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A PHONOLOGICAL ANALYSIS OF /V/ AND /W/ PRONUNCIATION AMONG PAKISTANI UNDERGRADUATE STUDENTS IN LAHORE

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Abstract

In this paper, the production of the phonemes /v/ and /w/ by Pakistani undergraduate students at Lahore will be investigated via phonological analysis. Specifically, this paper is concerned with analyzing the pronunciation of the said phonemes by Pakistani English speakers, comparing Pakistani English pronunciations with that of Standard English, and explaining the causes of the mispronunciation of the phonemes. A descriptive-mixed method approach is adopted in this study. Specifically, fifty undergraduate students were sampled from different government and privately funded schools in Lahore. Words and phrases in which the targeted phonemes were present were compiled into a list of words that participants had to pronounce. In addition, participants had to respond to some oral tasks to see how the targeted phonemes are produced when speaking spontaneously. Analysis of responses to test pronunciations was done manually. Moreover, acoustic analysis was conducted on selected speech samples using the PRAAT software program. From the results, the study concludes that the phoneme /v/ is pronounced correctly by many participants consistently. On the other hand, the phoneme /w/ is more inconsistent, and there is an increase in the substitution of the phoneme /v/ for /w/ in words like wine, wall, and water. Substitutions observed were common not only during controlled but also spontaneous tasks, suggesting that they reflect a reliable phonological behavior rather than mere errors. The acoustic differences between correct and incorrect responses have been found as well. Pronunciation inconsistencies can thus be accounted for based on the theories of interlanguage, first language transfer, and contrastive phonology, whereby learners use the phonological rules of their L1 when speaking English. The study makes a contribution towards understanding the features of Pakistani English, which is a local variety. Moreover, the study indicates the necessity of focused pronunciation training to enhance learners' ability to discriminate the phonemes under discussion.

Keywords: */v/–/w/ Pronunciation, Interlanguage, Pakistani English, Phonological Analysis, Phonological Transfer, Pronunciation Variation, Second Language Phonology, Undergraduate Students.*

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1. Introduction

English acts as a lingua franca and is widely used for educational and administrative purposes in Pakistan Applied Linguistics. In this regard, the Pakistani population learns English as a second language (L2). This causes interference from the phonology of the first language (L1) in their production of English sounds. One major phonological problem in the acquisition of English pronunciation in Pakistan is the incorrect distinction between the voiced labiodental fricative sound /v/ and the voiced labio-velar approximant sound /w/. Both sounds are distinctly different from each other in Standard English (Ladefoged, 2006; Roach, 2009). /v/ is a sound created with friction through contact between the lower lip and the upper teeth, whereas /w/ is an approximant created with rounded lips.

The phonological distinction between /v/ and /w/ is usually inconsistent in several South Asian languages, including Urdu and Punjabi. The letter و in Urdu language is used to approximate both sounds, making it difficult for Pakistani English speakers to make a difference between them in their English pronunciation (Lado, 1957; Best & Tyler, 2007). As a result, similar pronunciation may appear for words like vine/wine, vest/west, and very/wary.

Earlier studies conducted on Pakistani English have recognized /v/–/w/ alternation as one of the frequent pronunciation characteristics affected by various parameters including mother tongue, medium of instruction in English, and native speaker exposure (Rahman, 2003; Ali & Saeed, 2017; Fatima, 2020). Nevertheless, earlier studies have shown certain limitations in terms of methodology used for analysis and the subject groups considered. Firstly, majority of the previous literature lacks any quantitative investigation based on acoustic analysis, which has been replaced by impressionist transcription. Second, there has been inadequate focus on undergraduate students at Lahore with their linguistic diversity and variable English proficiency level.

The following are therefore some of the reasons why this study examines the pronunciation of /v/ and /w/ sounds in Pakistani undergraduates in Lahore. This study will be concerned with the pronunciation of these sounds alone by examining the effects of substitution, neutralization, and accurate pronunciation in relation to sociolinguisitic variables such as first language, gender, English-medium instruction, and exposure to English-language media. Through a combination of perceptual transcription, acoustic measurements, and sociolinguistics profiles, this study will seek to offer a holistic explanation of the pronunciation of /v/ and /w/ sounds in Pakistani English.

1.1. Research Objectives

1. To analyse how Pakistani English speakers pronounce the phonic /v/ and /w/.
2. To compare the differences between the pronunciation of /v/ and /w/ in Pakistani English and Standard English.
3. To explore or evaluate the underlying reasons behind the mispronunciation of /v/ and /w/ sounds among Pakistani English speakers.

1.2. Research Questions

1. How are the phonics /v/ and /w/ pronounced by Pakistani English speakers?
2. What are the differences between the pronunciation of /v/ and /w/ in Pakistani English and Standard English?
3. What are the underlying reasons behind the mispronunciation of /v/ and /w/ sounds among Pakistani English speakers?

2. Literature Review

2.1. Second Language Phonology and Cross-Linguistic Influence

Studies on second language phonology have revealed that learners use their first language (L1) phonology in order to learn new phonemic distinctions in the target language. According to Speech Learning Model (Flege, 1995) and Perceptual Assimilation Model (Best & Tyler, 2007), unknown L2 speech sounds tend to be assimilated with those in L1 and cause overlapping perceptions and productions, thus explaining why L2 phonemic distinctions not found in L1 are challenging for L2 learners.

2.2. Acoustic and Articulatory Features of /v/–/w/ Contrast

Articulatory and acoustic distinctions clearly differentiate between the English phonemes /v/ and /w/. The phoneme /v/ is a voiced labiodental fricative, which means that the sound is produced by a vibration between the bottom lip and the upper teeth. On the other hand, the phoneme /w/ is a voiced labio-velar approximant that involves rounded lips and airstream without friction (Ladefoged & Johnson, 2014). Nevertheless, there are numerous studies claiming that in South Asian accents of English, the phonemes /v/ and /w/ have an acoustic similarity, as the former is made with less friction, while the latter with more rounded lips (Dixit, 1989; Sharma, 2009).

2.3. South Asian English and Phonological Neutralization

Studies concerning South Asian English show there is a trend towards neutralization of the /v/–/w/ distinction. In Indian English, speakers tend to consider /v/ and /w/ as one category, which leads to substitution between these sounds in speech (Agnihotri, 2004). Likewise, Bansal (1969) identified cases of /v/–/w/ substitution in Indian English, which means that this pattern has become a regional phonological trait due to similar L1 backgrounds.

It can be concluded from the above information that /v/–/w/ interchange is more widespread in South Asian English.

