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Original article

The Kazakh language across borders: phonetic features in the speech of repatriates from China

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Abstract

The article examines the phonetic characteristics of the language spoken by ethnic Kazakhs in China, focusing on vowel and consonant combinations, phonetic shifts, and distinctive speech features. The phonetic differences between the language of ethnic Kazakhs (repatriates) from China and the standard literary Kazakh language are analyzed, and the detailed linguistic assessment is provided. As part of the empirical research, surveys and interviews were conducted with repatriates from China. The recorded audio and video materials were transcribed and analyzed to identify phonetic features. This analysis confirmed various phonetic phenomena in the Kazakh language, including sound reduction, augmentation, and transportation, as evidenced by both scholarly research and the conducted interviews. Researchers studying the language of ethnic Kazakhs in China have noted differences in the sound system, particularly in the pronunciation of vowels and consonants. However, there is a lack of comparative studies that examine the linguistic features of Kazakh spoken by ethnic Kazakhs in China in relation to the standard literary Kazakh used in Kazakhstan. The phonetic traits preserved in the speech of older ethnic Kazakhs from China are linked to their use of Akhmet Baitursynov's *töte žazuw* alphabet system. Their language has undergone little change since migrating to Kazakhstan in the 1990s. In contrast, phonetic changes have been observed in the speech of the younger generation who received education in Kazakh schools and universities and now work as teachers in Kazakhstan.

Keywords: Kazakh language, phonetics, phonetic changes, vowels and consonants, sound reduction, augmentation, transportation

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Оригинальная научная статья

Казахский язык через границы: фонетические особенности речи репатриантов из Китая

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Аннотация

В данной статье рассматриваются фонетические характеристики языка этнических казахов Китая, в частности: сочетания гласных и согласных, фонетические изменения и отличительные особенности речи. Проводится сравнительный анализ фонетических различий между языком казахов-репатриантов из Китая и современным литературным казахским языком, а также дается детальная лингвистическая характеристика. В рамках эмпирического исследования проводились опросы и интервью с репатриантами из Китая. Записанные аудио- и видеоматериалы были расшифрованы и проанализированы для выявления фонетических особенностей. В результате были зафиксированы такие явления, как редукция, аугментация и транспозиция звуков, что подтверждается как данными научных работ, так и результатами проведенных интервью. Исследователи отмечают различия в фонетической системе языка китайских казахов, особенно в артикуляции гласных и согласных. Однако наблюдается отсутствие сравнительных исследований, которые изучают языковые особенности казахского языка, на котором говорят этнические казахи в Китае, по отношению к стандартному литературному казахскому языку, используемому в Казахстане. Фонетические черты, сохранившиеся в речи пожилых этнических казахов из Китая, связаны с использованием ими алфавитной системы Ахмета Байтурсынова «töte žazuw». Их язык мало изменился с момента переезда в Казахстан в 1990-х годах. В то же время в речи молодого поколения,

получившего образование в казахстанских школах и вузах и работающего педагогами, наблюдаются значительные фонетические изменения.

Ключевые слова: казахский язык, фонетика, фонетические изменения, гласные и согласные, редукция, аугментация, транспозиция

Финансирование. Исследование выполнено в рамках проекта при финансовой поддержке Комитета науки Министерства науки и высшего образования Республики Казахстан «Механизм интеграции этнических казахов Китая и Монголии в Казахстан: социокультурный и лингвоэкологический мониторинг» (грант № AP19676809)

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Introduction

Language develops alongside society, as it is an integral part of it. In other words, language is a social phenomenon that evolves with the progress of society and may decline with its disintegration. As society constantly changes, so too does the language. This can be clearly observed in the context of modern bilingualism and multilingualism. Due to social progress and economic development, communication between people has expanded rapidly. In such a globalized era, the question of how to preserve the purity of the mother tongue becomes increasingly vital.

After Kazakhstan gained independence, many ethnic Kazakhs living abroad began returning to their historical homeland. This group of repatriates was initially labeled by the Kazakhstani government as *Oralmans*, which translates from Kazakh as “returnees” or “repatriates” [1]. Later, the term *Oralman* was replaced with the term *Kandas*. This change was reflected in the Law “On the Introduction of Changes and Additions to Some Legislative Acts of the Republic of Kazakhstan on the Regulation of Migration Processes”, according to the Law of the Republic of Kazakhstan dated May 13, 2020, No. 327-VI [2]. According to the law, a *Kandas* is an ethnic Kazakh and/or a family member of Kazakh nationality who previously did not hold citizenship of the Republic of Kazakhstan, has returned to their historical homeland, and received the appropriate status in accordance with the procedure established by the Law “On Migration of the Population” [3]. Repatriates have returned from various countries, including China, Russia, Mongolia, Turkey, Uzbekistan, Kyrgyzstan, Turkmenistan, and Iran. Since 1991, approximately 1,134,300 repatriates have returned to Kazakhstan [4]. Given this context, it is important to study and analyze the language situation

among repatriates and the state of the Kazakh language of their country of residence. Therefore, it is crucial to examine how Kazakh phonetics are reflected in their speech.

Kazakh educator Akhmet Baitursynov asserted that language is one of the most powerful and effective tools possessed by humankind. He emphasized that the loss of language, and with it, the inability to speak, would result in significant consequences, just as the loss of writing and the inability to record thoughts would create substantial difficulties. His insights into the importance of language remain a pertinent and widely discussed issue for many nations today. Language communication occurs in both oral and written forms. Speaking, defined as the expression of internal thoughts through sounds, is the oldest and most fundamental means of communication used by humans throughout history [5, p. 173]. While some scholars argue that writing holds greater significance than speaking, others, such as S. Myrzabekov, maintain that speaking is more essential. S. Myrzabekov explains, “Everyone first learns to speak and then tries to write. In everyday life, people speak more than they write, and they listen more than they read. Even silent thinking, reading, and writing are associated with internal pronunciation of sounds. Words, in essence, take form as sound...we speak and hear sounds, whereas we write and see letters. Thus, reading a letter of the alphabet is equivalent to articulating a sound” [6, p.17]. While nature contains a multitude of different sounds, are produced by the human speech organs (articulatory aspect), perceived by the auditory organs (acoustic aspect), are qualitatively distinct from one another, and possess social significance.

