conceptual metaphor theory (Bundgaard 2019), which posits that abstract concepts are structured through culturally rooted metaphors. Conceptual Metaphor Theory constitutes the central analytical framework of the present study. Two complementary theoretical perspectives extend its explanatory scope: Social Identity Theory elucidates intergenerational differences in conceptualisation through mechanisms of group affiliation and historical memory, while cultural semiotics substantiates the use of the associative experiment as a methodological instrument for accessing culturally encoded meanings embedded in language. The three approaches converge at a shared analytical nexus: conceptual metaphors emerge through processes of cultural semiosis and are transmitted across generations via channels of social identification.

The research further draws upon social identity theory (Demirden 2021), particularly its proposition that perceptions of temporal and spatial continuity contribute to the formation of collective identity across generations. Social identity theory encompasses several sub-theories, including collective identity theory, which examines identity formation in relation to social movements. Key works in both sociology and psychology highlight collective identity as a potential bridge between identity theory and social identity theory (Apoifis 2024). Identity theory classifies identities along three intersecting dimensions: personal, role-based, and group/social belonging. The framework additionally incorporates principles from

linguistic-cultural studies, which recognise that cultural cognition is encoded in language through associative patterns (Lupyan, Lewis 2019). These patterns can be systematically investigated through associative experiments.

The associative experiment in linguistics serves to document responses motivated by culturally embedded information circulating among participants (Sternin 2020). The associative method facilitates access to respondents' consciousness by eliciting reactions to presented stimuli. The experimental procedure involves recording verbal responses to stimulus words followed by analysis of the results. Associated words acquire new individualised meanings that connect the cognitive essence of the studied subject with images, emotions, and ideas present in participants' minds. The philosophical foundation of the associative experiment rests on the premise that individuals recall mental images by relating them to each other (Halbwachs 2020). Accordingly, the experiment may establish a connection between the stimulus introduced by the experimenter and the participant's response. From a psychological perspective, verbal reactions to stimuli relate to the hypothesis of predictive relationships among associations (Miller 2006). The cognitive capacity to use one concept as a starting point to establish mental connections with another exemplifies the process of accessing concepts through associations (Broccias 2021). Consequently, the experimenter gains access to the conceptual content under investigation, enabling a reconstruction of its cognitive structure.

## **2.2. Research Design**

The study employed a mixed-methods approach integrating qualitative and quantitative techniques to investigate and interpret the concepts of "time" and "space" within Kazakh linguistic consciousness. The research methodology incorporates philosophical, cultural, and linguistic tools to enable a comprehensive analysis of how native speakers cognitively and culturally perceive these categories. The research centres on an associative experiment as its primary empirical component, supplemented by statistical analysis and linguistic examination using conceptual analysis methods. This approach combines linguistic and cultural semantics of words, facilitating a thorough and objective logical analysis of natural-language concepts. Following statistical processing, the most frequent and culturally significant categories emerging from the survey were analysed through the lens of Kazakh philosophical and cultural traditions. The concepts identified during coding were interpreted not merely as linguistic data but as manifestations of underlying worldviews within the framework of qualitative-philosophical synthesis.

## **2.3. Sample**

The study employed a stratified purposive sampling method to ensure the representation of diverse Kazakh-speaking individuals across key demographic variables relevant to the research. The target sample comprised 200 native Kazakh speakers aged 20 to 70 years, representing varying educational backgrounds (secondary, vocational, and higher education). The selected age range effectively captured age-related differences in the perception and conceptualisation of "time" and "space", which stem from diverse historical, technological, and cultural changes experienced by different generations in Kazakhstan.

Stratification was based on two primary criteria – age and education level – to include perspectives from various sociocultural backgrounds while minimising the risk of demographic bias. Participant recruitment was conducted through multiple channels, including direct contact at educational institutions and public organisations. Invitations were distributed via email and through intermediaries at participating institutions. Prior to participation, all potential respondents received detailed information about the study's

objectives, format, and confidentiality measures. Only those who provided informed consent were included in the final sample.

#### **2.4. Survey**

The primary data collection tool was a structured associative questionnaire designed to identify both spontaneous and reflective linguistic associations with the concepts of “time” and “space”. Researchers manually developed the survey instrument based on methodological approaches from previous associative experiments used in conceptual studies of the Russian and Kazakh languages (Kuzembayeva 2021). Question selection was motivated by the need to document not only linguistic associations but also existential, emotional, and value-laden aspects that influence the perception of these fundamental categories. The final questionnaire contained six open-ended questions for each concept in the Kazakh language (Appendix). The selected question structure enabled multi-level analysis, encompassing direct linguistic associations, metaphorical and cultural content, and emotional perception. Participants completed the questionnaire either in person or via Google Forms, depending on availability and preference.