2.4. Pakistani English Context and Empirical Findings

Regarding Pakistan, several studies have proven the existence of /v/–/w/ substitution among the learners. In his study, Mahmood et al. (2011) revealed frequent substitution of /v/ with /w/ in speech production. According to Naseem and Arshad (2015), /v/ is frequently pronounced as a fricative sound or approximant due to which it sounds like /w/. Similarly, Rehman (2020) pointed out higher frequencies of /v/–/w/ substitution among Punjabi-speaking students from Lahore in comparison to Urdu-speaking students. It can be seen that there exist L1 transfer effects as well as regional differences in pronunciation of English in Pakistan.

2.5. Pedagogical Factors in Pronunciation Development

The lack of pedagogy forms another important reason behind continued problems with pronunciation among the English speakers of Pakistan. English lessons are based mostly on the teaching of grammar; phonetics and pronunciation do not get enough attention (Rahman, 1990). The students thus fail to develop an understanding of pronunciation peculiarities for specific sounds, for example, /v/ vs /w/.The teacher's own pronunciation is highly important, as the learners follow their models from the classroom (Khan & Akhtar, 2019). Besides, being exposed to regional varieties of the language via mass media prevents students from learning correct pronunciation. This way, they develop fossilized pronunciation mistakes. Still, research suggests that it is possible to help learners overcome their problems with pronunciation using explicit phonetics training techniques (Brown, 2007).

2.6. Research Gap

However, despite a large body of literature devoted to /v/–/w/ variation in South Asian English, many limitations persist. Firstly, existing investigations are based on impressionistic data without the integration of acoustic phonetics in analyzing Pakistani students' speech. Secondly, few comparative investigations have been carried out in terms of institution differences (public vs. private universities in Lahore). Thirdly, very few intervention studies have been conducted to evaluate the efficiency of pronunciation training of the same contrast. Lastly, there is no sociolinguistic profiling in terms of gender, socioeconomic status, or media exposure.

Such limitations suggest that an investigation combining the techniques mentioned above should be undertaken to clarify the issue.

3. Methodology

The research design used was a descriptive design incorporating both qualitative and quantitative methods. The aim was to analyze the pronunciation of the English consonants /v/ and /w/ by Pakistani university students and observe how substitution or neutralization occurred, if at all. The qualitative method involved the perception of sound recordings to detect patterns and pronunciation mistakes. The quantitative method included the computation of the frequencies and percentages of the sounds.

3.1. Research Setting

The research was carried out in Lahore, Pakistan because of the diversity of educational institutes in Lahore where there are not only public but also private universities. Lahore is a good language setting for investigating the problem of English pronunciation of undergraduate students speaking Urdu.

3.2. Participants

A sample size of 50 undergraduate students studying at universities in Lahore was chosen for this study. These students came from institutions belonging to both the public and private sectors, with an overwhelming majority coming from public universities.

Participants of the experiment were selected on the basis of the following criteria:

1. Undergraduate students studying at universities

2. Speakers of native Urdu language
3. Use of English as the second language
4. Age group ranging from 22 to 28 years old
5. Male and female students with a female dominance among the participants.

3.3. Sampling Technique

Purposeful sampling technique was used in conducting this research. Purposeful sampling is used because individuals who possessed particular characteristics in line with the objective of the research were sampled; these were attending university, competency in speaking the Urdu language, and competency in responding in English.

It was ideal since it needed participants who could produce English target words and perform short oral tasks.

3.4. Research Instruments

The following instruments were used for the collection of data:

3.4.1. Word List

A list of 20 words in English was made. The target sounds /v/ and /w/ were represented in various positions in the words like initial, middle, and final. The words in the list helped in controlling the pronunciation of each individual tested.

Examples of /v/ and /w/ words included:

/v/ Words	**/w/ Words**
Vine	Wine
Very	Wary
Visit	Wish
Valley	Wall
Vote	Water
Evil	We
Never	Away
Have	Window
Leave	Now
Over	Well

A fixed set of words was used to maintain consistency in all cases.

3.4.2. Oral Questions

Three oral questions of a shorter nature were also posed to each individual in order to elicit semi-spontaneous speech. This method helped determine whether the observed pronunciation patterns in the word list were also prevalent in spontaneous speech.

Sample of the oral questions:

1. Can you tell me something about your recent trip or the place you visited ?
2. Do you like water or wine? Why?
3. What are your activities during the weekends?

3.4.3. Recording Device

A mobile phone voice recorder was employed in recording participants' answers. This method is effective and easy to use while obtaining clear speech samples in silence.

3.4.4. Praat Software

The Praat program was applied when analyzing the data collected. It helped listen to the recorded files and made it possible to divide speech samples, examine waveforms and spectrograms, and perform phonetic transcription.

3.4.5. Data Collection Procedure

Individual collection of data from participants was done in order to minimize the possibility of any background noise that would distort recording. All participants were subjected to the same procedure in order to maintain uniformity.

The procedures involved the following:

The participants were made aware of the objective of the study.Voluntary consent from the participants was sought prior to recording.Each participant was given a code name (for example P01, P02, P03).The participants were requested to read out the list of 20 target words.

Afterwards, the three oral questions were asked and the answers obtained verbally.The data was collected via audio recordings using the mobile phone.Each session took about 10 to 15 minutes.

3.5. Ethical Considerations

Principles of ethics were strictly followed throughout the research process. This included:

Voluntary participation on the part of the participants.Knowing the aims of the study on the part of the participants.Ability to pull out of the experiment anytime.The names of the participants were not revealed in the audio recordings or written notes; rather, coded names were used.

Only non-sensitive questions were asked.

4. Data Analysis Procedure

The recorded audio samples were subjected to analysis by means of auditory transcription and description of pronunciation patterns.

4.1. Auditory Transcription

The listening process was done carefully, paying attention only to the correct pronunciation of the target sounds /v/ and /w/. All relevant words were transcribed, using IPA when required.

Transcription was centered on recognizing:

Production of /v/

Production of /w/

Substitution of /v/ for /w/

Substitution of /w/ for /v/

Incorrect production of /v/ and /w/

4.2. Use of Praat

Praat software was utilized for replaying recorded files, zooming in on spoken words, and analyzing wave form and spectrogram graphs. These were useful in supporting the researcher's subjective assessment of spoken words and determining which fricatives and approximants were present, when necessary. Screenshot images from Praat were added in the analysis chapter.

