

**Қазіргі заманғы
маңызды мәселелер**

**Актуальные проблемы
современности**

**Actual Problems
of the Present**

№2 (52)

**ҚАЗІРГІ ЗАМАНҒЫ
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Sound Symbolism and Emotional Tone in Kazakh Poetry: A Phonosemantic Experimental Study

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Abstract

This study investigates the relationship between sound symbolism and emotional tone in Kazakh poetry. Phonosemantics is one of the important fields of modern linguistics that examines the natural connection between sound and meaning. In recent decades, increasing attention has been paid to the role of sound symbolism in poetic texts. Therefore, the present research focuses on the influence of phonetic structures on readers' emotional perception of Kazakh poetry. The theoretical framework of the study is based on the works of S.V. Voronin, A.P. Zhuravlev, V.V. Levitsky, K.Sh. Khusainov, and Jan Auracher. The research material consisted of twelve poetic stanzas selected from the works of I. Zhansugurov, A. Kunanbayev, M. Zhumabayev, B. Kuleyev, and S. Aronuly. The poems were classified into two groups according to their formant frequency levels. The study employed Charles Osgood's semantic differential method. Forty school students aged between 12 and 17 participated in the experiment. The respondents evaluated the emotional tone of the poems using the scales “light-dark”, “strong-weak”, and “active-slow”. The collected data were statistically analyzed using the Jamovi software package. The findings indicate that, in many cases, poems with higher formant frequencies are associated with positive emotional characteristics such as brightness, strength, and activity. At the same time, the results reveal that emotional perception is influenced not only by vowel qualities but also by semantic content and the repetition of consonant sounds. The study demonstrates that sound symbolism plays a significant role in shaping the emotional tone of poetic texts in Kazakh literature.

Keywords: phonosemantics, sound symbolism, emotional tone, poetry, formant frequency.

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Аннотация

Зерттеу жұмысы қазақ поэзиясындағы дыбыс символизмі мен эмоционалды тон арасындағы байланысты анықтауға арналған. Фоносемантика тілдегі дыбыстық форма мен мағына арасындағы табиғи байланысты зерттейтін лингвистиканың маңызды бағыттарының бірі болып табылады. Соңғы жылдары дыбыс символизмін поэтикалық мәтіндер деңгейінде зерттеуге қызығушылық артып келеді. Осыған байланысты жұмыста қазақ поэзиясындағы дыбыстық ұйымдасу ерекшеліктерінің оқырманның эмоционалды қабылдауына ықпалы қарастырылды. Зерттеудің теориялық негізін фоносемантика саласындағы С.В. Воронин, А.П. Журавлёв, В.В. Левицкий, К.Ш. Құсайынов және Ян Аурахер еңбектері құрайды. Зерттеу материалдары ретінде Илияс Жансүгіров, Абай Құнанбайұлы, Мағжан Жұмабаев, Бернияз

Күлеев және Сүйінбай Аронулы шығармаларынан іріктелген 12 өлең шумағы пайдаланылды. Өлеңдер формант жиіліктеріне байланысты жоғары және төмен жиілікті екі топқа бөлінді. Зерттеу барысында Ч. Осгудтың семантикалық дифференциал әдісі қолданылды. Экспериментке 12-17 жас аралығындағы 40 оқушы қатысты. Респонденттер әр өлеңнің эмоционалды реңкін «жарық-қараңғы», «күшті-әлсіз» және «ширақ-баяу» шкалалары бойынша бағалады. Алынған деректер Jamovi бағдарламасы арқылы статистикалық өңдеуден өтті. Зерттеу нәтижелері кейбір өлеңдерде формант жиілігі жоғары дыбыстардың жарық, күшті және ширақ эмоциялармен байланысатынын көрсетті. Сонымен қатар кейбір жағдайларда эмоционалды қабылдауға өлеңнің мазмұны мен дауыссыз дыбыстардың қайталануы да әсер ететіні анықталды. Зерттеу қорытындылары қазақ поэзиясындағы дыбыс символизмі құбылысының эмоционалды тонды қалыптастыруда маңызды рөл атқаратынын дәлелдейді.

Кілт сөздер: фоносемантика, дыбыс символизмі, эмоционалды тон, поэзия, формант жиілігі.