#### **2.5. Statistical Processing**

The data collected through the associative questionnaire underwent a multi-stage analytical process. The analysis combined coding and quantitative statistical treatment to ensure a comprehensive interpretation of linguistic and conceptual patterns related to temporal and spatial categories. Following data collection, written responses were transcribed, digitised, and coded using SAS software, while responses from Google Forms required no transcription. Each participant received a unique digital code to maintain anonymity, while the responses were linked with demographic variables. The coding was conducted by two independent researchers trained in cognitive linguistics. During the pilot phase ( $n = 40$  responses), inter-coder agreement reached 84% (Cohen's  $\kappa = 0.79$ ). Discrepancies were resolved through consensus discussion; in contested cases (12% of responses), a third expert was consulted. The final codebook comprised eight categories, each accompanied by an operational definition and illustrative examples.

Through open coding procedures, broader semantic and metaphorical categories were developed, including “time as emotion”, “time as a value”, “space as homeland”, and “space as freedom”. SAS software converted all coded elements into numerical variables that indicate response frequencies, enabling the construction of frequency tables showing the most prevalent temporal and spatial associations. Descriptive statistics, including means and standard deviations, summarised response type distributions and the prevalence of conceptual categories. Potential age-group preferences were identified for emotional versus metaphorical associations and for abstract versus concrete associations.

To assess the statistical significance of differences between participant groups, the study employed inferential methods. A Student's t-test was used to compare mean response frequencies between binary age groups (younger versus older participants). Education level was excluded from the inferential analysis for two reasons. First, the uneven distribution across categories (higher education – 68%; secondary – 18%; vocational – 14%) rendered statistically robust comparisons unfeasible. Second, reporting results disaggregated by educational attainment posed a risk of stigmatising particular subgroups. The variable was therefore retained solely within the descriptive statistics to characterise the sample. Cronbach's alpha coefficient was calculated to evaluate the internal consistency of identified conceptual categories. This reliability measure verified whether elements grouped under the same thematic category exhibited sufficient correlation and semantic coherence.

## **2.6. Research Limitations**

Several methodological limitations should be acknowledged. First, while the sampling strategy aimed to represent various demographic segments, complete representativeness of all regional and dialectal variations may not have been achieved. Second, the associative method captures verbal responses but might not fully reveal unconscious or embodied conceptual structures. Third, technological factors such as participants' familiarity with digital surveys could influence data completeness, particularly among older respondents. The fourth limitation concerns the fact that proficiency in the Russian language and the influence of bilingualism on processes of conceptualisation were not accounted for in the study. The fifth relates to inter-coder reliability: despite an acceptable agreement threshold ( $\kappa = 0.79$ ), interpretive variability affected 21% of coded cases.

## **2.7. Ethical Considerations**

The study adheres to ethical standards for sociolinguistic and psychological research. Participants signed informed consent forms ensuring voluntary participation, confidentiality, and the right to withdraw at any time. All data remains stored in secure, encrypted databases accessible only to research team members.

# **3. RESULTS**

## **3.1. Associations Related to “Time” and “Space”**

### **1. Spontaneous Associations**

When participants were asked to provide spontaneous associations with the words “time” and “space”, their responses revealed distinct cultural cognitive patterns rooted in the Kazakh worldview. “Time” is predominantly associated with life, destiny, and existential cycles. The most frequent responses for “time” included “clock” (43%), “speed” (35%), “change” (32%), “life” (28%), and “old age” (24%), indicating a perception of “time” as a measurable, fleeting, and life-determining power. These associations reflect the growing awareness of “time” as a structured and limited resource, likely influenced by modern habits and technologies. At the same time, the concept retains existential connotations related to ageing and life cycles. Associations such as “life” and “old age” simultaneously reflect the traditional Kazakh understanding of “time” as a value-laden moral continuum, where temporal progression signifies wisdom, generational memory, and social heritage. Respondents' associations with the word “space” showed broader and culturally grounded perceptions, with “steppe” (51%) emerging as the dominant image, followed by “freedom” (40%), “distance” (33%), “sky” (27%), and “home/land” (25%). Such responses illustrate the spatial consciousness shaped by Kazakhstan's expansive geography, nomadic heritage, and profound emotional connection to land and openness. Accordingly, “space” transcends physical dimensions to symbolise identity, autonomy, and belonging.