Kazakh scholar A. Zhunisbek, who extensively studied Kazakh phonetics conducted a detailed analysis of the sounds in the Kazakh language. He argued that the total number of sounds should not be constrained by the number of letters in the alphabet. According to Zhunisbek, the phonemic inventory represented by the alphabet accounts for only one subset of linguistic sounds. He noted that consonants such as /t/ and /s/ – represented in Kazakh alphabet as *tʰ* and *sʰ* – occur exclusively in specific lexical items such as *tʰis*. (all the sounds and examples are given by IPA transcription)¹. He observed that the pronunciations patterns of the same consonants *tʰ* and *sʰ* vary across different lexical environments, such as in the words *tʰis*, *tʰus*, and *tʰiis*. The individual phonetic forms of these sounds – *tʰ*, *tʰʷ*, *tʰʲ*, *sʰ*, *sʰʷ* and *sʰʲ*. are phonetically distinct from one another. These variations are illustrated in figure 1 [7, pp. 44-45].

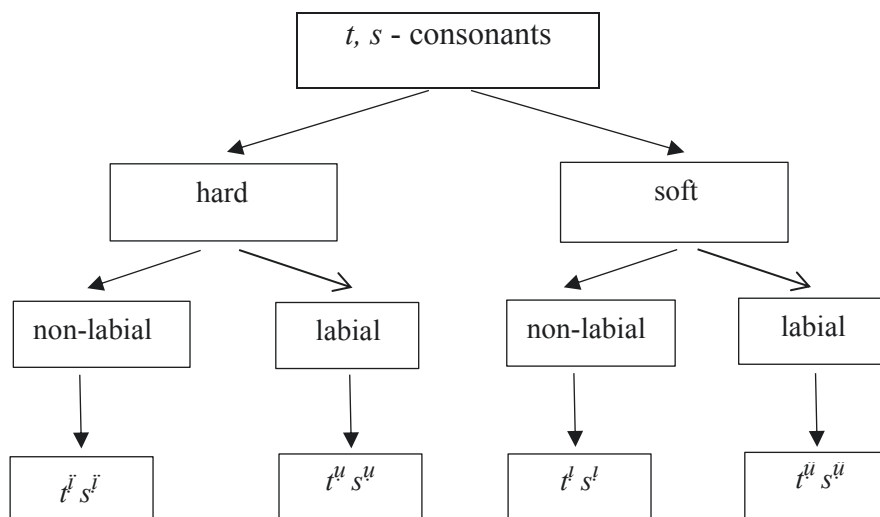


Fig. 1. Variants of the consonant sounds *t* and *s* in Kazakh

Рис. 1. Варианты согласных звуков *т* и *с* в казахском языке

The object of our research work is the phonetic features of the Kazakh language spoken in China. The research focuses on the phonetic characteristics of the Kazakh language as spoken by Kazakh communities in China. This study aims to examine the influence of contact with other languages on the Kazakh language spoken in this region and to assess the extent to which the Kazakh mother tongue has been preserved among these communities.

Materials and Methods

This study employed comparative, descriptive, and analytical methods. Audio and video materials obtained through interviews were transcribed into written form, and the phonetic features were analyzed using the International Phonetic Alphabet (IPA) system.

Literature Review

The state of research on the phonetic features of the Kazakh language in China

Scholars investigating the phonetic characteristics of the Kazakh language in China have primarily focused on the alphabet system derived from A. Baitursynov's script, known as *töte žazuw*. This script, based on the Arabic alphabet, is utilized by ethnic Kazakhs in China, whereas ethnic Kazakhs in Mongolia predominantly use the Cyrillic alphabet. According to the *töte žazuw* – based alphabet system used in China, the Kazakh language comprises

a total of 33 phonemes: 9 vowels and 24 consonants. This classification is presented in Table 1 [8].

Table 1

**Phoneme inventory and phonetic pronunciation in the Töte žazuw
Alphabet System used by Kazakhs in China**

Таблица 1

**Фонемный состав и произношение в системе Töte žazuw
(казахский алфавит в Китае)**

	Kazakh	IPA		Kazakh	IPA
Front vowels	ә	e	Voiceless consonants	ب	b
	ا	æ		د	d
	ۇ	ø		گ	g
	ۇ	y		ق	q
	ى	i		چ	dʒ
Back vowels	ا	a		ۆ	v
	و	o		ز	z
	ۇ	u		ع	ʁ
	ى	ə		م	m
Voiceless consonant	پ	p		ن	n
	ت	t		ل	l
	ك	k		ڭ	ŋ
	چ	tʃ		ر	r
	ف	f	Approximant	ي	j
	س	s		ۆ	w
	ش	ʃ			
	ح	x			
	ھ	h			

Geng Shimin (耿世民) is recognized as the first Chinese scholar to conduct extensive research on Turkic languages in China. His seminal work, *Modern Kazakh Grammar* [9], represents one of the most comprehensive and advanced studies of the Kazakh language in China at the time. Geng Shimin provides an overview of the history of the Kazakh language and literature, and offers a detailed analysis of Kazakh dialects. This book is structured into six chapters: phonetics, writing, lexicology, dialectology, morphology, and syntax. Notably, in the chapter on phonetics, Geng Shimin was the first to classify the Kazakh language in China based on distinct phonetic positions.

In addition to Geng Shimin's contributions, Chinese scholars Zhang Dingjing (张定京) and Li Zengxiang (李增祥) have also made significant advancements in the study of Kazakh grammar, phonetics, and historical development. Their research examined sound assimilation processes as well as phonological phenomena such as sound reduction, augmentation, and transposition [10; 11].

Table 2

The nine vowel sounds of the Kazakh language in China

Таблица 2

Система девяти гласных фонем казахского языка в Китае

lip-rounding	Unrounded		Round	
	Wide vowels	Narrow vowels	Wide vowels	Narrow vowels
mouth opening				
tongue region				
Back vowels	a	ə	o	u
Front vowels	æ, e	i	ø	y

According to Chinese scholars Geng Shimin (耿世民) and Li Zengxiang (李增祥), the Kazakh vowel system in China comprises nine vowels: five front vowels and four back vowels. These are presented in Table 2 [10; 11].