Звуковой символизм и эмоциональный тон в казахской поэзии: фоносемантическое экспериментальное исследование

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Аннотация

Данная исследовательская работа посвящена изучению взаимосвязи между звуковым символизмом и эмоциональным тоном в казахской поэзии. Фоносемантика является одним из актуальных направлений современной лингвистики, исследующим естественную связь между звуковой формой слова и его значением. В последние десятилетия особое внимание уделяется изучению звукового символизма на уровне поэтического текста. В связи с этим в работе рассматривается влияние звуковой организации казахских поэтических произведений на эмоциональное восприятие читателя. Теоретическую основу исследования составили труды С.В. Воронина, А.П. Журавлёва, В.В. Левицкого, К.Ш. Хусаинова и Яна Аурахаера. Материалом исследования послужили 12 поэтических строф, отобранных из произведений И. Жансугурова, Абая Кунанбаева, М. Жумабаева, Б. Кулеева и С. Аронулы. Стихотворные тексты были разделены на две группы в зависимости от уровня формантных частот. В исследовании использовался метод семантического дифференциала Ч. Осгуда. В эксперименте приняли участие 40 школьников в возрасте от 12 до 17 лет. Участникам предлагалось оценить эмоциональный тон стихотворений по шкалам «светлый – тёмный», «сильный – слабый» и «активный – медленный». Полученные данные были обработаны с помощью статистической программы Jamovi. Результаты показали, что высокая формантная частота в ряде случаев ассоциируется с положительными эмоциональными характеристиками, такими как светлость, сила и активность. Вместе с тем было установлено, что на эмоциональное восприятие влияют не только гласные звуки, но и содержание текста, а также повторяемость согласных звуков. Полученные результаты подтверждают важную роль звукового символизма в формировании эмоционального тона поэтического текста.

Ключевые слова: фоносемантика, звуковой символизм, эмоциональный тон, поэзия, формантная частота.

1. Introduction

Language is one of the most important tools through which people perceive, interpret, and express their understanding of the world. It serves not only as a means of communication but also as

a system that reflects human cognition, emotions, and cultural experience. For a long time, linguistic theory was dominated by the idea that the relationship between the sound form of a word and its meaning is arbitrary. This view was most prominently formulated by Ferdinand de Saussure, who argued that linguistic signs are based on convention rather than natural connection. However, numerous studies conducted during the twentieth and twenty-first centuries have demonstrated that certain sounds may evoke specific meanings, emotions, or sensory associations. This phenomenon is generally known as sound symbolism and has become one of the central topics of phonosemantic research.

Phonosemantics is a branch of linguistics that investigates the relationship between sound and meaning. It explores how phonetic structures contribute to semantic interpretation and emotional perception. Researchers have shown that some speech sounds are systematically associated with particular concepts such as size, shape, movement, brightness, and emotional qualities. As a result, the traditional assumption of complete arbitrariness in language has been challenged by growing evidence supporting motivated relationships between sound and meaning.

The foundations of sound symbolism research can be traced back to ancient philosophy. Plato, in his dialogue *Cratylus*, discussed the possibility that certain sounds naturally correspond to specific qualities of objects and actions. Later, philosophers and linguists such as Leibniz, Herder, and Humboldt continued to explore the nature of sound–meaning relationships. In the twentieth century, experimental studies by Edward Sapir, Stanley Newman, and other scholars provided empirical evidence that particular vowels and consonants are consistently associated with specific semantic and emotional dimensions. These findings contributed significantly to the emergence of phonosemantics as an independent field of linguistic inquiry.

Modern phonosemantic studies have expanded beyond individual words and now examine larger linguistic units, including literary and poetic texts. Poetry is particularly suitable for such investigations because its artistic effect is closely connected with sound organization. Poets often employ alliteration, assonance, rhythm, and phonetic repetition to create emotional impact and aesthetic expression. Consequently, the study of sound symbolism in poetry offers valuable insights into the interaction between phonetic structure and emotional perception.

