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L2 Influence on L1: An Acoustic Study of Urdu Vowels

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ABSTRACT

The aim of the present study was evaluating L2 influence on L1. It was quasi experimental research based on conceptual research strategy to evaluate the L2 influence on L1. Data was collected from 20 English speakers through voice recording from high quality mobile phones. The collected data was transferred into PRAAT Speech Processing Tool, installed on hp Core-i5 7th Generation laptop, by focusing on both tense and lax vowel sounds. The study was delimited to two (tense and lax) Urdu vowels. After analysis, it was seen that a significant difference was found in the utterance of Urdu tense and lax vowels by the English (L2) speakers. It was also found in the present research that the classification and description of Urdu vowel sounds becomes different by the English language speakers on the basis of pronunciation of tense and lax vowels of the monophthongs (single sound) and diphthongs (double sounds) of Urdu words. During PRAAT analysis, it was found through phonetic description that the L2 speakers pronounced Urdu tense vowels in the form of lax vowels during conversation, and, likewise, they uttered Urdu lax vowels in the form of tense vowels during conversation. There are some suggestions that as the present study was conducted in Lahore district in Beaconhouse School, so such type of research may also be conducted in any other city and school of the Punjab, Pakistan. Moreover, in the present research, the researcher tried to evaluate only two (tense and lax) vowel sounds, therefore, further researches may be conducted to explore the other phonetic units or consonants as well.

Keywords: *English as second language, influence, Urdu vowel, Acoustic study.*

INTRODUCTION

Language is an organization of symbols and sings which serves as a vehicle for social communication, used as an instrument to covey message, it is distinguishing humans from other creatures (Ahmad & Farhat, 2023). There are several languages spoken in the world but the main focus of present research is to analyze vowel sound systems of Urdu and English languages. Urdu and English languages are mostly spoken by educated societies in urban regions of Pakistan while uneducated societies mostly speak their native languages (Mansoor, 2024). Urdu language is a descendant of the Indo-Aryan family while English language is an off-shoot of Indo-European family of languages; the former is the national language of Pakistan and the latter one is established as an international language in Pakistani context. English language is measured as an instrument for communal, financial, distinct and nationwide progress. “No English, no future” is the trend in vogue for the past few decades (Younas, 2024).

In Pakistan, the value of English language is considered well and no one can deny its utmost importance. Even though, Urdu is a national language of Pakistan; however English is being used as an official language. The importance of English is considered in various domains of communication (science and technology) (Rahman, 2020; Mansoor, 2019). The national language of Pakistanis is Urdu and international language is English; both have status as official languages in Pakistan. Urdu and English are two different languages; they also have different alphabet. English language alphabet contains on twenty-six letters whereas the Urdu language alphabet contain 39 letters (Ahmad et al, 2022). Urdu is written and

read from right to left, whereas English is written and read from left to right. Both Urdu and English are members of distinct grammatical families and belong to different language families. Machine translation gets more difficult if the source and destination languages differ, particularly in sentence structure, as is the case with English and Urdu. The language of Urdu has a rich morphology (Mishra & Shahnawaz, 2019). As a result, the demand for learning bases English skills became crucial for everyone to get mastery over English pronunciation and its impact on globalization. People from different parts of the world, need to learn pronunciation of English language to cope with the growing demand of 21st century. Pronunciation is a basic skill of spoken aspect and it has a significant role for effective communication; it affects one's level of confidence and self-esteem to a greater extent (Dzakiria & Farhat, 2021). English language has become the language of communication for the entire world particularly in the world of internet; that is why it becomes crucial for native and non-native language users of English language to improve the speaking skill for the purpose of international encounter (Aslam, Farhat & Hussain, 2023).