### **2. First-Word Associations**

Participants were asked to say the first word that came to mind in response to “time” and “space”. Their associations confirmed the cultural grounding and metaphorical richness of these concepts in Kazakh consciousness. In terms of “time”, dominant responses included “clock”, “moment”, “future”, “death”, and “morning”, revealing that “time” is typically conceptualised through the ideas of movement, progression, and transformation. Space-related prompts elicited “steppe”, “sky”, “freedom”, “road”, and “distance” as the most frequent responses, highlighting experiential and geographical orientations toward boundlessness, openness, and mobility. Such patterns indicate the prevalence of embodied metaphors in Kazakh cognition. “Space” maintains concrete rather than abstract qualities, deeply connected to natural environments and nomadic heritage. Consequently, temporal and

spatial perceptions extend beyond mere coordinates, functioning as dynamic forces that shape human existence.

### 3. Reflective Associations

When afforded “time” for contemplation, participants generated more profound and abstract associations with “time” and “space”. Temporal reflections included “memory” (29%), “patience” (24%), “destiny” (21%), “cycle” (17%), and “irreversibility” (15%), illustrating a shift from concrete external markers toward personal conceptual understanding. Responses to questions concerning “space” similarly transcended physical dimensions, emphasising “rootedness” (26%), “belonging” (22%), “silence” (18%), “nomadism” (15%), and “emptiness” (12%). These patterns reveal the dual nature of “space” in Kazakh perception – functioning as both a fundamental source of identity and an expansive, often meditative or solitary environment. The emergence of “nomadism” directly connects spatial cognition with cultural heritage, while “emptiness” and “silence” suggest philosophical interpretations of void or spiritual introspection.

### 4. Associative Feelings and Emotions

Participants expressed diverse emotional responses to temporal and spatial concepts, revealing the affective dimensions through which these categories are perceived and internalised within Kazakh culture. Thus, with regard to “time”, “anxiety” emerged as the predominant association (30%), particularly among younger respondents, who linked “time” to pressure, deadlines, and future uncertainty. Other prevalent emotional responses included “nostalgia” (26%), “gratitude” (18%), “sadness” (17%), and “hope” (15%). These patterns highlight ambivalent temporal perceptions, where “time” functions simultaneously as a source of loss and regret concerning the past while also symbolising potential growth and opportunities. Space-related associations elicited predominantly positive emotions, with “freedom” (38%) and “peace” (32%) being the most frequent. However, “loneliness” (21%), “pride” (20%), and “longing” (19%) also featured prominently. Collectively, these findings confirm that while temporal reflection tends to generate more introspective and often tense emotional states, spatial perception carries connotations of expansiveness, incorporating elements of solitude, cultural attachment, and spiritual connection.

### 5. Proverbs, Sayings and Poetry

References to proverbs, sayings, and poetic expressions revealed the profound integration of temporal and spatial concepts within moral, ethical, and spiritual consciousness. Concerning perceptions of “time”, 41% of the respondents cited the proverb *уақыт – емші* (transliterated as *uaqyt – emshi*, meaning ‘time heals’). Other temporal expressions were mentioned less frequently. *Уақыт тас екеш тасты да тоздырады* (‘time wears away even stone’) was cited by 30% of respondents; *кешегі күннен алыс жоқ, ертеңгі күннен жақын жоқ* (‘nothing is farther than yesterday, nothing is closer than tomorrow’) by 21%; and *жасы бір құрдас емес, заманы бір құрдас* (‘people are united not by age, but by the time they have lived through together’) by 18%. The descending sequence is revealing: the aphorism about stone being worn away by time is retained more firmly than the others. References to “space” exhibited particularly strong connections to identity and ancestral heritage. The expression *Жер-ана* (*Zher-ana*, ‘Mother Earth’) was cited by 35% of the participants. The respondents also frequently cited proverbs such as *жері байдың елі бай* (*zheri baidyn eli bai*, ‘the one rich in land has a rich country’) (31%) and *кең дала – кең пейіл* (*ken dala – ken peiil*, ‘the generous steppe breeds generous souls’) (29%).

### 6. Perceived Significance of “Time” and “Space”

Participants were asked to describe the roles of “time” and “space” in their personal lives. Their responses revealed distinct yet complementary impacts on personal and collective experience. The majority (43%) viewed “time” primarily as a resource that must not be wasted, which emphasises pragmatic orientations toward productivity and personal responsibility. An additional 26% framed “time” as both a teacher and a trial, highlighting its influence on moral development, life lessons, and resilience. Meanwhile, 21% associated “time” with regret or

contemplation, underscoring its emotional weight and connection to past decisions. In contrast, spatial interpretations were assumed to have more existential and affective qualities. For 35% of respondents, “space” was a foundational element of identity, tied to cultural roots and a sense of belonging. Another 30% perceived “space” as symbolising inner peace and autonomy, suggesting psychological and spiritual connections to natural environments. Notably, 25% described “space” as a spiritual concept linked to ancestors and nature. Their perspectives indicate enduring connections between land, memory, and heritage in Kazakh consciousness. The observed response patterns demonstrate that temporal perceptions remain grounded in practical and moral frameworks, while spatial concepts serve as fundamental forces that nurture identity, continuity, and emotional balance.