One of the most influential contemporary studies in this area was conducted by Jan Auracher and his colleagues. Using German poetry as research material, they demonstrated that formant frequencies of vowels are associated with readers' emotional interpretations of poetic stanzas. Their findings suggest that higher formant frequencies tend to be perceived as brighter, more positive, and more active, whereas lower frequencies are often associated with darker and less positive emotions. These results indicate that phonetic properties may influence emotional responses to poetic texts at a level beyond conscious awareness.

Despite the growing body of international research, the relationship between sound symbolism and emotional tone remains insufficiently explored in Kazakh linguistics. Although Kazakh scholars have investigated sound-imitative and expressive vocabulary, relatively little attention has been paid to the role of sound symbolism in poetic discourse and emotional perception. Kazakh poetry, characterized by its rich phonetic patterns and expressive sound organization, provides an excellent opportunity to examine these issues from a phonosemantic perspective.

The relevance of the present study lies in its attempt to bridge phonosemantics, psycholinguistics, and literary studies by examining how sound structures contribute to emotional interpretation in Kazakh poetic texts. Understanding the relationship between sound symbolism and emotional tone may provide new insights into the cognitive mechanisms underlying literary perception and linguistic meaning.

The aim of this study is to investigate the relationship between sound symbolism and emotional tone in Kazakh poetry. To achieve this aim, several objectives were established: to review the theoretical foundations of phonosemantics and sound symbolism; to analyze the concept of emotional tone in poetic texts; to select poetic stanzas with different formant frequency characteristics; to conduct an experimental study using the semantic differential method; and to interpret the results

obtained from participants' evaluations.

The object of the research is emotional tone in Kazakh poetry, while the subject of the study is the relationship between sound symbolism and readers' emotional perception of poetic texts.

The scientific significance of this research lies in its experimental investigation of sound symbolism within Kazakh poetry. The findings contribute to the development of phonosemantic theory and provide empirical evidence concerning the role of phonetic structure in shaping emotional responses to literary texts. Furthermore, the results may be useful for future studies in phonosemantics, psycholinguistics, cognitive poetics, and literary analysis.

2. Literature review

Phonosemantics is a relatively young but rapidly developing field of linguistics that investigates the relationship between sound and meaning. While traditional structural linguistics has long maintained that linguistic signs are arbitrary, phonosemantic studies suggest that certain sounds may carry inherent semantic or emotional associations. Consequently, phonosemantics examines how phonetic structures contribute to meaning formation and emotional perception in language.

The origins of sound symbolism research can be traced back to ancient philosophical discussions concerning the relationship between words and the objects they denote (Lev-Ari, 2026; Pindur, 2025). Ancient Greek philosophers such as Heraclitus, Democritus, and Plato addressed the question of whether names are naturally connected to the things they represent. In his dialogue *Cratylus*, Plato proposed that some sounds may reflect particular qualities of objects and actions. For example, he associated the sound /t/ with movement and energy, while the sound /l/ was connected with smoothness and softness. These ideas represent some of the earliest attempts to explain the relationship between sound and meaning (Ćwiek et al., 2025; Imai et al., 2025; Jeong et al., 2026).

During the Enlightenment and the nineteenth century, scholars continued to investigate the origins of language and the role of sound in meaning formation (Meng et al., 2025; Sidhu, 2025; Zulfugarova et al., 2025). Thinkers such as Leibniz, Herder, and Humboldt suggested that language emerged partly through imitation and sensory experience. However, the development of structural linguistics in the early twentieth century shifted attention away from sound symbolism. Ferdinand de Saussure's theory of the arbitrary linguistic sign became dominant, leading many linguists to view sound-meaning correspondences as marginal phenomena.

Interest in sound symbolism re-emerged through experimental research. One of the most influential studies was conducted by Edward Sapir (1929), who demonstrated that speakers tend to associate the vowel /i/ with small objects and the vowel /a/ with larger objects. Similar findings were later confirmed by Newman (1961), who showed that both vowels and consonants can evoke systematic perceptions related to size, strength, and other semantic dimensions. These studies provided empirical evidence that sound symbolism is not merely speculative but can be observed experimentally.

Another important contribution came from Otto Jespersen (1933), who examined the symbolic value of the vowel /i/ across different languages. He observed that words containing this vowel frequently refer to smallness, lightness, or delicacy. Although some methodological limitations were later identified, Jespersen's work played a crucial role in stimulating further research into phonetic symbolism.