4.3. Opening audio file in PRAAT

Waveform loaded and sound file visible

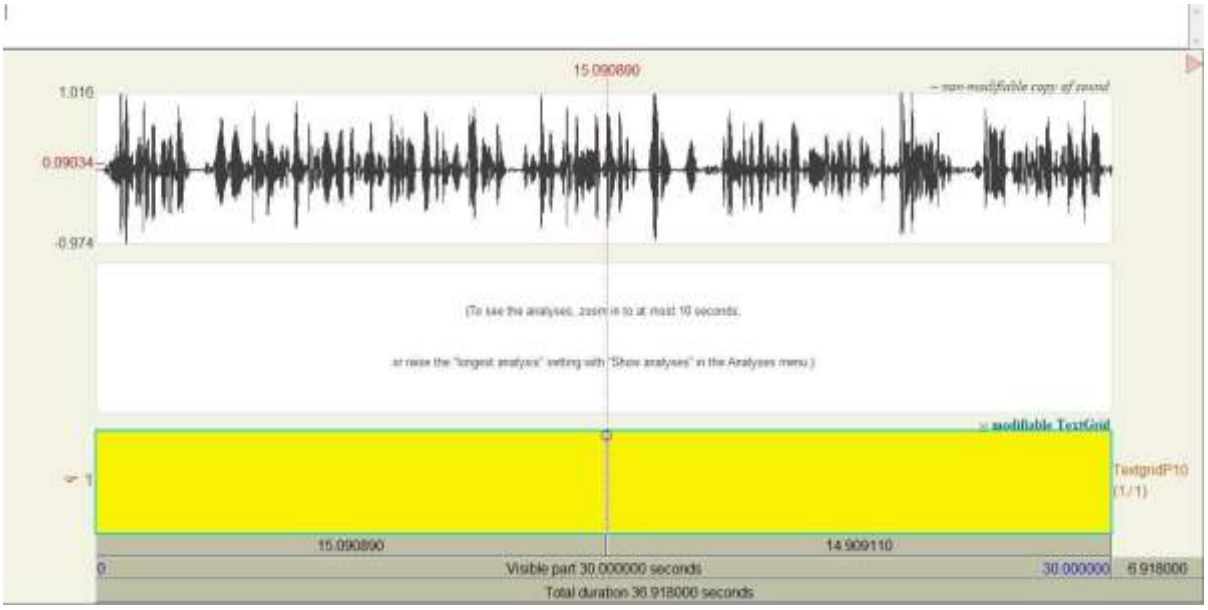


Figure 3.1. Speech sample opened in PRAAT for analysis.

4.3.1. Waveform + Spectrogram view

Top waveform and bottom spectrogram

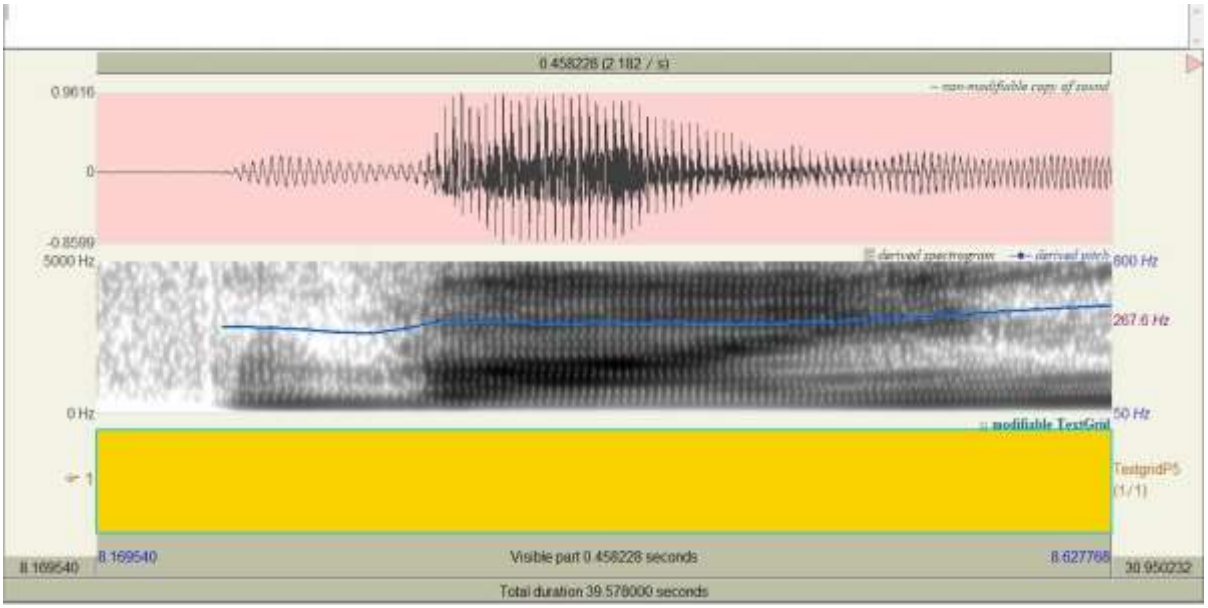


Figure 3.2. Waveform and spectrogram display used for phonetic examination.

4.3.2. Segmentation / selecting target word

Highlighted portion of few words

For example; wine, vine, very, wary, visit, wish, valley, wall, vote

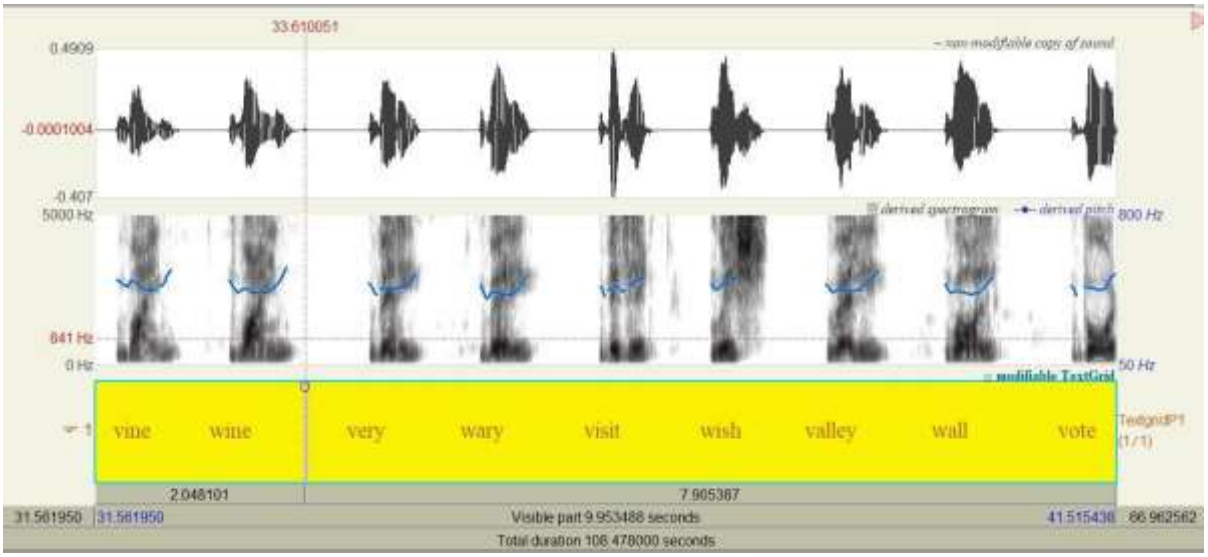


Figure 3.3. Segmentation of target lexical item for consonant analysis.