Likewise, a comparative study of the phonemic sounds in the light of various modes of articulation becomes essential for acquiring sufficient competence in the production of sounds in the form of vowels in the target language (Barman, 2019). The vowels and consonants can be described and classified separately in the L1 and L2 to facilitate a cross-check comparison. The vowels are classified according to the part of the tongue raised during articulation, the extent to which it is raised, the position of the lips and the state of the articulatory muscles during vowels production (Dzakiria & Farhat, 2021). It has observed frequently by the linguists that people face problems in pronunciation of peculiar L2 sounds and having been endowed with similar speech organs, people belonging to different speech groups use different languages for communication purposes within their respective circles and they are unaware of any possible deviation in articulation of sounds which are different from their native languages. Ferragne and Pellegrino (2020), described that some are unfamiliar with the phonetic forms of the words and may not be able to appreciate the richness of sound pronunciation as speech recognizers. It becomes necessary for a person who intends to learn a new language, which is different from his/her native language to probe into the sound systems of two languages i.e., the native and that of the target language. "In Pakistan, speaking and especially pronunciation skills are not given appropriate attention in L2 learning" (Dzakiria & Farhat, 2019: 69). Therefore, there is a dire need to explore that how English language (L2) speaker influences the phonemic sounds of the target language (Urdu L1). Therefore, the researcher selected the topic as 'L2 Influence on L1: An Acoustic Study of Urdu Vowels.

Statement of the Problem

English and Urdu both have distinctive phonemic features. Both languages have their peculiar phonetic attributes while cutting vowels. However, it is often seen that English language learners, who learn English as a second language, they face problems in picking up the pronunciation of Urdu vowels in the articulation process. That is why the researcher chooses the statement of the problem as L2 Influence on L1: An Acoustic Study of Urdu Vowels.

Research Objective

- To evaluate the influence of English as second language (L2) on Urdu (L1) in utterance of tense and lax Urdu vowels.

Research Question

- How English as second language (L2) influences Urdu (L1) in the utterance of tense and lax vowels?

LITERATURE

Basic Descriptors for Vowels

The basic descriptors for vowels are HAR as:

- Height
- Advancement
- Rounding.

Moreover, each height is subdivided into a 'higher' and 'lower' subdivision. English phonology traditionally makes the distinction between tense and lax vowels. This is not phonetically well-defined as a single characteristic that which vowels are classed as tense and lax. This distinction based mainly on phonotactics. Phonotactics is the description of which sounds can occur together in a legal word or syllable of a language (Hawkins & Midgley, 2020).

What are 'Tense' and 'lax' vowels?

According to Farhat and Hussain (2023), "Tense vowels" and "lax vowels" are terms used in phonetics to describe the degree of muscular tension involved in pronouncing a vowel, with "tense" indicating a more constricted, tighter articulation using more muscle effort, while "lax" refers to a more relaxed articulation with less tension in the tongue and mouth muscles; essentially, tense vowels are pronounced with more effort than lax vowels.

TENSE Vowels Occurrence:

The vowels that occur freely at the ends of one syllable words is called 'tense' vowel, ow, u, ej, and iÅ (A and ç in GA) also tense: aj, aw, çj, e.g. 'bay', 'tow', 'spa' 'law', 'bee', and 'too' in GA (Lubker, 2020).

Occurrence of LAX Vs:

The vowel that often placed in one syllable word only if they end in a consonant is called 'Lax' I, E, U, ! , Q, d also lax: weak vowels like ´ e.g. 'but', 'bet', 'bat' 'bit', 'put' (Ferragne & Pellegrino, 2019).

Duration Patterns Tense and Lax Vowels:

Tense vowels are longer than lax vowels of the same general height class, according to Hawkins and Midgley (2024), with /i/ being longer than /I/, /u/ being longer than /U/, and /ej/ being longer than /E/. The lax central /! / is shorter than the tense back vowels /ow/ and /Å/ (both /A/ and /ç/ in GA). /Q/ is an exception to the rule that "lax vowels shorter than tense." It frequently has the same length as other vowels.