Table 3

Patterns of vowel combination in the Kazakh language according to the study of the Chinese scholar Geng Shimin (耿世民)

Таблица 3

Закономерности сочетаний гласных в казахском языке по исследованиям китайского ученого Гэн Шиминя (耿世民)

The First Vowel	Possible Following Vowels
[a]	[a] or [ə]
[ə]	[a] or [ə]
[e]	[e] or [i]
[i]	[e] or [i]

[æ]	[e] or [i]
[o]	[a] or [ə]
[ø]	[i] or [ə]
[u]	[a] or [ə]
[y]	[e] or [i]

Chinese scholar Li Zengxiang (李增祥) later expanded upon Geng Shimin's (耿世民) proposed vowel combination patterns by conducting experimental research. While Geng Shimin suggested that each vowel could be followed by only two specific vowels, Li Zengxiang's findings revealed that a broader range of vowel combinations is possible – typically four or five subsequent vowels rather than two. For instance, according to Li Zengxiang, the vowels [a] and [ə] can be followed not only by [a] and [ə], as proposed by Geng Shimin, but also by [u] and [o]. Similarly, [ə] can be followed by [a], [ə] and [o], thus demonstrating more flexible vowel harmony in practice. Examples of these combinations include *абұйыр* ريوپا [abuyır] and *атоЙ* اوتاي [atoy], where additional vowel sequences occur beyond the original patterns. These extended vowel harmony patterns are presented in Table 4 [8].

Table 4

**Vowel combination patterns based on the experimental findings
of the Chinese Scholar Li Zengxiang (李增祥)**

Таблица 4

**Закономерности сочетаний гласных на основе экспериментальных
данных китайского исследователя Ли Цзэнсяна (李增祥)**

The First Vowel	Possible Following Vowels
[a]	[a] [ə] [u] [o]
[ə]	[a] [ə] [u] [o]
[e]	[æ] [e] [i] [ø] [y]
[i]	[æ] [e] [i] [ø] [y]
[æ]	[æ] [e] [i] [ø] [y]
[o]	[a] [ə] [u] [o]
[ø]	[æ] [e] [i] [ø] [y]
[u]	[a] [ə] [u] [o]
[y]	[æ] [e] [i] [ø] [y]

Chinese scholar Zhang Dingjing (张定京), in his article “*Problems of Researching the Phonetics of the Modern Kazakh Language*” published

in the journal *China Ile University* [11], conducted an in-depth analysis of Kazakh phonemes and their various pronunciation variants. In his study, Zhang Dingjing identified the phenomenon of sound augmentation at the beginning of words, providing several examples that frequently appear in spoken rather written forms of the language. The findings presented by Zhang Dingjing are further supported by interview data collected from repatriates (*kandases*) – ethnic Kazakhs who have returned from China and now reside in Kazakhstan. These individuals' speech patterns corroborate Zhang's observations regarding spoken phonetic variations.

No	Kazakh as spoken in China	Kazakh as spoken in Kazakhstan	Standard Kazakh	Transcription
1	ілері [i'legi]	лері [legi]	лері	legi
2	ілезде [i'lezde]	лезде [lezde]	лезде	lezde
3	ірет [i'ret]	рет [ret]	рет	ret
4	ылақ [i'laq]	лақ [laq]	лақ	laq
5	ыиық [i'i'iq]	иық [i'iq]	иық	i'iq
6	ыриза [i'rizza]	риза [riza]	риза	riza
7	бір ууыс [bi'r ww'is]	бір уыс [bi'r w'is]	бір уыс	bi'r w'is
8	ууақыт [wwa'qit]	уақыт [wa'qit]	уақыт	wa'qit
9	ііе [i'ie]	іе [ie]	іе	i'ie
10	ұру [u'rw]	ру [rw]	ру	rw

According to Zhang Dingjing (张定京), in colloquial Kazakh spoken in China, when words begin with the consonants /l/, /r/, /w/ or /i /, they are often preceded by prosthetic vowels or semivowels such as [i], [i], [w] or [u] [11]. This phonological feature, known as prosthesis, is especially noticeable in spoken forms of the language. Linguist B. Bazylkhan further explored this phenomenon and noted that implosion often precedes the /l/ sound. In cases where borrowed words begin with /l/, additional sounds such as [i], [w] or [u] are added as a prosthetic feature. He provides examples including:

layik-ilayik,
laz-ilaz,
lan-ilan [12, p. 33].

These phonetic adaptations are largely due to the influence of contact with speakers of other languages, which has introduced borrowed sounds into Kazakh that do not exist in the traditional phonemic inventory. Zhang Dingjing identified several sounds – namely [f], [v], and [h] – which are typically replaced in actual Kazakh speech due to their unfamiliarity. His findings show that:

- *f/p* – *fakt-pakıt, ferma-perma, fakwltet-pakwltet, fason-pason*;
- *v/w* – *vagon-wagon, voleybol-woleybol*;
- *h/k* – *habar-kabar, hañık-kalık* [11].

Linguist Bekkozha Zhylybekuly, a repatriate scholar from China now residing in Kazakhstan, supports Zhang Dingjing's position. He categorizes the sounds of the Kazakh language into three groups: native sounds, applied sounds and borrowed sounds. According to Zhylybekuly, the borrowed phonemes [f], [v], and [h] are *foreign* and *unfamiliar* to native Kazakh phonology [13], thereby reinforcing the patterns of substitution observed in spoken language.

It is important to pay particular attention to the consonant sounds *š* and *č*, as classified and analyzed by Zhang Dingjing (张定京). In his research, Zhang observed that the Kazakh language possesses specific variants of consonant phonemes, with the sound *č* frequently used in place of *š* in certain spoken contexts. For instance, *š* is replaced by *č* in the following word pairs: *šaš-čaš, šin-čin, šoyın-čoyın, köpşilik-köpčilik, žurtşılik-žurtčilik, äñşi-änči*. However, in other lexical items, the sound *š* remains unchanged, such as: *küš, balaša, küyşi, swša, žawša, siřişi*.