The development of phonosemantics as a distinct scientific discipline is largely associated with the work of S. V. Voronin. In his influential monograph *Foundations of Phonosemantics*, Voronin (2006) established the theoretical framework of the field and defined phonosemantics as the study of motivated relationships between sound and meaning. He distinguished between onomatopoeia and sound symbolism, arguing that both phenomena demonstrate iconic connections between linguistic form and semantic content. According to Voronin, sound symbolism is grounded in synesthesia, a psychophysiological process through which sensory experiences from different modalities interact and create cross-modal associations.

A significant contribution to the experimental investigation of phonosemantics was made by A.

P. Zhuravlev. Using Charles Osgood's semantic differential method, Zhuravlev (1974, 1991) explored the emotional and evaluative meanings associated with speech sounds. His studies demonstrated that phonemes can evoke impressions such as brightness, darkness, strength, weakness, activity, or passivity. Importantly, these associations often operate below the level of conscious awareness, suggesting that sound symbolism is connected to fundamental cognitive and perceptual mechanisms.

The psycholinguistic dimensions of sound symbolism were further developed by researchers such as Levitsky and Sternin (1989) and Levitsky (2009). Their work emphasized the importance of experimental methods in investigating the relationship between phonetic form and semantic interpretation. They argued that sound symbolism reflects both universal perceptual tendencies and language-specific patterns shaped by linguistic experience.

During the second half of the twentieth century, scholars increasingly examined sound symbolism from a cross-linguistic perspective. Hinton, Nichols, and Ohala (1994) brought together research from various languages and disciplines, demonstrating that sound symbolism is a widespread phenomenon rather than an exception to linguistic principles. Their work highlighted the cognitive and communicative functions of iconicity in language and established sound symbolism as a legitimate area of linguistic inquiry.

More recent studies have expanded phonosemantic research beyond individual words to include larger linguistic units such as narratives and poetic texts. Poetry is particularly relevant because sound organization plays a central role in creating aesthetic and emotional effects. Literary devices such as alliteration, assonance, rhythm, and phonetic repetition contribute to the reader's perception of mood and meaning. Consequently, poetic texts provide valuable material for investigating the interaction between phonetic structure and emotional interpretation.

One of the most important contemporary studies in this area was conducted by Jan Auracher and colleagues (2020). Analyzing German poetry, the researchers explored the relationship between vowel formant frequencies and emotional tone. Their findings revealed that higher formant frequencies are generally associated with positive, bright, and active emotional evaluations, whereas lower frequencies tend to evoke darker and less positive impressions. These results suggest that acoustic properties of speech sounds influence emotional responses to poetry through cross-modal associations.

In Turkic linguistics, phonosemantic studies remain relatively limited. Nevertheless, significant contributions have been made by scholars such as G. E. Kornilov and K. Sh. Khusainov. Khusainov's work on sound symbolism in the Kazakh language represents one of the first comprehensive investigations of phonosemantic phenomena in Kazakh linguistics. He analyzed sound-symbolic vocabulary from typological and psycholinguistic perspectives and emphasized the role of synesthetic associations in the formation of meaning (Khassenov & Bakhitova, 2025).

Although Kazakh linguistics has produced important studies on expressive and imitative vocabulary, the relationship between sound symbolism and emotional tone in poetry has not yet been thoroughly explored through experimental methods. Therefore, investigating how phonetic structures influence readers' emotional perceptions of Kazakh poetic texts remains a significant and relevant research problem.

Overall, previous studies demonstrate that sound symbolism is a universal linguistic phenomenon with important cognitive, psychological, and aesthetic dimensions. Research conducted in phonosemantics provides substantial evidence that sound can influence meaning and emotional interpretation. Building upon these theoretical and experimental foundations, the present study examines the relationship between sound symbolism and emotional tone in Kazakh poetry, focusing on the emotional responses of school-aged readers.