Length of tense v. lax vowels in English:

All other things being equal, in English numerous factors determine vowel length. With one exception, /Q/ is not shorter than low tense vowels (such as /Å/). In other words, a tense vowel is longer than a lax vowel of same height. Mahmood and Hussain, 2022).

Transcribing vowel length for tense vs lax vowels

Diacritical marks (A) that are marginally longer than "baseline" can be used to show the relative length of vowels in a narrow transcription. Much longer than the "baseline." According to Rogers (2019), "tense" vowels with two symbols never require additional markings since it is intuitive to believe that (ej) is longer than (e). Tense vowels with one symbol could be written with single raised dot (A>) (Javed & Maqbool, 2023).

The Vowels of GA

Tense and Lax Vowels:

Lax vowels, which are limited to closed syllables (those that end in a consonant), and tense vowels, which are not, are the two categories of GA vowels. The table below illustrates as:

Tense	Lax	Closed syllables	Open syllables
ɑː		Hot	Ah
oʊ		Boat	Low
iː		Beat	Bee
	ɪ	Bit	
eɪ		Bait	Bay
	ɛ	Bet	
	Æ	Bat	
ɔɪ		Void	Boy
aɪ		Bite	Buy
aʊ		Bout	bough
	ʊ	Good	
uː		Boot	Boo
	ʌ	But	

(Kavanagh, 2023).

In short, these two types of vowels differ in a variety of ways. First, compared to tense vowels, slack vowels are often centered, that is, sounded nearer /ə/. (Javed & Maqbool, 2023).

Second, tense vowels are often diphthongal, whereas lax vowels are typically monophthongal (Lubker, 2020). That is, the tongue tends to go off in a closer direction, even for GA /iː, uː, eɪ, and oʊ/. While diphthongs are created by moving the tongue, either with or without a change in lip position, monophthongs are generated with a more or less fixed tongue and lip posture. As a result, in GA /aɪ/, the front of the tongue closes while the lips remain unrounded, in GA /aʊ/, the rear of the tongue closes as the lips simultaneously become rounded, and in GA /ɔɪ/, the tongue's hump "rolls" forward from the back to the front while the lip position shifts from rounded to unrounded. (Alward & Khan, 2021).

Third, although the length difference has been eliminated for open vowels, lax vowels are often shorter. Therefore, even if GA /ɪ/ is shorter than GA /iː/ in the same situations as in *bid* and *bead*, /ʌ/ in e.g. *mud* is almost as long as a /ɑː/ in *mod* (Mansoor, 2024).

Urdu

Origin: Urdu means 'camp' in Turkish, a name applied to the lingua franca between Muslim garrisons and the civilian population of Delhi (Sipra, 2023).

Classification: India- European, Modern Indo-Aryan, Central and Indo-Iranian.

***Background**:* With the establishment of the Delhi Sultanate in the 13th century and the subsequent Mughal Empire, Indian and Islamic civilizations Indo-Aryan and Arabo-Persian converged to become Urdu. The sibling languages of Urdu and Hindi were created, more or less simultaneously, from the common trunk of Khari Boli (the Delhi speech). At the phonological and grammatical levels, both are quite similar, but at the lexical and cultural levels, Urdu has been heavily impacted by Persian and, to a lesser extent, by Arabic (Jelimun & Ulfayanti,, 2023).

***Distribution**:* India and Pakistan are the primary speakers of Urdu is widely spoken throughout India; states like Uttar Pradesh, Bihar, Jharkhand, West Bengal, Madhya Pradesh, Maharashtra, Andhra Pradesh, and Karnataka have more than a million speakers. With over a million speakers, Delhi is also a significant hub for Urdu literature and language. The eastern Pakistani provinces of Sindh and Punjab are home to the majority of Urdu speakers. One of Pakistan's two official languages, along with English, is Urdu, which is also the country's national language. South Asian Muslims who live abroad or go to Mecca utilize it as a common language. In addition, Urdu is the official language of the state of Jammu and Kashmir and one of India's 23 official languages (Yang, 2022).