This phenomenon – where *š* is systematically replaced by *č* in certain contexts – has been particularly noted in the spoken Kazakh language of ethnic Kazakhs in China. Scholar B. Bazylkhan also identifies a similar pattern in the Kazakh dialect spoken in Bayan-Olgii, Mongolia.

According to Bazylkhan the substitution of *š* and *č* occurs in three main patterns:

1) instead of the sound *š* at the beginning of the word, the sound *č* is used in the speech, for example: *čolak, čelek, čömüš, čunqur*, etc.

2) The sound *š* in the middle of the word is used in 3 different cases:

a) the sound *š* in the middle of two vowels does not change, for example: *kaša, keše, oša, küşik*, etc.,

b) the sound *š* in the middle of a vowel and a voiceless consonant does not change, for example: *kaşkın, köşkün, aşıpa, kışkene, kışkııl*, etc.,

c) after nasal consonants *m, n, ŋ, r, l, w, y* and diphthongoid sounds, the sound *š* changes into the sound *č*, for example: *emči, sonča, aňči, elči, birinči, üyčük, kiči*, etc.

3) the sound *š* does not change at the end of the word [12, p. 36].

This usage of č in place of š is a characteristic of spoken Kazakh in China, Mongolia, and parts of Eastern Kazakhstan, not in Standard Kazakh language.

Zhakyp Myrzakanuly is one of the prominent scholars who have studied the Kazakh language in China. He argues that the origins of the Kazakh language can be traced back to the early periods of ancient Kazakh tribes. However, he emphasizes that the Kazakh language eventually developed into a unified national language, although dialectal features of tribal languages persist, primarily as minor phonetic and lexical variations. In his research, Myrzakanuly examines specific linguistic features of the Alban and Suan tribes residing in the Tekes, Chapal, Mongo-Kure, and Khorgas districts of the Ili region. He concludes that while these tribal dialects retain distinct characteristics, their overall impact on the standard Kazakh language remains minimal [14].

Nurgabył Soltansharipuly, associate professor at the Xinjiang Language and Writing Committee, has also contributed to the study of the Kazakh language in China. In his article “*Some Phonetic Differences of the Kazakh Language in Xinjiang and in Kazakhstan*”, he investigates the phonetic distinctions observed in Kazakh as spoken in the two regions. For instance, he notes that several Kazakh words pronounced in China as *arï*, *ažim*, *bombï*, *balwan*, *žarapazan* correspond to *äri*, *äžim*, *bomba*, *palwan*, and *žaramazan* in Kazakhstan [15]. He concludes that spoken Kazakh exhibits region-specific phonetic peculiarities in both China and Kazakhstan, reflecting localized developments within the broader framework of the language.

Zh.T. Mamyrkhanova has taken a comprehensive approach to the study of the Kazakh language in China by examining its general structure and the sociolinguistic context in which it is used. Adopting both comparative-historical and synchronic perspectives, she analyzes lexical characteristics and traces the historical evolution of the Kazakh-Chinese linguistic relationship. Her research identifies the cultural, historical, and ethnological factors influencing the development of Kazakh in China. Furthermore, she explores the impact of the Chinese language on Kazakh, particularly in terms of vocabulary and idiomatic expressions. Mamyrkhanova documents and analyzes a range of lexical items and set phrases related to agriculture, daily life, and traditional practices, illustrating how language reflects and preserves cultural identity [16].

S. Tazhibayeva, I.A. Nevskaya, and other researchers have examined the current state of the Kazakh language in China, identifying several distinctive linguistic features. In their work, they also outlined the various sociolinguistic and historical factors that have influenced the development and preservation of the Kazakh language among Chinese Kazakhs [17; 18].

Phonological analyses conducted by Chinese scholars have led to a generally accepted consensus that the Kazakh language in China consists of 9 vowel phonemes and 24 consonant phonemes. In contrast, scholars in Kazakhstan present a divergent view. According to their research, the number of vowel phonemes ranges from 9 to 15, depending on the classification criteria applied. This discrepancy illustrates a fundamental difference in linguistic perspectives between Chinese and Kazakhstani researchers [7, p. 54; 6, pp. 29-35].

A review of scholarly literature reveals that phonetic, grammatical, lexical, and phraseological aspects of the Kazakh language, both in Kazakhstan and in China, have been studied to varying degrees. While lexical and grammatical features are typically addressed in detail, phonetic characteristics are often treated descriptively and not as the primary object of independent inquiry. There remains a clear need for a comprehensive and systematic study of the phonetic features of the Kazakh language as spoken by repatriates (*kandases*) from China. In particular, it is crucial to analyze the extent to which the purity of the Kazakh language has been preserved among these repatriates. This includes examining how much their speech has been influenced by the standard literary language of Kazakhstan. Many members of the older generation, who were educated in China prior to their migration to Kazakhstan, have retained the phonetic, prosodic, and articulatory features of their original dialects. Their speech often preserves rich lexical diversity, distinctive intonation patterns, and unique accentual features, thereby offering valuable data for phonetic and sociolinguistic research.

Results and Discussion

Features of the vowel use

A central concern of phonetics is the determination of the quantity and quality of sounds within a language, as well as the identification of their various articulatory and acoustic characteristics. A. Baitursynov's opinion is very reasonable, as he stated "...vowels are like the soul of the word, consonants and semi-vowels are like the body of the word. As the soul rules the body, so the vowels rule other sounds; that is, if vowels in a word are hard, consonants or semi-vowels are also pronounced hard" [5, p. 325]. This statement underscores the pivotal role that vowel harmony and vocalic quality play in determining the phonetic realization of adjacent consonants, thereby structuring the phonological system of the Kazakh language.

However, scholars explain this phenomenon as an adaptation of the pronunciation of borrowed words from Arabic-Persian languages according to the phonological rules of the Kazakh language. For example, the pairs *dïlda-dïldä*, *läzzat-läzzät*, *ķītap-ķītäp*, *ķazīr-käzīr*, and *ķadīr-kädīr* illustrate such adaptations [6, p. 41].