3. Method

3.1. Research Materials

The research material consisted of twelve poetic stanzas selected from the works of prominent

Kazakh poets, including Ilyas Zhansugurov, Abai Kunanbayev, Magzhan Zhumabayev, Berniyaz Kuleyev, and Suyinbay Aronuly. The poems were selected according to their phonetic characteristics and formant frequency values. Six stanzas represented a high-formant-frequency group ($FD > 1400$), characterized by the predominance of front vowels, while the remaining six stanzas represented a low-formant-frequency group ($FD < 650$), characterized by the predominance of back vowels.

The formant frequencies of the poems were identified using the Praat acoustic analysis software. Each poem was classified according to its formant frequency level and assigned a category indicating either a high-frequency or low-frequency phonetic profile.

3.2. Participants

The study involved 40 school students aged between 12 and 17 years. Among them, 21 were female and 19 were male participants. All respondents voluntarily agreed to participate in the study and completed the questionnaire in full. Since the purpose of the research was to investigate the emotional perception of poetic texts among adolescents, only the responses of school students were included in the analysis.

3.3. Research Design

The study employed an experimental design based on Charles Osgood's Semantic Differential Method. This method is widely used in psycholinguistic and cognitive studies to measure individuals' emotional and evaluative reactions to linguistic stimuli.

The emotional tone of each poetic stanza was evaluated using three bipolar dimensions:

1. Evaluation: Light – Dark
2. Potency: Strong – Weak
3. Activity: Active – Slow

These dimensions were selected because they represent the primary components of emotional perception and correspond to the evaluative scales commonly used in phonosemantic research.

3.4. Procedure

The experiment was conducted online using Google Forms. Before beginning the survey, participants received general information about the purpose of the study. However, they were not informed about the role of sound symbolism, formant frequencies, or the phonetic characteristics of the poems in order to avoid influencing their responses.

Each participant was presented with the same twelve poetic stanzas. After reading each stanza, respondents evaluated its emotional tone using the semantic differential scales. A five-point rating system was employed, where:

- 0 indicated no correspondence between the poem and the given characteristic;
- 1–2 indicated a low degree of correspondence;
- 3 indicated a moderate degree of correspondence;
- 4–5 indicated a high degree of correspondence.

Participants independently rated each poem according to the categories “light,” “dark,” “strong,” “weak,” “active,” and “slow.” The responses reflected their immediate emotional associations with the poetic texts.

Data Analysis

The collected data were analyzed using Jamovi statistical software. Descriptive statistical measures were calculated for each poem and each evaluation scale. These measures included:

- Number of participants (N);
- Mean score (M);
- Median (Md);
- Standard deviation (SD);
- Standard error (SE).

Mean scores were used to identify the dominant emotional characteristics associated with each

poem. Standard deviations provided information about the consistency of participants' responses, while standard errors were used to estimate the reliability of the calculated means.

The statistical results were subsequently compared with the formant frequency characteristics of the poems to examine the relationship between sound symbolism and emotional tone. Particular attention was paid to the extent to which phonetic features corresponded to positive emotional evaluations (light, strong, active) or negative emotional evaluations (dark, weak, slow).

4. Results

The emotional evaluations provided by the participants demonstrated clear differences among the selected poetic stanzas. Table 1 summarizes the mean scores obtained from the semantic differential scales. Higher values indicate stronger associations with a particular emotional characteristic.

Table 1. Mean emotional evaluations of poetic stanzas by school students (N = 40)

Poem	Light	Dark	Strong	Weak	Active	Slow
<i>“Emis te emes esitsem...”</i>	1.20	3.60	2.25	2.25	1.95	2.27
<i>“Erterekte er jüregim...”</i>	3.23	1.70	3.02	1.63	2.33	2.17
<i>“Qarağayıñ syñysyp...”</i>	1.65	3.63	2.83	2.25	2.38	2.13
<i>“Jastyqtyñ oty jalyndap...”</i>	3.73	1.73	3.70	1.32	3.48	1.32
<i>“Berdi täñirim tilegim...”</i>	4.25	0.90	3.95	0.95	3.38	1.48

The results indicate that the poems differed substantially in their perceived emotional tone. The stanza *“Emis te emes esitsem...”* received the highest score on the dark dimension (M = 3.60), while the light dimension was evaluated considerably lower (M = 1.20). The active and slow dimensions showed relatively balanced ratings, suggesting a generally negative emotional perception.