### 3.2. Semantic and Metaphorical Categories Based on Coding

Response coding revealed culturally embedded concepts illustrating how Kazakh speakers conceptualise “time” and “space” in both individual and collective consciousness. Four dominant categories emerged for the concept of “time”: “time as emotion”, incorporating associations such as anxiety, nostalgia, and hope; “time as a value”, emphasizing its role as a limited resource or a moral trial; “time as movement”, reflected in metaphors of speed, flow, and directionality; and “time as a cycle”, evoking associations with natural rhythms, aging, and repetition (Table 1). These clusters suggest that “time” represents not only duration but also psychological and philosophical experiences shaped by personal memory, societal pace, and generational wisdom.

**Table 1.** Thematic Coding of Associations (developed by the authors)

Concept	Thematic Category	Response Examples	Frequency
“Time”	“Time as emotion”	Anxiety, nostalgia, hope, sadness	148
	“Time as a value”	Resource, trial, responsibility, regret	132
	“Time as movement”	Speed, flow, direction, moment	112
	“Time as a cycle”	Seasons, repetition, aging, return	51
“Space”	“Space as homeland”	Earth, ancestors, home, rootedness	161
	“Space as freedom”	Openness, independence, steppe, movement	120
	“Space as void/silence”	Emptiness, silence, spiritual detachment	66
	“Space as identity”	Belonging, pride, origins, place-attachment	85

For the concept of “space”, the following categories emerged: “space as homeland”, featuring responses centered on ancestral lands and roots; “space as freedom”, emphasizing movement, openness, and personal autonomy; “space as void or silence”, indicating meditative, existential, or spiritual dimensions; and “space as identity”, where land and landscape become inseparable from personal and collective heritage. The inclusion of proverbs added further semantic depth. Fixed expressions demonstrate how linguistic forms encode collective ethical frameworks and traditional philosophical reflections.

Descriptive statistical analysis identified distinct patterns in the conceptualisations of “time” and “space” across age groups. Specifically, younger respondents (20–39 years)

showed stronger preferences for emotional ( $M = 4.61$ ,  $SD = 2.32$ ) and abstract associations ( $M = 2.95$ ,  $SD = 1.94$ ). The results suggest that younger individuals are more inclined to internalise these concepts through personal experience, subjective feelings, and psychological meaning-making (Table 2).

**Table 2.** Means and standard deviations for each conceptual association type (developed by the authors)

Category	Younger Respondents, Mean	Younger Respondents, SD	Older Respondents, Mean	Older Respondents, SD
Emotional	4.61	2.32	2.65	1.70
Abstract	2.95	1.94	3.18	1.74
Metaphorical	2.90	1.58	3.75	1.75
Concrete	2.58	1.56	3.99	1.96