In China, the Kazakh language employs nine vowel phonemes represented by the following Arabic-script letters: ¹ – *a*, ¹ – *ä*, ^و – *o*, ^ؤ – *ö*, ^ه – *e*, ^ۇ – *u*, ^ه – *u*, ^ى – *i*, and ^ي – *i*. Unlike the standardized literary Kazakh language, these vowels are often used interchangeably within words. Depending on phonotactic composition, hard vowels alternate with soft vowels and vice versa. Similarly, open vowels alternate with closed vowels, and in some cases, vowels categorized by lip position (labial and non-labial) are used interchangeably to a certain extent.

These vowel exchanges can be classified into three categories:

1. Exchange between hard and soft vowels;
2. Mutual interchange of open and closed vowels;
3. Alternation between labial and vocative vowels.

Additionally, phonetic processes such as sound reduction, augmentation, and transposition are observed.

Analysis of interviews conducted with repatriates (kandas) corroborates these findings. The project's data reveal several salient phonetic features, including the widespread interchangeable use of the vowels *a* and *ä* in speech. Consequently, some words that are typically pronounced with hard vowels may appear with soft vowels in the speech of these speakers. The following table illustrates examples comparing Kazakh language variants spoken in China and Kazakhstan, alongside the literary Kazakh forms [18]:

No	Kazakh as spoken in China	Kazakh as spoken in Kazakhstan	Standard Kazakh	Transcription
1	кітәп [kītāp]	кітәп [kītāp]	кітап	kītap
2	жәңе, жәңе ғана [žäŋe; žäŋe ɣana]	жаңа, жаңа ғана [žaŋa; žaŋa ɣana]	жаңа, жаңа ғана	žäŋa; žäŋa ɣana
3	жәңегі [žäŋeɣi]	жаңағы [žaŋaɣi]	жаңағы	žäŋaɣi
4	баяғы [bäyaɣi]	баяғы, баяғы [bäyaɣi; bayaɣi]	баяғы	bayaɣi

(1) «Ауылдан алыс сол жылдар» осы *kimän* туралы айтайын...

“Awıldan alıs sol žıldar” oşı *kītāp* tıwraıı aytayın...

‘Let me tell you about this *book*, “Those years away from the village” ...
[K.Y., Astana, 28112023].

(2) ...оқу бітіргеннен кейін *жәңегі*...

...оқуw бітіргеннен keyin žäŋegi ...

... ‘after graduation’...

[Ulan, Mathematics teacher at school, Astana Koiyandy, 29102023] [18].

(3) Осы көксөздіктің тарихын *және* Тұрсынқан ағам айтты.

Oşı köksözdіktің tarıhın *žäñe* Tұrsınqan aғam ayttı.

My brother Tursynkan has *just* told about this blue colored dictionary.

[K.Y., Astana, 28112023] [18].

(4) ... келінге келін болады екенсің *бәягі*, зыр жүгіріп...

... kelіñge kelін boladı ekenсіñ *bäyägi*, zır žügiріp...

...only when you work as a servant for your daughter-in-law, you can be lovable...

[O.K., Astana, 08022024] [18].

Above examples (1-4) illustrate the exchange of sounds *a/ä* in the speech of Kazakhs in China. A similar sound phenomenon is also observed in the south of Kazakhstan.

According to the research results of Zhang Dingjing and B. Bazylkhan, from interviews conducted with repatriates (*kandasas*) from China and Mongolia, in colloquial language sound augmentation is observed, such as additional sound *i, ĭ, w* or *u* used before the word., e.g:

(5) Оралманның оқушылардың алдыңғы *ілегі* болдық.

Oralmannıñ oқuşılarđıñ aldıñğı *ilegi* boldıq.

We were the first *batch* of students of Oralman*.

[Ulan, Mathematics teacher at school, Astana Koiyandy, 29102023] [18].

The respondent used the term *oralman* in his interview, which means repatriate.

(6) ... сол кісі айтбақтай, *ырас* келінге келін болады екенсің...

...sol kisi aytbaqtay, *ıras* kelіñge kelін boladı ekenсіñ...

...it's *true* as he said that you should work as a servant for your daughter-in-law...

[O.K., Astana, 08022024] [18].

This phenomenon of sound augmentation, specifically the use of the additional sounds *i, ĭ, w* or *u* before the word, is also observed in the spoken Kazakh of the older generation in Kazakhstan, particularly among those born before 1940.

Bekkozha Zylkybekuly discussed the state of the Kazakh language in his interview, emphasizing the role and significance of the sound *ı* in Kazakh phonetics. He argued that *ı* is a powerful phoneme and that every word should be written in accordance with its pronunciation. For example, words such as *Smayul*, *kant*, and *žalt-žult* should be pronounced and written as *Šımayul*, *kañit*, and *žalıt-žulıt*, respectively, by incorporating the sound *ı*. He also noted that the Kazakh language has been significantly influenced by sounds borrowed from other languages, which has led to the loss of native sounds such as *ı*, and the transformation of vowels *ü* and *u* into *w*, while *ı* has been replaced by *i* [Bekkozha Zhylybekuly, ENU, Astana, 29102023].

No	Kazakh as spoken in China	Kazakh as spoken in Kazakhstan	Standard Kazakh	Transcription
1	килеметір [kilemetir]	километр [kilometr]	километр	kilometr
2	министір [ministir]	министр [ministr]	министр	ministr

(7) ...жұмыс орыны мен арасы үйінің 5-6 *килеметір*...

...žumıs orıñı men araşı üyiniñ 5-6 *kilemetir*...

...the workplace is 5 or 6 *kilometers* away from the house...

[E.A., Astana, 28112023].

The variant *kilemetir* supports Bekkozha Zhylybekuly's assertion that words should be written as pronounced. In literary Kazakh, it is pronounced and written as *kilometr*, demonstrating clear Russian influence.

Another example involves the substitution of *i* by *ü*.