***Varieties**:*Although Urdu and Hindi have many similarities, they are regarded as distinct languages due to significant variations in their vocabulary, scripts, and religious and cultural histories. Khari Boli (Delhi speech) and Hindustani are related languages. Avadhi (around Oudh), Bhojpuri (around Varanasi), Magahi (around Patna and in southern Bihar), Rajasthani (in the state of Rajasthan), Braj (around Agra), and Bhojpuri (around Varanasi) (Ahmad & Farhat, 2023).

The Deccan Plateau of India is home to the Dakhani (or "southern") dialect of Urdu, which emerged in the 14th century when Daulatabad was established as the new capital of the Delhi Sultanate (Jelimun & Ulfayanti, 2023).

Phonology

Urdu shares with Hindi the same sound system. The only difference is the inclusion in Urdu of non-Indo-Aryan sounds derived from Arabic and Persian like the fricatives f, z, ʒ, x, ɣ, and the uvular and glottal stops q, (Alward & Khan, 2021).

Vowels

According to Farhat and Hussain (2023), Urdu has a ten vowel system composed of three lax and seven tense vowels. Lax vowels (ɪ, ʊ, ə) are phonetically short and tense vowels (i, e, ɛ, u, o, ɔ, ɑ) are phonetically long. (ɪ) is slightly lower and more centralized than (i), (ʊ) is slightly lower and more centralized than (u). All have nasal forms. Oral and nasal vowels are contrastive as under table 1:

Table 1:

	Front	Central	Back
High	I i		Ʊ u
High – mind	E		o
Mid		ə	ɔ
Low – mid	ɛ		
Low			ɑ

(Fatima & Tiwana, 2022)

Modifying the Speech tract

Urdu language has 11 vowel systems composed of three lax and eight tense vowels. Lax vowels (ɪ, ʊ, ə) are phonetically short and tense vowels (i, e, ɛ, u, o, ɔ, ɑ) are phonetically long (Dzakiria & Farhat, 2021).

- **Distinction based on length:** Generally, tense vowels are long in duration while lax vowels are short.
- **Articulation:** Tense vowels involve more tongue tension during pronunciation compared to lax vowels as:
  A. Lax vowels: "بِٹ" (bit) - /ɪ/, "بُٹ" (but) - /ʊ/, "بَٹ" (bat) - /ə/
  B. Tense vowels: "بی" (bee) - /i/, "بے" (bay) - /e/, "با" (baa) - /ɑ/. (Dzakiria & Farhat, 2021)

Classification of Urdu Vowel Sounds

In Urdu language the word 'Vowel' means 'حرف علت - Hurf-e-illat' comes from the Latin word 'vocalis' meaning 'vocal' (related to voice). Phonetically, Urdu is a richer language than English due to a larger inventory of consonants, and numerous long nasal sounds, long non-nasal and short vowel sounds. Generally, it is said that there are 7 long and 3 short vowels and in Urdu language (Saleem et al., 2022; Ali & Hussain, 2021). Khan and Alward (2019) stated that there are 8 vowels in Urdu language, but in the same w ay, Raza in (2020) stated 11 vowels as 8 long and 3 short vowels in Urdu language, but they failed to notice that, in Urdu, there are 6 nasalized, too. Khan (2020) indicated that Urdu nasal vowel sounds are used usually in medial and at the end of the words. So, it could be inferred that there are 15 vowel sounds in Urdu, including vowels compounded with /h/ and nasal articulation of vowel sounds. Finally, the total number of vowel sounds is comprised of 17 phonemic sounds (Aslam, Farhat & Hussain, 2023).