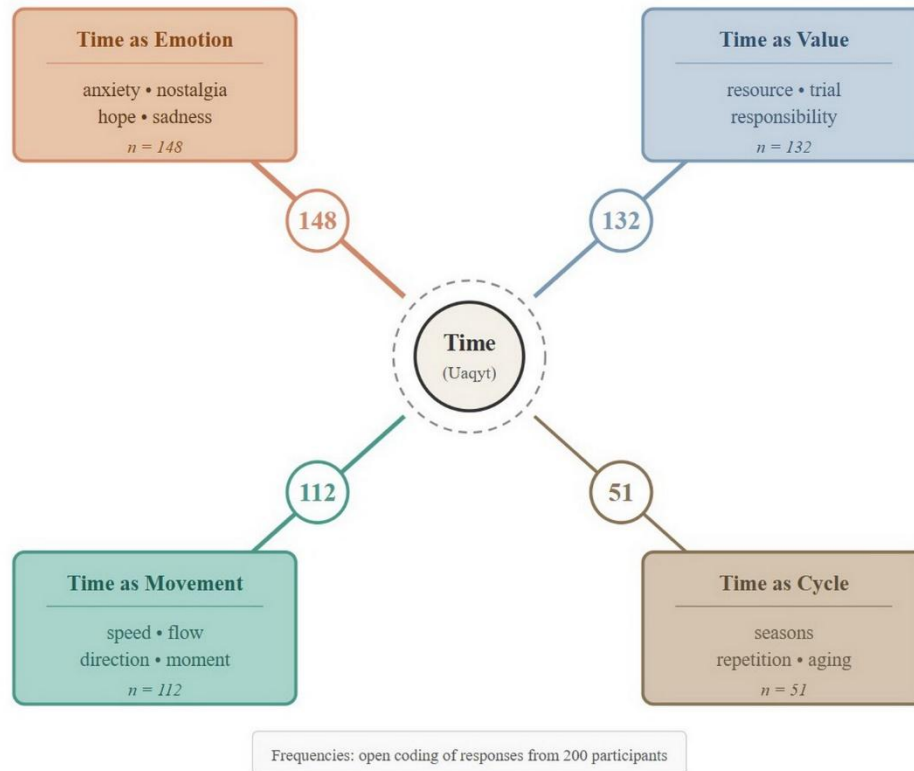
Older participants (40–70 years) exhibited stronger preferences for metaphorical associations ( $M = 3.75$ ,  $SD = 1.75$ ) and concrete associations ( $M = 3.99$ ,  $SD = 1.96$ ). Their responses exemplify traditional conceptual frameworks in which temporal and spatial concepts are structured by stable cultural symbols and physical imagery. The observed divergences highlight potential generational shifts in cognitive and emotional processing of philosophical categories, likely shaped by sociohistorical experiences, linguistic socialisation, and exposure to technological and cultural transformations.

The statistical analysis revealed marked generational variations in the frequencies of conceptual associations. Independent samples t-tests compared mean scores between younger and older participants for each category. The results indicate substantial differences in emotional associations ( $t = 6.815$ ,  $p < 0.001$ ), confirming the predominance of emotional framing among younger respondents. Cohen’s  $d$  coefficient for emotional associations was 0.97, a magnitude classified in statistical terms as a large effect. Metaphorical associations yielded  $d = 0.51$  (medium effect), while concrete associations produced  $d = 0.80$  (large effect). The practical significance of these differences is further evidenced by distributional patterns: 78% of younger respondents generated at least one emotional association, compared to 41% among older respondents.

Conversely, metaphorical ( $t = -3.605$ ,  $p < 0.001$ ) and concrete associations ( $t = -5.629$ ,  $p < 0.001$ ) occurred significantly more frequently among older participants. Abstract associations showed no statistically significant intergroup difference ( $t = -0.883$ ,  $p = 0.379$ ), indicating comparable distribution across age cohorts. The findings make evident that generational cognitive variations primarily manifest in emotional expressiveness and reliance on either metaphorical or concrete representations. A reliability analysis was conducted to assess internal consistency across the four conceptual categories (emotional, abstract, metaphorical, and concrete). Cronbach’s alpha coefficient ( $\alpha = 0.82$ ) confirmed high reliability and internal consistency, substantiating these categories as the components of a unified scale.

### 3.3. Interpretation of Results from Kazakh Philosophical and Cultural Perspectives

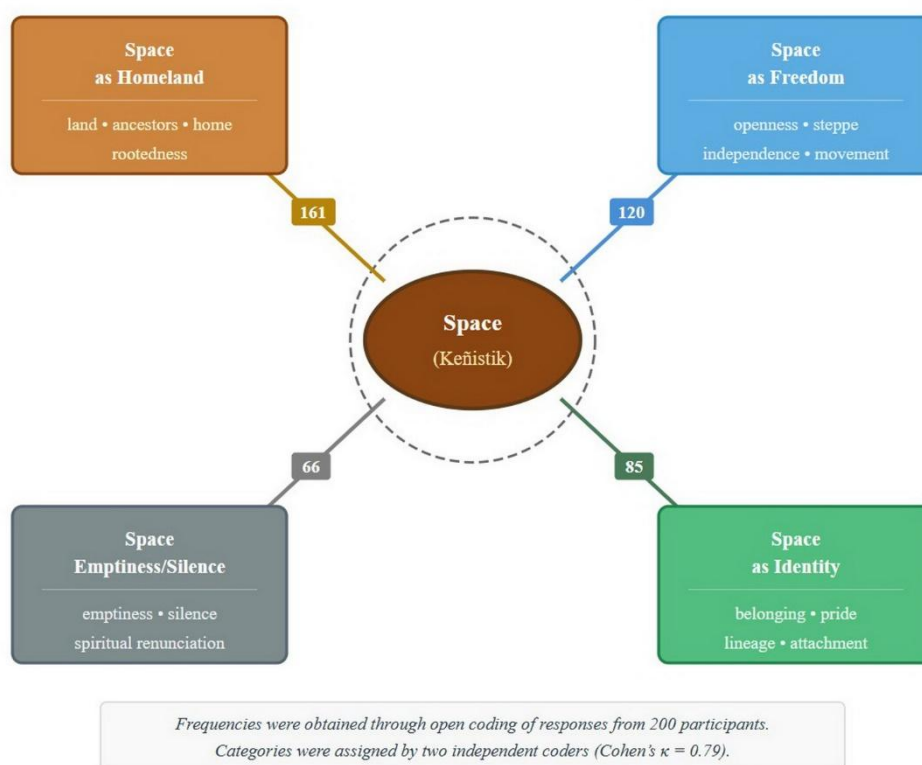
An analysis of spontaneous and reflective associations revealed four dominant categories through which “time” becomes conceptualised in Kazakh linguistic consciousness: emotion, value, movement, and cycle (Figure 1).