No	Kazakh as spoken in China	Kazakh as spoken in Kazakhstan	Standard Kazakh	Transcription
1	Үрүмжіден [ürümžiden]	Үрүмшіден [ürümšiden]	Үрімшіден	ürimšiden

(8) Соның баласын бағып кемпір шал *Үрүмжіде* жатыр.

Soñıñ bałasın bağıp kempir şal *Ürümžide* žatır.

An elderly man and woman are looking after her child in *Urumqi*.

[P.K., Astana, 08022024].

In Kazakhstan, the vowel *ü* is also used in place of *i*, e.g., *bügin* is pronounced as *bügün*.

Features of the consonant use

Analysis of interviews with repatriates (*kandases*) from China revealed frequent substitution of the sound *č* for *š*. The following examples illustrate this phenomenon.

No	Kazakh as spoken in China	Kazakh as spoken in Kazakhstan	Standard Kazakh	Transcription
1	чырағын [čırağın]	шырағын [šırağın]	шырағын	šırağın
2	чәй-пәй [čäy-päy]	шәй-пәй [šäy-päy]	шай	šay

3	чимайлайды [čimaylaydı]	шимайлайды [šimaylaydı]	шимайлайды	šimaylaydı
4	чаршағанын [čaršayanın]	шаршағанын [šaršayanın]	шаршағанын	šaršayanın
5	патчасы [patçaşı]	патшасы [patšaşı]	патшасы	patšaşı
6	аманчылық [amančılık]	аманшылық [amanşılık]	аманшылық	amanşılık

(9) ...бұрышта кішкене майшамын қойып ап *чырағын*... Сенбі, жексенбі ағамыз бір бұрышта кішкене майшамын қойып ап *чырағын*, көзде көзілдірік қағазды *чимайлайт* та отырад.

...bұrışta kışkene mayšamın qoyıp ap *čirağın*.....közde közildirik қағаздi *čimaylayt* ta oñrat.

On Saturdays and Sundays, our brother puts a small oil lamp in a corner, lights it, and scribbles down something wearing his glasses.

[E.A., Astana, 28112023].

(10)міне сонымен өзінің *чаршағанын* басып аған сондай көз майын жұмсап отырып еңбектенген еді.

... öziñiñ *čaršayanın* başıp ağan...

after recovering from fatigue he starts working hard again.

[E.A., Astana, 28112023].

(11) Жастардың таразысынан *чығалмайсыз*, оны басып тұра алмайсыз...

Žastardıñ tarazışınan *čıǵalmaysız*, oñı başıp тұra almayşız...

You cannot meet young people's the requirement

[O.K., Astana, 08022024].

In the Kazakh literary language, the voiceless *t* is typically found at the beginning of the word *tarik*, but in some colloquial variants, this *t* is replaced by the voiced *d*, e.g., *tüzw-düzw*, *tuz-duz*, *tüzetw-düzetw* etc.

(12) ...етті жақсылап дұздап, дұзы сіңген соң дүзу ағашқа қатарластырып іліп қоятын.

... etti žaqşılap *duzdap*, *duzi* siñgen soñ *düzüw* aǵşқа қатарластіріп ilip qoyañın.

...the meet was well salted, and after the salt was absorbed in it, the meet was arranged on the wooden sticks for drying.

[N.A., Astana, 18022024].

The change of the consonant *ž* to *d* was also observed in interviews of repatriates (*kandases*):

(13) 80-ге келейік, 90-ға келейік, *düzge* келіп сол чөбере одан ары көріп декеңдеп жүрейік...

seksenge keleyik, toqsanğa keleyik, *düzge* kelip sol şöbere odan aŗı körıp dekeñdep žüreyik...

Let us hope to reach 80, 90, and even 100 years, and to see and enjoy a great-grandchild.

[Sanei, Astana, 09022024].

In spoken Kazakh, the voiced consonant *d* is sometimes used instead of the nasal consonant *l*, as illustrated below.

For example:

No	Kazakh as spoken in China	Kazakh as spoken in Kazakhstan	Standard Kazakh	Transcription
1	қытайдармен [qıtaydarmen]	қытайлармен [qıtaylarmen]	қытайлармен	qıtaylarmen
2	баладар [baladar]	балалар [balalar]	балалар	balalar

(14) Сонан кейін *баладарым* осы Қазақстандарды өте ұнатты.

Sonan keyin *baladarım* oŗı qazaqstandardı öte unattı.

And my *children* really liked Kazakhstan.

(15) *Одар* талап етті, ыы әке-чеше осы Қазақстанға барып оқысақ,

...

Odar talap etti, ıı äke-čeşe oŗı qazaqstanğa barıp oqısaq, ...

They persisted with their parents in going to Kazakhstan to study, ...

[A.A., Astana, 27022024].

This observation, that the voiced consonant *d* is used instead of the nasal consonant *l*, is supported by scientists who have studied the phonetic features of repatriates from Mongolia. For example: *siñili-siñdi*, *qorliq-qordük*, *tawlar-tawdar* [19, p. 201].

As demonstrated above, various changes have occurred in the speech of repatriates (*kandases*), reflecting adaptations to the local dialect. These linguistic changes can be categorized into several types:

1. Alterations in the composition of phrases compared to the literary language; Shortening of words or the addition of redundant words.

2. Variations in phonetics and grammar [16, pp. 105-106].

The Töte žazuw script, used historically by Kazakhs in China, has played a crucial role in preserving the unique characteristics of the Kazakh language. Despite the influence of Chinese on the speech of *kandases*, they tend to incorporate Chinese loanwords in a manner consistent with the phonological

harmony rules of Kazakh. In contrast, in Kazakhstan, the Kazakh alphabet has undergone several reforms – from Töte žazuw to the Latin alphabet, and subsequently to the Cyrillic alphabet. The introduction of the Cyrillic script led to adaptation of all phonetic and lexical elements to the new writing system, resulting in the incorporation of borrowed phonemes that were previously absent in Kazakh. Consequently, many loanwords from Russian and other languages entered Kazakh, often spoken and written according to the phonetic and orthographic norms of the donor languages. Examples include words such as *ministrlik*, *vagon*, *samovar*, *voleibol*, *fakt*, *fakwltet*, *ferma* and *aktiv*. Historically, borrowed words were adapted more fully to Kazakh phonology, for instance: *ministrlik*, *samawrın*, *wagon*, *woleibol*, *pakıt*, *pakwltet*, *perma*, *äktiv*, thus enriching the Kazakh lexicon. Analysis of interviews with repatriates indicates that the older generation, who were educated in Chinese institutions yet raised in Kazakh-speaking environments, have retained the phonetics, pronunciation, intonation, and rich vocabulary characteristics of Kazakh.