RESEARCH METHODOLOGY

The researcher adopted quasi experimental research based on conceptual research strategy to evaluate the L2 influence on L1. This kind of methodology is used in the research in which data on the given topic is already present and this kind of research does not include directing practical experimentations, but only linked to abstract ideas and concepts (Jack & Makrygiannakis, 2021). In the present research, the researcher worked on sound patterns contrastive and correlated in nature, i.e., the researcher did comparison of vowel sound systems of the English (L2) speakers while their speaking of Urdu (L1) language. The sample was comprised of 20 students who were selected through purposive convenient sampling technique. All the speakers were 'A level' students who were studying in Beaconhouse school, of the age of 17 to 19 years. The recording of the speakers was done in a controlled atmosphere without noisy or echo background.

RESULTS AND FINDING

For this research, the participants recorded 20 voice samples through high quality mobile phones. While recording the conversation, participants uttered the words. Then the data were transferred into PRAAT Speech Processing Tool installed on *hp* Core-i5 7th Generation laptop by focusing on both tense and lax vowel sounds. A total of 10 Urdu monosyllabic and disyllabic words were carefully taken for the analysis that were uttered by the English (L2) speakers. Words were arranged in the form of pairs of correct pronunciation and uttered pronunciation. From them, 7 words were of tense vowels and 3 words were of lax vowels that were transformed phonetically during conversation, as shown in the following table 2:

Table 2:

Original Word	Phonetic Symbol	Uttered Word	Phonetic Symbol

Original Word	Phonetic Symbol	Uttered Word	Phonetic Symbol
Bazaar (بازار)	/ ɑ: /	Baazer (بازر)	/ ə /
Seekh (سیکھ)	/ i: /	Sikh (سکھ)	/ ɪ /
Abeer (عبیر)	/ i: /	Aabir (عابر)	/ ɪ /
Ghoom (گھوم)	/ u: /	Ghum (گھم)	/ ʊ /
Aaao (آئو)	/ ɑ: /	Ao (ائو)	/ ə /
Dost (دوست)	/ o: /	Dust (دست)	/ ə /
Khatam (ختم)	/ ə /	Khaatem (خاتم)	/ ɑ: /
Is (اس)	/ ɪ /	Ees (ایس)	/ i: /
Kheilta (کھیلتا)	/ e /	Khilta (کھلتا)	/ ɪ /
Uthna (اٹھنا)	/ ʊ /	Oothna (اوٹھنا)	/ u: /

The above table indicated that most of the L2 speakers significantly uttered differently tense and lax Urdu vowel sounds. To utter Urdu tense vowels, among most of them uttered the Urdu word "Bazaar (بازار) as Baazer (بازر). They uttered the long duration of tense / ɑ: / sound of "Bazaar (بازار) as short duration as lax vowel / ə / as Baazer (بازر) during speaking. Ultimately, they uttered tense vowel / ɑ: / as lax / ə / during uttering the actual Urdu word "Bazaar (بازار)". In the same way, most of them uttered the Urdu word 'Seekh (سیکھ)' as 'Sikh (سکھ)'. They uttered the long duration of tense Urdu vowel / i: / sound of word 'Seekh (سیکھ)' as short duration as lax Urdu vowel / ɪ / as 'Sikh (سکھ)' during speaking. Most of them uttered the Urdu naming word 'Abeer (عبیر)' as 'Aabir (عابر)' during conversation. They uttered the long duration of Urdu tense / i: / vowel sound of the Urdu naming word 'Abeer (عبیر)' in short duration of Urdu lax vowel / ɪ / as 'Aabir (عابر)' during conversation. In the same way, most of them uttered the Urdu word 'Ghoom (گھوم)' as 'Ghum (گھم)'. They uttered the long duration of Urdu tense vowel / u: / sound of the actual word 'Ghoom (گھوم)' as short duration as lax Urdu vowel / ʊ / as 'Ghum (گھم)' during speaking. Here also they uttered tense Urdu vowel as lax vowel. Most of them uttered the Urdu word 'Aaao (آئو)' as 'Ao (ائو)'. They uttered the long duration of Urdu tense vowel / ɑ: / sound of the actual Urdu word 'Aaao (آئو)' as short duration as Urdu lax vowel / ə / as 'Ao (ائو)' during speaking. Similarly, most of them uttered the Urdu word 'Dost (دوست)' as 'Dust (دست)'. They uttered the long duration of Urdu tense vowel / o: / sound of the actual word 'Dost (دوست)' as short duration as lax Urdu vowel / ə / as 'Dust (دست)' during speaking. Here also they changed Urdu tense vowel into lax vowel sound while during pronunciation. In the same way, most of them uttered the Urdu word 'Kheilta (کھیلتا)' as 'Khilta (کھلتا)'. They uttered the long duration of Urdu tense vowel / e / sound of the actual word 'Kheilta (کھیلتا)' as short duration as Urdu lax vowel / ɪ / sound of the word 'Khilta (کھلتا)' during speaking. Here also they changed Urdu tense vowel sound in lax vowel sound of the Urdu word 'Kheilta (کھیلتا)'.