4.4. Coding of Data

Data coding was done through the following codes:

C = Correct pronunciation

S = Substitution

A = Approximation or unclear pronunciation

Using this data coding method facilitated the analysis of results in an organized manner.

4.5. Quantitative Summary

After the data collection and analysis through transcription and coding process, the frequencies and percentages were computed in order to determine the pronunciation trends of the participants. The researcher computed the frequency of /v/ correct pronunciations and substitutions with /w/ and vice versa.

Spectrograms and tables were also created to summarize the results.

4.6. Reliability of Analysis

In order to ensure validity, the recorded interviews were played several times where necessary because of any uncertainty about pronunciation. Some of the collected data was reviewed again by the researcher to ensure uniformity in the analysis.

5. Results

5.1. Overall Pronunciation Patterns of /v/ and /w/

An analysis of 50 Pakistani undergraduate participants demonstrated an extremely consistent phonological process for the production of the English consonants /v/ and /w/. As seen from the data gathered from both word lists and semi-spontaneous speech production, there is a marked discrepancy in the acquisition of these two phonemes.

While /v/ was pronounced correctly by most participants within word lists like vine, very, visit, valley, and vote, it is clear that /v/ is rather stable within the phonological system of Pakistani speakers of English.

On the other hand, there was a notable inconsistency in the pronunciation of /w/, which was consistently pronounced as /v/. Examples of mispronunciation are the words wine, wall, water, window, wish, we, and well, which demonstrates an established pattern of substitution rather than mere mistakes.

The predominant phonological process used was:

/w/ → /v/ substitution

The occurrence of this pattern in both controlled reading and spontaneous speech shows that it is not task-dependent but rather part of an established interlanguage phonology system.

5.2. Production of /v/

Production of the /v/ sound was highly accurate for all 50 subjects in initial and medially occurring positions within words. Word-initial and medial /v/ sounds were correctly produced in lexical items including very, visit, vote, valley, have, and leave.

The number of departures from standard pronunciation of this phoneme was relatively small and did not follow any particular pattern. In acoustic analysis, where relevant, it was found that proper frication and voicing characteristics were produced by this sound in words like very and visit.

In conclusion, /v/ is a well-established phoneme among the speakers under study.

5.3. Production of /w/

There existed considerable variation in the pronunciation of the phoneme /w/. Although there were some participants who sometimes pronounced the phoneme correctly in words like water, wine, watch, week, the use of the phoneme was unpredictable.

In most cases, the phoneme /w/ was substituted for the phoneme /v/, leading to pronunciations such as:

wine → /vaɪn/
water → /ˈvɔːtər/ /ˈvɑːtər/
wish → /vɪʃ/
window → /ˈvɪndoʊ/
wall → /vɔːl/
weekend → /ˈviːkendz/

This phenomenon occurred both in the pronunciation during reading and answering questions. Thus, the acquisition of the phoneme /w/ is still insufficient in the majority of participants.

5.4. Dominant Phonological Process: /w/ → /v/ Substitution

Another very significant and systematic phonological process found in the corpus is the replacement of /w/ with /v/. It occurred in most of the speakers (P01-P50) with slight differences.

Speakers who exhibited this pattern produced:

wine –> /vaɪn/
wall –> /vɔːl/
wish –> /vɪʃ/
water –> /ˈvɔːtər/
window –> /ˈvɪndoʊ/
we –> /vi/
week –> /viːk/
well –> /vel/

The phonological process took place not only when participants read out loud word lists but also spontaneously in their speech, indicating that it is an integral part of their phonology system in interlanguage and not just a production error.

Another smaller group of participants showed partial control of /w/, especially in lexical words like water and now, however, even they displayed instability in some /w/-initial words.

5.5. Participant-Level Variation and Exceptions

Even though the prevailing tendency was the substitution of /w/ by /v/, individual variation was noted.

A number of participants (P10, P31, P34, P43, P46) partially retained the phoneme /w/ in specific lexemes like water, wine, and watch. Nevertheless, in spite of that, the inconsistency of results occurred in the course of various activities.

The following instances can be given for illustration purposes:

Production of wine without error but production of wall or wish with error

Reading with no mistake but producing an incorrect pronunciation when speaking orally

5.6. Substitution of evil to /ˈiːwəl/

Thus, it can be concluded that /w/ sound acquisition has no uniformity and occurs in an unstable manner.

5.7. Consistency Across Tasks (Controlled vs. Spontaneous Speech)

In the comparison of word-list reading and oral spontaneous production tasks, the analysis produced consistent results of the sound substitution /w/ > /v/. Controlled reading tasks had better accuracy rates because of orthographic support and monitoring effects. Nonetheless, it should be mentioned that spontaneous production also followed the same phonological structure, thus proving that this phenomenon was not related to the task.

5.8. Acoustic Observations (PRAAT Analysis)

In the comparison of word-list reading and oral spontaneous production tasks, the analysis produced consistent results of the sound substitution /w/ > /v/. Controlled reading tasks had better accuracy rates because of orthographic support and monitoring effects. Nonetheless, it should be mentioned that spontaneous production also followed the same phonological structure, thus proving that this phenomenon was not related to the task.