**Figure 1.** Core components of “time” as a concept (developed by the authors)

Words such as “anxiety”, “hope”, and “memory” represent emotionally charged perceptions of “time”. Accordingly, “time” functions not merely as a neutral duration but as an affectively experienced phenomenon tied to uncertainty, aspiration, and introspection. The “time as a value” category is marked by frequent associations with “resource” and “trial”. This observation underscores the moral perspectives through which “time” is evaluated in Kazakh discourse, particularly regarding collective historical experiences and an emphasis on responsibility. Movement metaphors (“flow” and “speed”) reinforce embodied and directional temporal perceptions, aligning with conceptual metaphor theory. Cyclical associations (“seasons”, “repetition”) draw upon the traditional nomadic understandings of natural rhythms.

The concept of “space” emerges as fundamentally intertwined with cultural identity, exhibiting stronger connections to physical and emotional rootedness than temporal perceptions. Frequent associations with the homeland and ancestral continuity highlight the profound significance of land and geography within the Kazakh worldview. The ‘space as freedom’ category (e.g., “steppe”, “openness”) reflects nomadic ethos, while “space as silence or void” implies metaphysical interpretations of “space” as meditative, inner states. These patterns indicate that within Kazakh culture, “space” transcends external physicality to become internalised as part of selfhood, forming a bridge between collective memory and nature (Figure 2).



**Figure 2.** Core components of “space” as a concept (developed by the authors)

Conceptual analysis demonstrates how Kazakh speakers interpret “time” and “space” not merely as linguistic phenomena but as manifestations of the worldview shaped by historical experience, Islamic influences, nomadic traditions, and contemporary transformations.

#### 4. DISCUSSION

By examining the relationship between language and worldview, this study demonstrates how even universal categories – such as “time” and “space” – acquire culturally and generationally specific conceptualisations. In doing so, it contributes to the broader body of human knowledge. A similar study investigated philosophical interpretations of “time” and “space” within Kazakh philosophy (Zhangalieva et al. 2024). The results complement the current research, illustrating how Kazakh temporal and spatial concepts are enriched by unique symbols, metaphors, and traditions tied to the nation’s natural and historical contexts. This framework positions Kazakh understandings of “time” and “space” as valuable elements of cultural heritage. The findings of the present study align with these observations, highlighting that Kazakh speakers conceptualise “time” and “space” in a highly symbolic and culturally embedded manner. The analysis in A. Zhangalieva et al. (2024) is strictly theoretical and philosophical in nature; by contrast, the present study offers empirical verification through an associative experiment combined with an intergenerational dimension. However, the previous study also analysed the influence of Islam – an aspect not addressed in the current article. Islam has significantly shaped Kazakh philosophy of “time” and “space”, incorporating religious practices and rituals into perceptions of “time” and “space”. Comparison with other Turkic cultures reveals both shared features and patterns specific to the Kazakh context. The celebration of Nauryz in the Kazakh and Nogai communities is interpreted by scholars as

a cultural technology of collective renewal within the framework of “cyclical time” (Zeinullin et al. 2026). Toponymic studies in Western Kazakhstan indicate that geographical names carry sacred meanings accumulated over millennia (Khabizhanova, Mensitova 2025). Ethnographic analyses have documented a hybrid temporal regime in which genealogical tradition (shezhire) and cosmological models operate in parallel (Dosmurzinov 2023). Western horizontal models and Chinese vertical orientations contrast with Kazakh temporal perception, which is characterised by a cyclical–linear hybridity: seasonal recurrence coexists with notions of irreversibility and moral progression (Worrell Andretta 2019; Fiddler 2024).