It is imperative for scholars to systematically document the forms of Kazakh currently in use, particularly those conforming to the linguistic norms of the Kazakh language. This is especially important considering that the younger generation of repatriates, who are bilingual and have experienced significant linguistic influence from other languages, primarily use Kazakh only within family settings. Language attrition has become a serious concern for Kazakhs in China. Upon returning to their historical homeland, many young repatriates begin to learn Russian and gradually lose proficiency in their native Kazakh.

Therefore, this study has highlighted and clarified a phonetic distinction in the speech of repatriates (*kandases*) by comparing it with the literary Kazakh language spoken in Kazakhstan. These findings are based on a comprehensive analysis of surveys and interviews conducted among repatriates from China within the framework of the project [17; 18].

Conclusion

In conclusion, Kazakhs living in the People's Republic of China have maintained their mother tongue and cultural traditions over many years. There is no significant divergence in their speech style from the Standard Kazakh language, which is attributable to their deep respect for language and cultural heritage. Language, culture, and traditions constitute the essence of a nation. However, the closure of Kazakh-language schools in China has led to a decline in fluency among younger generations, who are increasingly educated exclusively in Chinese. Survey and interview data collected from

repatriates over 40 years old indicate that this demographic continues to use a form of Kazakh that is considered old and linguistically pure. Phonetic systems tend to be more stable and change more slowly than grammar and vocabulary. Nevertheless, two distinct linguistic scenarios were observed among younger repatriates: those who migrated to Kazakhstan in the early years of independence have Kazakh language influenced predominantly by Russian, whereas more recent arrivals show influence from Chinese.

Note: The transcription system used in this paper follows the Turcological convention proposed by Johanson & Csato (2022), Johanson (2021), and adopted by Abish (2016) and Jumabay (2022).

References

1. Law of the Republic of Kazakhstan. *Law of the Republic of Kazakhstan on Languages*. Adilet.zan.kz. 2009. Available at: <https://adilet.zan.kz/kaz/docs/P090002251> (accessed: 20.05.2025) (in Kazakh).
2. Republic of Kazakhstan. *Civil Code of the Republic of Kazakhstan*. Adilet.zan.kz. 2020. Available at: <https://adilet.zan.kz/rus/docs/Z2000000327> (accessed: 20.05.2025) (in Kazakh).
3. Egov.kz. (n.d.). *Ethnic Kazakh Repatriates: Issues and Government Support*. Available at: https://egov.kz/cms/kk/articles/kandas_rk (accessed: 10.05.2025) (in Kazakh).
4. Tengrinews.kz. *How many Kazakhs have returned to their historical homeland since 1991?* 2023. Available at: https://tengrinews.kz/kazakhstan_news/skolko-kazahov-vernulos-na-istoricheskuyu-rodinu-s-1991-goda-536196/ (accessed: 15.05.2025) (in Russian).
5. Baitursynov A. *Language instruction*. Ana Tili. 1992 (in Kazakh).
6. Myrzabekov S. *Phonetics of the modern Kazakh language*. Dəuir-Kitap. 2013 (in Kazakh).
7. Zhunisbek Ä. *Kazakh phonetics*. Almaty: Arys. 2009 (in Kazakh).
8. Ruiqing Xin, Yonghong Li, Hongzhi Yu. The Vowel Harmony Patterns of Kazak Vocabulary. *International Conference on Education Technology, Economic Management and Social Sciences (ETEMSS 2018)*. Published by CSP. 2018:367-372. Available at: <http://166.62.7.99/conferences/AETP/ETEMSS %202018/G3930.pdf> (accessed: 20.05.2025).
9. Geng Shimin. *Modern Kazakh Grammar*. Central Minzu College Press. 1989 (in Chinese).
10. Geng Shimin, Li Zengxiang. *A brief history of the Kazakh language*. Ulttar baspasy Beijing. 1985 (in Chinese).

11. Zhang Dingjing Issues in the Study of Contemporary Kazakh Language Phonetics. *Journal of the Ili Pedagogical University of China Qytai Ile pedagogikalyq universitet jurnalı*. Social Science. 2009;(3):25-39 (in Chinese).
12. Bazykhan B. *The language of Kazakhs in Mongolia*. Ulaanbaatar – Ölgii. 1991 (in Kazakh).
13. Zhylykibekuly B. *The place and role of the vowel sound “Y” in the Kazakh alphabet. Ana tili ayasy: Teaching and research issues. Proceedings of the international scientific-methodological seminar*. Astana. 2017:133-137 (in Kazakh).
14. Myrzakanuly Zh. *The Kazakh people and their customs and traditions*. Ürümqi: Xinjiang People’s Publishing House. 1992 (in Kazakh).
15. Soltansharipuly N. Some phonetic differences between the language of Xinjiang Kazakhs and Kazakhs of Kazakhstan. *Language and Translation*. Ürümqi. 1993;(1):8-20 (in Kazakh).
16. Mamyrkhanova ZhT. *Historical study and synchronic analysis of the language of Chinese Kazakhs* (Doctoral dissertation, PhD in Philosophy). Astana. 2017 (in Kazakh).
17. Tazhibayeva SZh, Nevskaya IA, Mutali AK, et al. Lexical Peculiarities of Kazakh Spoken in China. *Turkic Studies Journal*. 2023;(4):130-145.
18. Zharkynbekova ShK, Tazhibayeva SZh, Filchenko AU. Problems of Preserving the Kazakh Language in China: Threats of Extinction and Ways of Solution. *Journal of Siberian Federal University. Humanities & Social Sciences*. 2025;18(3):502-515.
19. Tazhibayeva SZh, Kozhakhmetova GA, Auyes Khan R, et al. Oral speech peculiarities of repatriates from Mongolia. *Turkic Studies Journal*. 2025;(1):193-209.
20. Johanson L. & Csátó É. (eds.), *Turkic languages*. London & New York: Routledge. 2022.
21. Johanson L. *Turkic*. Cambridge: Cambridge University Press. 2021.
22. Abish A. *Modality in Kazakh as spoken in China*. (Turcologica 107.) Wiesbaden: Harrassowitz Verlag. 2016.
23. Jumabay U. & Birsel Karakoç Semantic functions of the transformativizing postverbal constructions in Kazakh. *Conference: Societas Linguistica Europaea 55th Annual Meeting*. Bucharest. August 2022.