For example:

- very showed typical labiodental frication consistent with /v/
- wine frequently displayed frication patterns similar to /v/ instead of glide formation

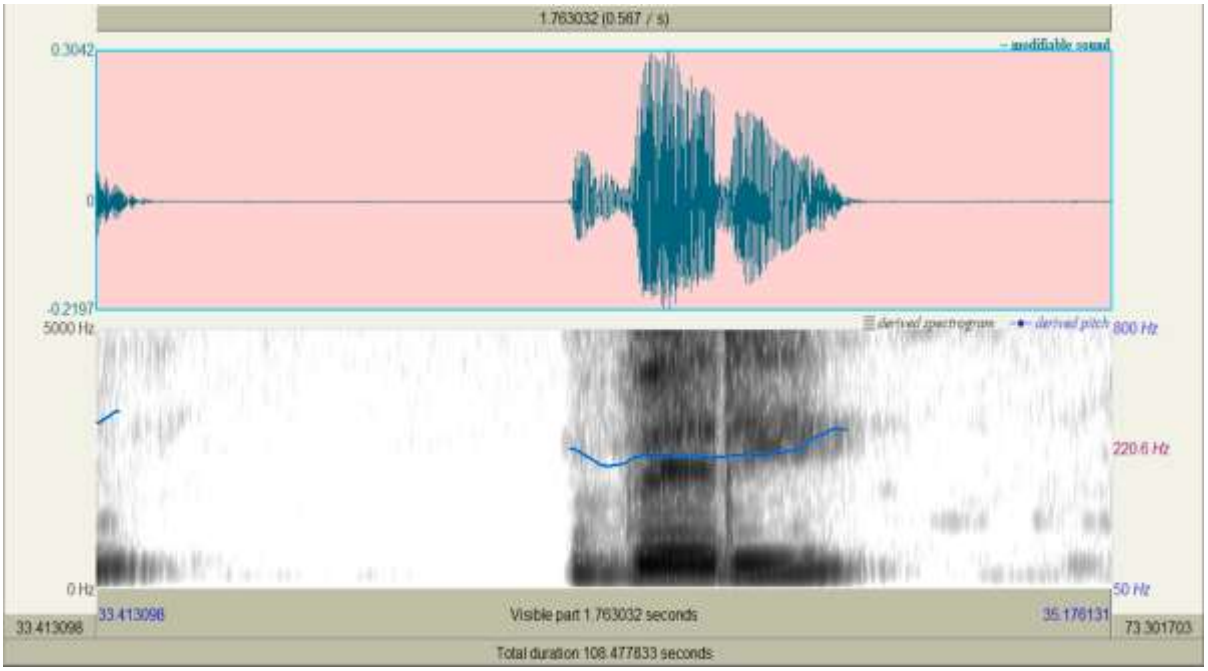
These acoustic findings support auditory transcription results.

5.9. Summary of Key Results

Overall, the findings demonstrate that:

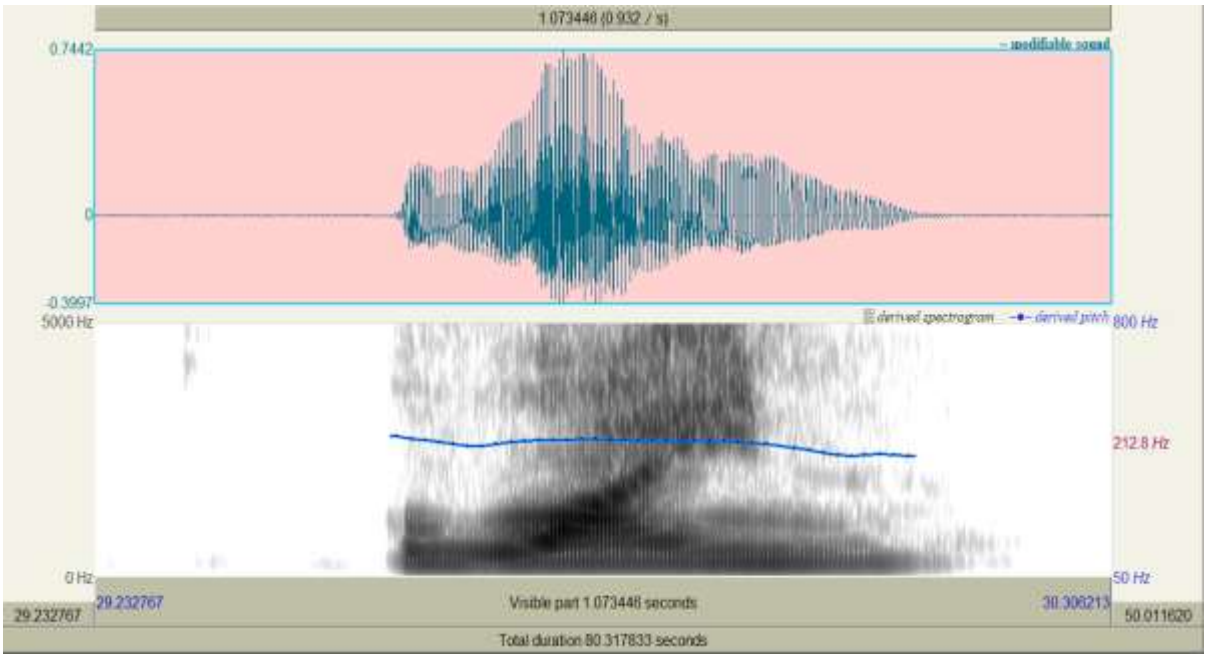
- /v/ is consistently and accurately produced by Pakistani undergraduate speakers.
- /w/ is highly unstable and frequently substituted with /v/.
- The dominant phonological pattern is /w/ → /v/ substitution.
- The pattern is stable across tasks, participants, and contexts.
- Understanding is little impacted by such systematic substitutions.
- Acoustic evidence confirms perceptual findings.