The poem *“Erterekte er jüregim...”* was associated with more positive characteristics. Participants evaluated it as relatively light (M = 3.23) and strong (M = 3.02), whereas the dark and weak dimensions received noticeably lower scores. These findings indicate a predominantly positive emotional tone.

A similar tendency toward negative emotional evaluation was observed in *“Qarağayıñ syñysyp...”*. The highest mean score was obtained for the dark dimension (M = 3.63), followed by strong (M = 2.83). This pattern suggests that the poem was perceived as emotionally intense but relatively dark.

The poem *“Jastyqtyñ oty jalyndap...”* demonstrated one of the most positive emotional profiles among the analyzed texts. Participants strongly associated it with light (M = 3.73), strong (M = 3.70), and active (M = 3.48) characteristics. The opposite dimensions received substantially lower ratings, indicating a positive and energetic emotional tone.

The most positive evaluations were observed for *“Berdi täñirim tilegim...”*. This stanza received the highest score on the light dimension (M = 4.25) and very high scores on the strong (M = 3.95) and active (M = 3.38) dimensions. Negative dimensions such as dark (M = 0.90) and weak (M = 0.95) were rated very low, demonstrating a strongly positive emotional perception.

To provide a more detailed illustration of the relationship between sound symbolism and emotional perception, one poetic stanza may be examined individually.

Table 2. Statistical analysis of emotional evaluations for the stanza *“Emis te emes esitsem...”* (N = 40)

Dimension	N	Mean (M)	Median (Md)	SD	SE	t	df	p
Light	40	1.20	1.00	1.42	0.224	5.35	39	< .001
Dark	40	3.60	4.00	1.55	0.245	14.70	39	< .001
Strong	40	2.25	2.50	1.85	0.293	7.69	39	< .001

Weak	40	2.25	2.00	1.88	0.297	7.58	39	< .001
Active	40	1.95	2.00	1.58	0.251	7.78	39	< .001
Slow	40	2.27	2.00	1.60	0.253	8.99	39	< .001

The first stanza selected for the experiment was taken from Ilyas Zhansugurov's poem "Emis te emes esitsesem...", which belongs to the high-formant-frequency group (FD = 1510.6). According to the acoustic analysis, the stanza is characterized by a predominance of front vowels and a relatively high formant frequency profile. From the perspective of phonosemantic theory, such phonetic characteristics would generally be expected to evoke brighter and more positive emotional associations.

The participants' evaluations revealed a different pattern. The highest mean score was obtained for the dimension Dark (M = 3.60, SD = 1.55), whereas the dimension Light received the lowest evaluation (M = 1.20, SD = 1.42). The dimensions Strong (M = 2.25, SD = 1.85) and Weak (M = 2.25, SD = 1.88) received identical mean scores, indicating no clear tendency toward either emotional strength or weakness. Similarly, the dimensions Active (M = 1.95, SD = 1.58) and Slow (M = 2.27, SD = 1.60) produced relatively balanced evaluations, although the latter was slightly more prominent. According to the one-sample t-test analysis, all emotional evaluations were statistically significant ($p < .001$).

These findings indicate that the stanza was predominantly perceived as dark and relatively slow despite its high formant frequency. Such a result appears to contradict the assumption that higher formant frequencies are necessarily associated with positive emotional qualities. A possible explanation can be found in the semantic content of the poem. The stanza contains lexical items expressing emotional suffering, loss, and despair, particularly in the final line "Bülindim, bittim, tausyldym" ("I am ruined, finished, exhausted"), which likely influenced readers' emotional responses more strongly than the phonetic structure itself.

In addition to the descriptive analysis of individual poetic stanzas, a comparative statistical analysis was conducted to determine whether formant frequency systematically influenced emotional perception. Positive emotional evaluation was operationalized as the combined mean score of the dimensions Light, Strong, and Active.

The comparison between the high-formant-frequency group (FD > 1400) and the low-formant-frequency group (FD < 650) revealed only minor differences. Poems with high formant frequencies received a mean positive evaluation of M = 2.88, whereas poems with low formant frequencies received a mean score of M = 2.93. A paired-samples t-test demonstrated that this difference was not statistically significant, $t(39) = -0.57$, $p = .574$, Cohen's $d = -0.09$.