To utter Urdu lax vowels, among most of them uttered the Urdu word 'Khatam (ختم)' as Khaatem (خاتم). They uttered the short duration of Urdu lax / ə / vowel sound of the word 'Khatam (ختم)' as long duration of Urdu tense / ɑ: / vowel as 'Khaatem (خاتم)' during conversation. Most of them uttered the Urdu word 'Is (اس)' as 'Ees (ایس)'. They uttered the short duration of Urdu lax vowel / ɪ / sound of the actual Urdu word 'Is (اس)' in long duration as Urdu tense vowel / i: / as 'Ees (ایس)' during speaking. Similarly, most of them uttered the Urdu word 'Uthna (اٹھنا)' as 'Oothna (اوٹھنا)'. They changed the short duration of Urdu

tense vowel / ʊ / sound of the word 'Uthna (اٹھنا)' into long duration as tense Urdu vowel / u: / as 'Oothna (اوٹھنا)' during speaking. Here also they uttered Urdu lax vowel into tense vowel during pronunciation.

CONCLUSION AND DISCUSSION

The present research was designed to evaluate L2 (English) influence on L1 (Urdu) in the perspective of how English speakers uttered the Urdu vowels. It was an acoustic study of Urdu vowels effect. In this regard, data was collected from 20 English speakers through voice recording with the help of high quality mobile phones and were analyzed by transferring it into PRAAT Speech Processing to draw the conclusion. So, conclusion was drawn from the findings which arose from the analysis. It was concluded that L2 significantly influenced L1 in the perspective of utterance of Urdu tense and lax vowels by the English (L2) speaker. The participants articulated the Urdu vowels (tense and lax) different way rather than the native L1 (Urdu) speakers' way. The English Speaker uttered the Urdu Words differently in the perspective of tense and lax vowels during pronunciation. Khand (2017); Kachru (2021) found that there is a divergence between sounds of Urdu and English languages speakers in the phonetic sound. It was found in the present research that the speaker of English (L2) uttered the phonetic sound of the Urdu vowels (Tense and Lax) differently. The L2 speakers pronounced Urdu tense vowels as lax vowels during conversation and uttered Urdu lax vowels as tense vowels during conversation. Barman (2019) conducted a study and made contrastive analysis of English and Punjabi phonemics. Likewise, Javed, (2022) conducted the comparative study and analyzed the phonetics of the Sindhi and English languages. They found that there was a significant difference in the uttering of L2 and L1 phonetic sounds of both the languages. It was also found in the present research that the classification and description of Urdu vowel sounds becomes different by the English language speakers on the basis of pronunciation of tense and lax vowels of the monophthongs (single sound) and diphthongs (double sounds) of Urdu words. The results of the present study may help English speakers in the awareness of the problems faced by them in the articulation of Urdu vowel sounds. There are also some suggestions that as the present study was conducted in Lahore district in Beaconhouse School, so, such type of research may be conducted in any other city and school of Pakistan. Moreover, in the present research, the researcher tried to evaluate only two (tense and lax) vowel sounds, therefore, further researches may be conducted to explore the other phonetic units or consonants as well.

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