5.10. Production of the word “very” /ˈveri/



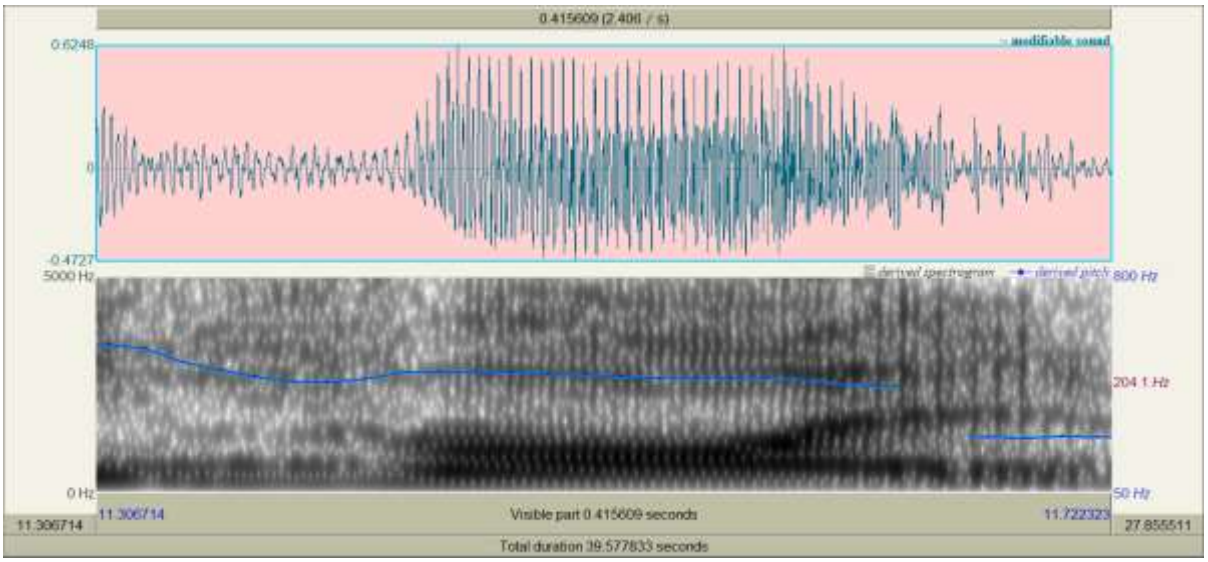
There is stability in voicing during the production of the first consonant sound, and there is evidence of friction sounds characteristic of labiodental fricative /v/. This shows that she pronounces the sound correctly.

5.11. Pronunciation of "wine" produced as /vaɪn/



The beginning consonant sound shows fricative behavior along with a greater level of constriction for /v/ compared to the glide sound /w/, indicating /w/ to be replaced by /v/.

5.12. Production of "wall" with substituted onset



The acoustic pattern indicates deviation from the expected approximant /w/, showing features of a voiced fricative realization.

5.13. Statistical Summary of Phonological Performance (P01–P50)

Category	Performance Pattern	Frequency (Approx.)	Percentage	Key Observation
/v/ word production (vine, very, visit, valley, vote, etc.)	Mostly correct pronunciation	48–50 participants	~96–100% correct	/v/ very consistent and accurate among participants
/w/ word production (wine, wall, water, window, wish, we, away, etc.)	Mostly incorrect production	45–50 participants	~90–98% incorrect	Strong tendency of substitution and mispronunciation
/w → v substitution	Dominant error pattern	42–48 participants	~84–96% participants showing pattern	/w/ frequently realized as /v/ in multiple lexical items

Controlled vs Oral tasks consistency	Same pattern in both tasks	Majority participants	~85–95% consistency	Error persists in both reading and spontaneous speech
Speech clarity impact	Generally clear speech despite errors	Most participants	_	Errors do not significantly affect overall intelligibility
Accent influence	Mild to clear Pakistani English influence	Most participants	_	Suggests stable L1-influenced phonological system

6. Overall Findings

As can be seen, the results of statistics show that the pronunciations of the phoneme /v/ were consistent and correct among most of the subjects, while for the phoneme /w/ there was an extremely high substitution frequency by the phoneme /v/. The majority of the subjects displayed phonological interference in particular when pronouncing words containing /w/ at the beginning. While only a few of them could partly improve their oral/spontaneous pronunciation skills, the general result proves the dominance of the phonological characteristic /w→v/. The results clearly show that phonological transfer from the first language significantly affects pronunciation.

7. Discussion

Analysis of the data obtained from the 50 Pakistani English speakers suggests a fairly clear-cut phonological pattern with regard to pronouncing phonemes /v/ and /w/. First of all, the findings show that the speakers were able to pronounce the phoneme /v/ accurately. In particular, participants succeeded in pronouncing the phoneme correctly when reading out a list of words containing it, for example, very, visit, valley, vote, and leave. The second finding suggests that pronouncing the phoneme /w/ involved a significant degree of variability since many subjects consistently substituted it with /v/.

It can be concluded that the problem is not limited to pronunciation errors but refers to a certain phonological tendency within Pakistani English. Although some differences between the speakers' performance were noticeable, the overall phonological pattern was quite similar for everyone. What is more, the findings also show that the phoneme /v/ is more firmly established in speakers' phonological repertoire than /w/.A contrast between controlled word list reading tasks and spontaneous speech showed only minor variations in pronunciation. In general, participants showed better pronunciation accuracy in word-list reading tasks, which involve a higher degree of monitoring and orthographic support. Spontaneous speech, on the other hand, involved a higher level of phonological diversity and substitution phenomena.

Regardless, the main /w/ to /v/ substitution continued to occur during both speaking activities, proving that the phenomenon is integral to the interlanguage phonological system of the participants and not task-dependent.To sum up, it is clear from the results that the pronunciation of /v/ is quite accurate, while /w/ is not, and tends to be substituted by /v/. The fact that this tendency occurred in all fifty subjects shows its systematic nature.

7.1. Dominant Phonological Pattern: /w/ → /v/ Substitution

One of the key findings from this study was the consistent replacement of phoneme /w/ with /v/. As seen from the observations above, such a replacement has been made by all participants without exceptions regardless of their age, sex, and education, which indicates that the phenomenon described can be considered a characteristic feature of pronouncing English sounds by Pakistani speakers.

Such words as wine, wall, water, window, wish, and we have been pronounced with a prefix /v/ sound. For instance, wine was substituted with /vaɪn/, wall with /vɔːl/, and window with /ˈvɪndoʊ/. The fact that the replacements mentioned occurred in both reading and conversation indicates that the process is a consistent one and does not happen randomly but rather shows the specific feature of phonetics, where the voiced labio-velar approximant /w/ is replaced by the voiced labiodental fricative /v/.

It is important to note that the sociolinguistic factors played a minor role in the results. It appeared that students from both public and private universities showed no differences in their substitution processes, and so did speakers aged differently and of different genders. The widespread and stable nature of the /w/ → /v/ substitution strongly indicates the influence of phonological transfer in second-language acquisition. Compared to Standard English, where /w/ and /v/ function as distinct phonemes, the findings suggest that Pakistani English demonstrates a partial merging of these categories.