Furthermore, Pearson correlation analyses were conducted to examine the relationship between formant frequency and emotional evaluations. No statistically significant correlations were found between formant frequency and the dimensions Light ($r = -0.01$, $p = .977$), Strong ($r = 0.06$, $p = .845$), or Active ($r = -0.22$, $p = .501$). Similarly, the correlation between formant frequency and the combined positive emotional score was not significant ($r = -0.05$, $p = .868$).

These findings suggest that formant frequency alone cannot reliably predict emotional evaluations of poetic stanzas. Rather, emotional perception appears to emerge from the interaction of phonetic, semantic, and contextual factors.

Overall, the findings suggest that poems with positive thematic content tended to receive higher ratings on the light, strong, and active dimensions, whereas poems containing themes of sorrow, tension, or pessimism were more frequently associated with dark and slow characteristics. Although formant frequency appeared to influence emotional perception, semantic content also played an important role in shaping participants' responses. Therefore, both phonetic and semantic factors contribute to the formation of emotional tone in poetic texts.

5. Discussion

The findings of the present study provide evidence that both phonetic structure and semantic

content contribute to the emotional perception of poetic texts. The results generally support the assumptions of phonosemantic theory, which argues that sound and meaning are not entirely arbitrary but may be connected through systematic cognitive and emotional associations.

One of the main observations of the study is that poems containing higher formant frequencies were often associated with positive emotional evaluations. For example, the poems “*Erterekte er jüregim...*” and “*Berdi täñirim tilegim...*” received high scores on the dimensions of lightness, strength, and activity. These findings correspond with the results of previous phonosemantic studies, particularly those conducted by Auracher et al. (2020), who demonstrated that higher formant frequencies are frequently associated with positive emotional characteristics. Similar conclusions were reached by Sapir (1929) and Newman (1961), whose experiments revealed systematic associations between specific speech sounds and semantic concepts.

At the same time, the results indicate that phonetic properties alone cannot fully explain emotional perception. An important example is the poem “*Emis te emes esitsem...*”, which contains a high formant frequency but was nevertheless evaluated as dark and slow by the participants. This suggests that semantic content may override phonetic influences in certain contexts. The poem includes lexical items expressing sorrow, despair, and emotional suffering, which likely contributed to its negative emotional interpretation. Therefore, emotional tone appears to emerge from the interaction between sound structure and meaning rather than from phonetic characteristics alone.

The additional statistical analyses provide an important perspective on the role of sound symbolism in poetic perception. Although several high-formant-frequency poems received positive emotional evaluations, the overall comparison between high- and low-formant-frequency groups did not reveal statistically significant differences. Likewise, no significant correlations were found between formant frequency and the principal emotional dimensions. These findings partially differ from the results reported by Auracher et al. (2020), who observed systematic associations between vowel formant frequencies and emotional tone in German poetry. The discrepancy may be explained by linguistic, cultural, and genre-specific factors, as well as by the relatively small sample size of the present study. Consequently, the results suggest that sound symbolism influences emotional perception in Kazakh poetry, but its effect is mediated by semantic content and contextual interpretation rather than determined solely by acoustic properties.

Another significant finding concerns the role of consonantal repetition. The poem “*Qarağayıñ syñysyp...*” was predominantly perceived as dark and strong. In addition to its semantic content, the frequent repetition of the consonant /q/ may have reinforced impressions of intensity and severity. This observation is consistent with the views of Voronin (2006) and Zhuravlev (1991), who argued that both vowels and consonants may carry symbolic associations and contribute to emotional evaluation.

The results also demonstrate that positive emotional evaluations were most strongly associated with poems expressing hope, energy, determination, and optimism. The poem “*Jastyqtyñ oty jalyndap...*” received particularly high ratings on the dimensions of lightness, strength, and activity. Interestingly, this poem belongs to the low-formant-frequency group, which would not necessarily predict such positive evaluations according to a purely phonetic interpretation. This finding further emphasizes the importance of semantic and contextual factors in emotional perception. The motivational and inspirational content of the poem appears to have exerted a stronger influence on readers than its phonetic profile.

