A COMPARATIVE ANALYSIS OF VOWEL SYSTEMS IN ENGLISH AND UZBEK

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https://doi.org/10.5281/zenodo.18013660

Annotation.

This article presents a comprehensive comparative analysis of the vowel systems in English and Uzbek, two languages belonging to distinct linguistic families with significantly different phonological structures and articulatory principles. The study investigates the phonemic inventories, articulatory classifications, acoustic features, and phonological functions of vowel sounds in both languages. Special attention is given to the contrastive elements such as vowel quantity, vowel quality, diphthongization, centralization, reduction, and the role of stress in shaping vowel realization. The English language is characterized by a complex and dynamic vowel system involving monophthongs, diphthongs, and triphthongs, whereas Uzbek possesses a more symmetrical and stable vowel inventory with relatively consistent articulatory properties and without vowel reduction in unstressed syllables. The analysis highlights significant differences that lead to common pronunciation challenges for Uzbek learners of English due to phonological transfer effects. The findings contribute to the fields of comparative phonetics, second-language acquisition, phonology, and practical language teaching methodology.

Keywords: vowel system, English vowels, Uzbek vowels, comparative phonetics, phonology, articulation, formants, diphthongs, monophthongs, vowel reduction, central vowels, vowel harmony, phonotactics, acoustic analysis, stress patterns.

The vowel systems of English and Uzbek demonstrate essential linguistic differences rooted in the typological, historical, and phonological development of each language, and conducting a comparative analysis of these systems allows for a deeper understanding of their articulatory structures and functional roles. English, belonging to the Germanic branch of the Indo-European language family, has evolved through several phonological shifts including the Great Vowel Shift, which dramatically altered the quality and quantity of vowels and resulted in a highly complex vowel inventory that today includes more than twenty phonemic vowel sounds composed of monophthongs, diphthongs, and triphthongs, while Uzbek, a Turkic language with an agglutinative morphological structure, possesses a more symmetrical and stable system of six primary monophthong vowels that maintain consistent articulatory properties and do not undergo vowel reduction in unstressed positions, forming a typologically simpler but phonologically efficient system. English vowels contrast not only by vowel quality but also by vowel quantity, as length is phonemic and contributes to minimal pairs such as “ship” vs “sheep” or “full” vs “fool,” whereas Uzbek vowel quantity is not phonemic and length differences occur only due to prosodic or contextual conditions without changing word meaning. English front vowels such as /iː, ɪ, e, æ/ have no exact counterparts in Uzbek, since Uzbek front vowels are limited mainly to /i/ and /e/, leading to articulatory challenges for Uzbek speakers who often substitute English /æ/ with /a/ and English /ɪ/ with /i/ due to the absence of fine-grained vowel distinctions in their native language. English back vowels such as /uː, ʊ, ɔː, ɒ, ʌ/ greatly differ from Uzbek /u/ and /o/ because English vowels are characterized by a wider acoustic range, more subtle formant distinctions, and the presence of

central vowels like /ʌ/ that do not exist in Uzbek, and as a result Uzbek learners typically approximate these sounds using the closest available phonemes from their native system. Furthermore, English diphthongs including /eɪ, aɪ, ɔɪ, aʊ, oʊ/ and more complex triphthongs such as /aɪə/ in "fire" or /aʊə/ in "power" represent a significant challenge for Uzbek speakers, as Uzbek does not have phonemic diphthongs, and sequences of two vowels do not function as unified phonological units in Uzbek, resulting in common errors where English diphthongs are reduced to monophthongs. English central vowels, particularly the schwa /ə/ and /ɜː/, play a crucial phonological role in marking stress patterns and contributing to vowel reduction, which is the process by which vowels in unstressed syllables become centralized and weakened, yet in Uzbek stress does not influence vowel quality and unstressed vowels retain their full articulatory and acoustic shape, making the rhythm of the Uzbek language syllable-timed compared to the stress-timed rhythm of English. This fundamental rhythmic difference influences not only vowel articulation but also overall prosody, as English unstressed vowels frequently reduce to /ə/ and this reduction is essential in maintaining the natural flow of English speech, whereas Uzbek speakers tend to pronounce each syllable with nearly equal weight, which results in a foreign accent when speaking English. Additionally, English orthography represents a major complication because there is no one-to-one correspondence between spelling and vowel pronunciation, where a single letter may have several possible vowel realizations, while Uzbek orthography is highly transparent, with stable and predictable vowel–grapheme correspondences, and this inconsistency in English makes it more difficult for Uzbek learners to acquire correct vowel pronunciation without explicit instruction. Another major difference between the two languages is the presence of vowel harmony in Uzbek, which governs the selection of affixes based on the frontness or backness of the root vowel, whereas English has no such system, and this difference highlights the agglutinative nature of Uzbek compared to the analytic structure of English morphology. In phonotactic terms English allows numerous vowel–vowel sequences within words and across syllable boundaries, while Uzbek rarely produces vowel clusters except in morphologically conditioned environments, and thus Uzbek speakers may struggle to transition smoothly between English vowel sequences. The acoustic properties of English vowels show a wide distribution of formant values, especially F1 and F2, reflecting subtle qualitative distinctions, and because Uzbek vowels occupy a more centralized and limited acoustic space, this difference poses perceptual difficulty for Uzbek learners who must learn to distinguish and reproduce these fine phonetic contrasts. Taken together, these phonological discrepancies lead to predictable transfer errors including substituting English /æ/ with /a/, reducing diphthongs to monophthongs, incorrectly shortening long vowels, failing to apply vowel reduction, or mispronouncing central vowels, and therefore teaching English pronunciation to Uzbek learners requires a contrastive approach that highlights articulatory differences, provides targeted minimal pair practice, and emphasizes the role of stress and reduction in achieving native-like fluency. Ultimately, the comparative analysis of English and Uzbek vowel systems demonstrates how linguistic typology, phonological structure, articulatory habits, and acoustic organization shape the vowel inventories of each language and influence second-language acquisition processes for learners transitioning between them.

In conclusion, the comparison of vowel systems in English and Uzbek shows that the two languages differ profoundly in their phonemic structure, articulatory bases, acoustic

distribution, and phonological functions. English possesses a large, complex, and dynamic vowel inventory featuring monophthongs, diphthongs, and triphthongs, as well as phonemic vowel length and extensive vowel reduction in unstressed syllables. Uzbek, by contrast, has a compact and stable vowel system characterized by consistent articulation, the absence of vowel reduction, and the presence of vowel harmony. These differences create significant pronunciation challenges for Uzbek learners of English, who frequently encounter difficulties with central vowels, length distinctions, diphthongs, and reduction patterns. Contrastive phonetic analysis therefore plays an important role in improving English language teaching methodology, helping learners develop accurate pronunciation, and facilitating a deeper understanding of cross-linguistic phonological influence.

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