7.2. Phonological Transfer and Interlanguage Perspective

The results obtained in the current research can be appropriately explained with the help of some important theories related to second-language phonology, especially phonological transfer and interlanguage. First of all, it should be noted that the replacement of the sound /w/ by the sound /v/ is a constant phenomenon among all fifty participants, which implies that it cannot be considered just a speaking mistake.Second-language phonological transfer implies that learners identify and categorize unfamiliar sounds using the categories existing in their mother tongue. In this case, the difference between the /w/ sound and the /v/ sound does not seem to play any significant role in the English spoken by Pakistani people, therefore, it is easy for learners to confuse those two sounds.The fact that the two sounds are articulatorily similar can also have a significant effect on such a replacement. Both the sounds require labial articulation, and learners can find it difficult to distinguish approximants from fricatives, therefore, the more stable sound /v/ can be used as the replacement of the sound /w/.Orthographic effects are also likely to be implicated in the strengthening of the erroneous pattern. In reading activities, students tend to depend on spelling conventions and letter-sound

correspondence. Because pronunciation practice is largely ignored in English lessons, orthographic effects can explain the presence of incorrect phonological patterns in these processes.

This result is highly consistent with Selinker's (1972) theory of interlanguages, where he argues that second language speakers produce systematic linguistic structures different from their L1 and target language. This systematic occurrence of /w/ → /v/ pattern is an example of how fossilization occurs in the interlanguage of participants.Additionally, the occurrence of identical substitution patterns in individuals with varying levels of education implies that even after exposure to English, there was no change in the phonological pattern. These results thus confirm that the occurrence of the phenomenon is due to several factors including L1 phonological influence, phonetic similarity, orthographic effects, and fossilization.

7.3. Comparison with Previous Studies and Literature Support

The results of this study find strong support in the literature dealing with second-language phonology, World Englishes, and English as a Lingua Franca (ELF). The systematic replacement of the phoneme /w/ with the phoneme /v/ by the speakers of Pakistani English fits into larger patterns of phonological change found in postcolonial Englishes and multilingual communities of speakers.

According to the studies in World Englishes, the phonological change typical of the outer-circle varieties is commonly a result of the inter-language contact involving English and local varieties. The same idea underlies Jenkins' (2007, 2015) claim that segmental replacements are likely to be viewed as normalizations of localized English varieties, rather than pronunciation errors. According to Kirkpatrick (2010) and Schneider (2007, 2014), phonological restructuring is one of the typical characteristics of postcolonial Englishes.The current research findings are in full accordance with both theoretical approaches under discussion, since the process of replacing /w/ with /v/ was found to be consistently stable among all participants irrespective of their age, gender, or educational background. In other words, the described process should be regarded as a community feature rather than an individual peculiarity.

In addition, the current research findings are consistent with Flege & Bohn's (2021) revised version of the Speech Learning Model (SLM), according to which the perception of new L2 segments should lead to assimilation within L1 phonological categories due to insufficient distinction between these segments.

Moreover, the same assumption can be made in view of the Perceptual Assimilation Model for L2 (PAM-L2), developed by Best and Tyler (2007). According to PAM-L2, perception of second-language phonemes largely depends on the presence or absence of phonological contrasts within the learner's native language. In the current case, /w/ was not adequately distinguished from labial fricatives and thus assimilated into /v/.Additionally, according to the Lingua Franca Core presented by Jenkins, some differences between phonemes may not really be important regarding intelligibility in ELF situations. Thus, while

in Standard English /w/ and /v/ are phonemically distinct, they can be swapped without creating difficulties in the case of Pakistani English.

In short, it can be stated that the outcomes of the present research show high compatibility with the latest phonology and phonological transfer theories.

7.4. Comparison of Controlled Word List and Oral Speech Performance

An interesting factor to consider within the present study was the difference between the control condition word-list production and spontaneous speech. While the majority of similarities existed between these two forms of language production in relation to their phonological characteristics, there were some subtle differences noted with regards to accuracy.

The participants showed higher pronunciation accuracy when engaged in controlled reading activities, especially in terms of their production of /v/. During controlled reading of word lists, participants had an opportunity to rely on spelling and consciously monitor the way they pronounce words. As a result, words like very, visit, valley, and vote were pronounced correctly.

Nevertheless, even when producing a word list, participants made /w/ → /v/ substitutions in words like wine, wall, water, and window. Such a substitution pattern proves to be not just a product of performance, but an integral phonological pattern.

Spontaneous oral speech was marked by more variable behavior and somewhat higher rates of substitutions. Spontaneously uttered words, such as weekend and watching, provided better evidence for /w/ substitution patterns.

In research conducted on second-language speech production today, similar results have been found, indicating that situations involving spontaneous speech are better at identifying any interlanguage phonological patterns than those which involve reading. However, regardless of some small variations in variability, the general phonological pattern observed was the same for both tasks. The phoneme /v/ showed stability, while the phoneme /w/ continued to show substitution characteristics.

The stability of the pronunciation pattern observed under both types of tasks adds validity to the research findings and confirms that /w/ → /v/ substitution is a stable characteristic of the Pakistani English interlanguage phonology.

7.5. Sociolinguistic Variation in /w–v/ Production

The present study also examined the potential effect of sociolinguistic factors, such as gender, age, and education, on the articulation of the sounds /w/ and /v/. The results showed that there were no major fluctuations in the pronunciation pattern under analysis in regard to these social categories.

7.6. Gender-Related Differences

There were no noticeable gender-related variations in terms of speech articulation. Both female and male participants produced /v/ accurately while having a high propensity for the

process of substitution /w/ → /v/. It can be concluded that the linguistic tendency is common to both males and females.

7.7. Age Variation

The participants' ages varied between 21 and 28 years old. There were no major age-related discrepancies within this rather small age gap. Both older and younger participants showed equal levels of substituting one sound for another.

7.8. Educational Background: Public vs Private Universities

The subjects who were from either public or private universities had identical pronunciation practices. Though slight differences existed among individuals, the primary pattern of /w/ to /v/ substitution stayed the same for all participants irrespective of their educational institutions. This implies that education per se is not enough to influence phonological acquisition.

7.9. Sociolinguistic Stability Interpretation

The lack of variation in sociolinguistics indicates the relative stability of the substitution pattern as part of the interlanguage phonology of Pakistani English. These findings correspond to Schneider's Dynamic Model of Postcolonial Englishes, where phonological characteristics tend to stabilize in speech communities.

In a similar manner, the ELF theory postulates that substitutions can stabilize in situations where intelligibility is not affected much.

7.10. Theoretical Synthesis and Interpretation of Findings

The results obtained by the current research show that the /w/ → /v/ sound replacement in Pakistani English is a systematic phonological process based on theoretical approaches rather than an accidental pronunciation phenomenon. The results can be analyzed based on the theoretical frameworks of second language phonology, interlanguage, World Englishes, and ELF.According to the Speech Learning Model suggested by Flege and Bohn (2021), second language learners are used to analyzing new sounds based on their own phonological categories. In the context of the current research, all participants have perceived a new sound, namely /w/, as being similar to another phoneme, i.e., /v/.