From a broader perspective, the study supports contemporary phonosemantic theories that view sound symbolism as a probabilistic rather than deterministic phenomenon. The results suggest that sound patterns may influence emotional responses, but their effects are mediated by semantic interpretation and individual cognitive processing. Consequently, emotional tone in poetry should be understood as the outcome of multiple interacting factors, including phonetic structure, lexical meaning, imagery, rhythm, and cultural associations.

The findings also contribute to the growing body of research demonstrating that sound symbolism operates not only at the level of individual words but also at the level of extended poetic

discourse. Previous studies have primarily focused on isolated lexical items or artificial stimuli. By examining complete poetic stanzas, the present research extends phonosemantic investigation into a more natural literary context and highlights the complexity of emotional processing in poetry.

Several limitations should be acknowledged. First, the study involved only school-aged participants, and emotional evaluations may differ among adults or individuals from different linguistic and cultural backgrounds. Second, the sample size was relatively small. Future studies could include larger participant groups and compare different age categories in order to identify developmental differences in phonosemantic perception. In addition, more advanced acoustic analyses could be employed to examine the contribution of specific phonetic features in greater detail.

In conclusion, the results demonstrate that sound symbolism plays a meaningful role in shaping the emotional tone of poetic texts. However, its influence operates alongside semantic and contextual factors. The findings support the view that emotional perception in poetry emerges through the interaction of sound and meaning, thereby providing further evidence for the relevance of phonosemantic theory in literary and linguistic research.

6. Conclusion

The present study investigated the relationship between sound symbolism and emotional tone in Kazakh poetry from a phonosemantic perspective. The research was motivated by the growing interest in the interaction between sound and meaning and by the limited number of experimental studies devoted to sound symbolism in Kazakh poetic texts. The study aimed to determine whether the phonetic characteristics of poetic stanzas, particularly formant frequency patterns, influence readers' emotional perception.

The theoretical review demonstrated that phonosemantics has developed into an important interdisciplinary field of research. The works of Sapir, Newman, Voronin, Zhuravlev, Levitsky, Khusainov, and Auracher provide substantial evidence that speech sounds may evoke specific emotional and semantic associations. Contemporary studies suggest that sound symbolism is a universal linguistic phenomenon that influences perception through cognitive and psychophysiological mechanisms.

To examine this issue in the context of Kazakh poetry, twelve poetic stanzas were selected from the works of prominent Kazakh poets. The poems were categorized according to their formant frequency characteristics and evaluated by forty school students aged between twelve and seventeen. The semantic differential method developed by Charles Osgood was employed to assess emotional tone using the dimensions of light–dark, strong–weak, and active–slow. Statistical analysis was conducted using Jamovi software.

The results revealed that poems with positive semantic content were generally associated with higher ratings on the dimensions of lightness, strength, and activity. Several poems characterized by higher formant frequencies also demonstrated positive emotional evaluations, supporting the assumptions of phonosemantic theory. However, the findings further indicated that phonetic structure alone does not determine emotional perception. In some cases, semantic content exerted a stronger influence on readers' responses than phonetic characteristics. The repetition of certain consonants and the overall thematic meaning of the poems also contributed significantly to emotional interpretation.

Thus, the study confirms that emotional tone in poetry is formed through the interaction of multiple factors, including sound symbolism, lexical meaning, imagery, and contextual information. Sound symbolism functions as an important component of poetic expression, enhancing emotional impact and contributing to readers' aesthetic experience.

The scientific significance of the research lies in its contribution to the study of phonosemantics in Kazakh linguistics. The findings provide experimental evidence supporting the role of sound symbolism in shaping emotional responses to poetic texts. Furthermore, the study expands current understanding of the relationship between phonetic structure and emotional perception in literary discourse.

Future research may include larger participant groups, comparisons among different age

categories, and more detailed acoustic analyses of poetic texts. Such investigations would further clarify the mechanisms through which sound symbolism influences emotional interpretation and would contribute to the development of phonosemantic studies in both Kazakh and international linguistics.

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Conflict of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

Author Contributions

Yelzhan Kenzhebek – conceptualization, methodology, data collection, statistical analysis, interpretation of results, writing the original draft, reviewing, and editing the manuscript.

Data Availability Statement

The data supporting the findings of this study are available from the author upon reasonable request.

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