Литература

1. ҚР Заңы. Қазақстан Республикасының тіл туралы заңы. [Adilet.zan.kz](https://adilet.zan.kz/kaz/docs/P090002251). 2009. Available at: <https://adilet.zan.kz/kaz/docs/P090002251> (accessed: 20.05.2025).
2. Қазақстан Республикасы. Қазақстан Республикасының азаматтық кодексі. [Adilet.zan.kz](https://adilet.zan.kz/rus/docs/Z2000000327). 2020. Available at: <https://adilet.zan.kz/rus/docs/Z2000000327> (accessed: 20.05.2025).

3. Egov.kz. (n.d.). Қандастар мәселесі және оларға көрсетілетін мемлекеттік қолдау. Available at: https://egov.kz/cms/kk/articles/kandas_rk (accessed: 10.05.2025).
4. Tengrinews.kz. Сколько казахов вернулось на историческую родину с 1991 года? 2023. Available at: https://tengrinews.kz/kazakhstan_news/skolko-kazahov-vernulos-na-istoricheskuyu-rodinu-s-1991-goda-536196/ (accessed: 15.05.2025).
5. Байтұрсынов Ахмет. *Тіл тағылымы*. Алматы «Ана тілі». 1992.
6. Мырзабеков С. *Қазіргі қазақ тілінің фонетикасы*. Алматы «Дәуір-Кітап». 2013.
7. Жүнісбек Ә. *Қазақ фонетикасы*. Арыс: Алматы. 2009.
8. Ruiqing Xin, Yonghong Li, Hongzhi Yu. The Vowel Harmony Patterns of Kazak Vocabulary. *International Conference on Education Technology, Economic Management and Social Sciences (ETEMSS 2018)*. Published by CSP. 2018:367-372. Available at: <http://166.62.7.99/conferences/AETP/ETEMSS%202018/G3930.pdf> (accessed: 20.05.2025).
9. Geng Shimin. *Modern Kazakh Grammar*. Central Minzu College Press. 1989 (на кит.).
10. Гэн Шимин, Ли Цзэнсян. *Қазақ тілінің қысқаша тарихы*. Ұлттар баспасы, Бейжің. 1985 (на кит.).
11. Чжан Динцзин (张定京) Қазіргі заман қазақ тілі фонетикасын зерттеу мәселесі. *Қытай Іле педагогикалық университет журналы*. Social Science. 2009;(3):25-39 (на кит.).
12. Базылхан Б. *Моңғолиядағы қазақтардың тілі*. Улаанбаатар – Өлгий. 1991.
13. Жылқыбекұлы Б. “Ы” дауысты дыбысының қазақ әліпбиіндегі орны мен рөлі. *Ана тілі аясы: оқыту, зерттеу мәселелері: халықаралық ғылыми-әдістемелік семинар материалдары*. Астана. 2017:133-137.
14. Мырзақанұлы Ж. *Қазақ халқы және оның салт-санасы*. Үрімжі: Шыңжаң халық баспасы. 1992.
15. Солтаншәріпұлы Н. Шыңжаң қазақтары мен Қазақстан қазақтарының тіліндегі кейбір дыбыстық айырмашылықтар. *Тіл және аударма*. Үрімжі. 1993;(1):8-20.
16. Мамырханова Ж.Т. *Қытай қазақтары тілін тарихи зерделеу және синхрондық талдау*. Философия (PhD) докторы дәрежесін алу үшін дайындалған диссертация. Астана. 2017.
17. Тажибаева С.Ж., Невская И.А. Мүтәлі Ә.Қ. және т.б. Lexical Peculiarities of Kazakh Spoken in China. *Turkic Studies Journal*. 2023;(4):130-145.
18. Zharkynbekova Sh.K., Tazhibayeva S.Zh., Filchenko A.U. Problems of Preserving the Kazakh Language in China: Threats of Extinction and Ways of

Solution. *Journal of Siberian Federal University. Humanities & Social Sciences*. 2025;18(3):502-515.

19. Tazhibayeva S.Zh., Kozhakhmetova G.A., Auyes Khan R., et al. Oral speech peculiarities of repatriates from Mongolia. *Turkic Studies Journal*. 2025;(1):193-209.

20. Johanson L. & Csató É. (eds.), *Turkic languages*. London & New York: Routledge. 2022.

21. Johanson L. *Turkic*. Cambridge: Cambridge University Press. 2021.

22. Abish A. *Modality in Kazakh as spoken in China*. (Turcologica 107.) Wiesbaden: Harrassowitz Verlag. 2016.

23. Jumabay U. & Birsel Karakoç Semantic functions of the transformativizing postverbal constructions in Kazakh. *Conference: Societas Linguistica Europaea 55th Annual Meeting*. Bucharest. August 2022.

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Mutali A.K. – conceptualization, methodology, software, validation, resources, data curation, writing – original draft, writing – review & editing, visualization, project administration

Kadyskyzy A. – conceptualization, methodology, software, validation, investigation, resources, writing – original draft, writing – review & editing, visualization, project administration

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Conflict of interests

The author Tazhibayeva S.Zh. is a member of the editorial board of the journal «Arctic XXI Century». The authors are not aware of any other potential conflict of interest relating to this article

Конфликт интересов

Автор Тажибаева С.Ж. является членом редакционной коллегии журнала «Арктика XXI век». Автору неизвестно о каком-либо другом потенциальном конфликте интересов, связанном с этой рукописью

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