Another study examined the concept of “time” as a complex linguistic phenomenon (Beknazarova 2022). Survey results support the present research, confirming that the conceptual metaphor and its meaning in the Kazakh language have become deeply rooted in contemporary society. The sample in Ulzhan Beknazarova (ibid.) was limited to 50 informants. With 200 participants and age stratification, intergenerational variability becomes discernible; previously, it had not been recorded. The associations provided by respondents in the current study highlight the prevalence of embodied metaphors in Kazakh cognition. “Space” is not abstract but rather animate and closely tied to the natural environment and nomadic traditions. Furthermore, “time” and “space” are perceived not merely as coordinates but as dynamic forces shaping human existence.

Furthermore, the existing literature indicates that the concept of “time” is expressed through diverse linguistic means, including lexical units in their literal sense, metaphorical designations, similes, epithets, rhetorical figures, figurative associations, and symbolic framing (Kogay 2018). The present study reveals unique aspects of the Kazakh worldview that have received insufficient attention in prior comparative research. The identification of “space” as homeland and “space” as identity among the dominant categories reflects a worldview shaped by nomadic history, in which geographical “space” is not static but dynamic, relational, and emotionally significant. Similarly, the metaphorical associations of “time” with patience, fate, and irreversibility emphasise its linear progression, along with its ethical and existential dimensions. These cultural metaphors differ in emphasis and structure from Western paradigms. Kazakh linguistic and philosophical thought resists commercialisation by framing “time” as a moral experience and “space” as sacred continuity (Sadirova et al. 2023). Such findings suggest that not only discourse in the traditional contextual sense but also physical, social, cultural, conceptual, cognitive, and embodied experiences function as contextual factors promoting metaphorical conceptualisation. Building on a multi-level theory of metaphor, scholars have proposed that context influences metaphorical conceptualisation instantaneously at the level of mental “spaces”, while exerting simultaneous long-term effects at the levels of domain and frame (Filipović, Ibarretxe-Antuñano 2019). Another study has confirmed that spatial context plays an important role in building social ties through three mechanisms: spatial proximity, spatial composition, and spatial configuration (Small, Adler 2019).

Comparative studies of other Turkic and post-Soviet cultures confirm certain shared values, particularly the significance of land and ancestral ties (Kuzembayeva 2023). For instance, findings from a psycholinguistic study describe how Russian and Indian participants conceptualise the image of Kazakhs (Kuzembayeva 2021). The results reveal predominantly positive perceptions of Kazakhs among both Russian and Indian respondents. Participants from both groups recognise the Turkic origins of Kazakhs, associate them with Kazakhstan, and characterise them as respectful toward elders and patriotic. Within this context, the current study’s findings regarding Kazakh perceptions of “space” warrant attention. The concept frequently evoked associations with physical and emotional rootedness, homeland, and ancestral continuity, underscoring the importance of land and geography in the Kazakh worldview. An internal tension emerged within spatial conceptualisations. “Freedom” and “rootedness” occupy opposing poles: the former emphasises mobility and openness, whereas the latter foregrounds attachment and stability. This tension likely reflects the historical

transition from a nomadic mode of life to sedentarisation, as well as the ambivalence of the present moment, in which global mobility coexists with local identification. The emotional data reveal a parallel strain: “freedom” (38%) and “loneliness” (21%) point to an ambivalent perception of openness – experienced by some as liberation and by others as isolation.

Social Identity Theory provides a productive interpretive lens for explaining intergenerational differences by construing them as transformations in the mechanisms of group identification (Demirden 2021). The metaphorical structures of older respondents, socialised during the Soviet and early post-Soviet periods, draw upon collectivist discourse and traditional cultural referents. By contrast, globalisation and digital communication – conditions under which younger respondents were formed – have fostered the internalisation of temporal and spatial categories grounded in individual emotional experience.

The ethnolinguistic identity of Kazakhstan’s student youth is contingent upon the language of instruction, whose selection restructures identification models across age cohorts (Zharkynbekova et al. 2025). Youth language attitudes also vary regionally: the multilayered history of language policy exerts uneven effects on linguistic consciousness across territorial contexts (Khamit et al. 2025). The observed shift aligns with the broader transition from collectivism to individualism (Chen et al. 2022); nevertheless, the persistence of associations with homeland and ancestors attests to the durability of collective identity structures.

The collected data substantiate the thesis of conceptual metaphor hybridisation under the influence of globalisation. The predominance of the association “clock” (43%) in temporal responses – atypical for a traditional nomadic orientation – indicates the penetration of an instrumental perception of “time”. Within this model, temporal experience is quantitatively measured and segmented through mechanical and digital devices.

At the same time, existential associations (“life”, “fate”, “old age”) persist, signalling resistance of the cultural substrate to complete displacement. The mechanism of hybridisation warrants dedicated investigation: it remains unclear whether new metaphors accumulate upon traditional structures, forming a composite temporality, or whether they gradually supplant inherited conceptual mappings. The resolution of this question is critical for forecasting the trajectory of cognitive change in Kazakh-speaking populations experiencing intensifying exposure to digital technologies.

## 5. CONCLUSIONS

The analysis of associative responses revealed dominant conceptual categories related to “time” and “space” within the Kazakh worldview. For “time”, key categories included emotions (e.g., anxiety, nostalgia), values (e.g., “time as a resource”), movement, and cyclical structure. “Space” was most frequently associated with homeland, freedom, silence, and identity. The linguistic coding of participant responses indicated that “time” is perceived as an emotionally charged and morally significant phenomenon, while “space” functions as a foundation for existential and cultural self-definition. Clear distinctions emerged between the two age groups in their conceptualisation of these categories. Younger participants (aged 20–39) exhibited a pronounced preference for emotional and abstract associations, demonstrating a more introspective and psychological perception of “time” and “space”. In contrast, older participants (aged 40–70) favored metaphorical and concrete associations reflecting traditional worldviews. These differences were statistically significant, highlighting shifts in cultural cognition under the influence of modernity.

The theoretical contribution of the study can be articulated as follows: in cultures with a nomadic heritage, spatial metaphors play a structurally formative role in the construction of identity, surpassing temporal categories in terms of emotional salience. This finding extends Conceptual Metaphor Theory, which has thus far been validated predominantly on data drawn from sedentary cultures.

The proposed four-component models – for “time” (emotion, value, movement, cycle) and for “space” (homeland, freedom, silence, identity) – may serve as a comparative framework for cross-cultural investigations involving Turkic, Central Asian, and post-Soviet linguistic communities.

The examination of philosophical interpretations of “time” and “space” in Kazakh thought provides deeper insights into the unique aspects of the nation’s culture and history. Traditional conceptions of “time” and “space”, enriched by symbolic meanings and religious rituals, constitute a fundamental element of Kazakhstan’s cultural heritage. In order to preserve traditional values while critically engaging with emerging conceptualisations of “time” and “space”, continuous dialogue with the globalisation-driven shifts outlined in the introduction is necessary.

Promising avenues for subsequent research include: a comparative analysis of the conceptualization of “time” and “space” across Turkic languages (Kazakh, Kyrgyz, Uzbek, Turkish) with the aim of distinguishing a pan-Turkic core from culturally specific patterns; longitudinal tracking of the dynamics of conceptual metaphors within the same cohort of respondents; and examination of the impact of Kazakh–Russian bilingualism on the structure of conceptualization, taking into account processes of metaphorical transfer and layering. In addition, experimental investigation of embodied metaphors using methods from cognitive psychology – such as priming and eye-tracking – would enable verification of the operation of the identified associations at the level of implicit information processing.

### **Practical Value**

The findings of this study hold practical value for developing culturally sensitive educational materials in language instruction, philosophy, and civic identity formation, particularly within secondary and higher education in Kazakhstan. Recognising generational differences in the conceptualisation of “time” and “space” enables educators to adapt both curriculum content and teaching methodologies to align with students’ worldviews. Additionally, insights into the metaphorical and symbolic structures inherent in the Kazakh language prove valuable for translators, linguists, and specialists in intercultural communication. Such understanding becomes particularly crucial in contexts requiring the preservation of culturally significant associations.

The study identified a series of tensions that warrant targeted investigation. Cyclical and linear perceptions of “time” coexist within the same respondent group: associations with seasons and repetition appear alongside associations of irreversibility and fate. The tension between “space-as-freedom” and “space-as-rootedness” reflects opposing orientations and may indicate a historical transition from a nomadic to a sedentary mode of life.

A further incongruity emerges in the temporal data of younger respondents: instrumental associations (“clock”) and existential ones (“life”, “fate”) co-occur within the responses of the same cohort. This divergence points to a disjunction between functional time-management frameworks and philosophically inflected temporal consciousness.

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## **Appendix**

### Questions for the Associative Experiment

1. What associations emerge when you encounter the terms “time” or “space”?
2. What is the first word that comes to mind?
3. What additional words arise upon further reflection?
4. Which emotions or affective states do you connect with “time” and “space”?
5. What proverb, saying, or poetic reference related to “time” and “space” occurs to you?
6. How would you characterize the significance of “time” and “space” in your life?