Similar to the aforementioned explanation, the Perceptual Assimilation Model-L2 proposed by Best & Tyler (2007) offers an explanation of how unfamiliar sounds can be analyzed based on the phonological system of a learner. Due to the fact that the phoneme /w/ does not stand out for learners, it tends to assimilate with the closest phonological sound..With respect to World Englishes, the Dynamic Model introduced by Schneider supports the explanation of the obtained results. Based on the consistency observed in the results, the sound substitution can be considered a feature of Pakistani English.The ELF theory-based research helps further explain the reason for the existence of the phoneme substitution despite exposure to English for years. As intelligibility usually stays constant within the confines of the local communication setting, there is no need to keep distinct native phonemes from each other.

The results of the research also confirm the validity of the theory of phonological fossilization. According to the theory, stable pronunciation patterns become resistant to any changes after being incorporated into interlanguage. Thus, the persistent use of such patterns by educated people indicates that English exposure is not a guarantee of getting rid of certain phonological practices.

In addition to this, it is also necessary to point out the importance of the issue of orthography. As was stated above, spelling norms of the language can greatly impact the pronunciation patterns of speakers. In the context of this study, orthographic knowledge can be considered as a contributing factor that made people associate /w/ with /v/.Overall, it is possible to state that the theoretical basis supports the conclusion drawn based on the results of the research.

7.11. Research Question Synthesis

The results of this current study have provided clear insights into answering the research questions raised initially. Firstly, the results show that the phoneme /v/ is pronounced properly and regularly by Pakistani English speakers whether in a controlled or spontaneous speaking situation. However, the phoneme /w/ often gets replaced with /v/ specifically in cases such as the words wine, wall, water, well, and window.

Secondly, it becomes apparent from the results that there was a partial neutralization of the phonemic opposition between /w/ and /v/ based on the standards set in pronunciations of Standard English. Despite the fact that Standard English considers the two sounds as different phonemes having unique characteristics, the participants were unable to keep the difference properly.

Thirdly, the results show several factors affecting the pronunciation. They are the influence of the L1, phonological interference due to Urdu language or local language, lack of training in pronunciation, orthography, and stabilization of the interlanguage.

These results confirm that the /w/ → /v/ replacement is a systematic feature of the language rather than a mere slip-of-the-tongue error.

7.12. Variations and Exceptional Patterns of Performance

While the majority of participants showed the prominent /w/ → /v/ substitution pattern, there were other variations in some individuals' productions as well. Some of the participants produced some target words with the use of /w/ accurately whereas they produced others incorrectly.

This means that while Pakistani English speakers are unable to fully acquire the /w/-/v/ distinction, they acquire it partially and inconsistently due to reasons like exposure to English, schooling experiences, pronunciation practice, media influence, vocabulary knowledge, etc.

Correct productions by some of the participants indicate that the two sounds may be distinguished by increasing exposure and practice; hence, the phenomenon should be considered to be a variable phonological behavior rather than an unalterable deficiency.

What makes the results authentic is the fact that there was individual variation since natural language production consists of dominant tendencies along with individual differences.

7.13. Intelligibility and Communication Implications

Although there was a significant substitution of /w/ for /v/, participants' speech still proved to be intelligible and communicative. Regardless of whether they were asked to read certain sentences or speak spontaneously, listeners usually comprehended their intended meaning through context clues.

In other words, terms like "water" and "weekend" could be easily understood, even though the initial sounds had been changed. It is consistent with approaches to World Englishes and ELF theory, since intelligibility becomes more essential here than native-speaker-like pronunciation.

It is clear that in multicultural environments like Pakistan, some speech sounds may become legitimate for a particular community, which makes the substitution pattern not only a pronunciation mistake but also an identifying marker of localized English.

Still, this study shows that the possibility to replace /w/ with /v/ can cause problems during intercultural communication, when native-like pronunciation distinctions are required. Hence, knowledge of the phenomenon in question will be useful in various domains.

To sum up, it is possible to state that the results obtained prove the capability of Pakistani English speakers to remain intelligible regardless of pronunciation distinctions.

8. Major findings, Conclusion and Recommendations

8.1. Major Findings

The current study analyzes the pronunciation of the phonemes /v/ and /w/ by fifty Pakistani English speaking students through word lists tests and supplementary oral production tests. It can be inferred from the findings that there are uniform phonetic tendencies evident from all participating students, regardless of their being enrolled in a public or private university.

First, the phoneme /v/ is pronounced correctly by most of the students when it occurs in words such as vine, very, visit, valley, vote, have, and leave. Therefore, it can be assumed that the phoneme /v/ is a stable one in Pakistani English speakers' phonetic inventory. Very few cases were recorded where /v/ was pronounced wrongly by some of the participating students.

Second, the phoneme /w/ was the one causing the greatest trouble to the participants. Many participants mispronounced words containing /w/, like wine, wall, water, we, wish, well, and window. The major tendency that could be seen was the substitution of /v/ with /w/ so that wine is pronounced as vine, water with the initial consonant of /v/. However, the general intelligibility of this substitution process did not affect the communication.

Finally, the findings suggest that pronunciation patterns of /v/ and /w/ are influenced by first language phonological transfer, variations in exposure to standard English models, and differing levels of familiarity with target pronunciations. Overall, /w/ emerges as a significantly more problematic phoneme than /v/ in the speech of the participants.

8.2. Conclusion

The current study intended to explore variations in the pronunciation of the phonemes /v/ and /w/ by Pakistani speakers of English relative to Standard English pronunciation, along with the factors underlying such variations. The findings of the data analysis indicate various things.

In the first place, the phoneme /v/ seems to be fairly stable in Pakistani English pronunciation, in the sense that correct use of this phoneme was observed when speakers produced words like vine, very, visit, valley, vote, have, and leave.

Secondly, it is observed that the phoneme /w/ is rather difficult for many speakers. It was found that the substitution of the phoneme /v/ in place of /w/ took place quite frequently in the production of words such as wine, wall, water, window, wish, well, and we.

Thirdly, in view of the fact that there is an obvious distinction between the phonemes /v/ and /w/ in the standard pronunciation, it can be concluded that such distinction has become weakened in Pakistani English pronunciation.

While Standard English distinguishes these phonemes both articulatorily and acoustically, this distinction is not consistently maintained in the participants' speech.

Fourthly, the fact that this phenomenon occurs in both controlled readings as well as in natural speech shows that it is not a performance issue but rather an actual phonological characteristic.

Fifthly, there are various reasons for this phenomenon, such as interference from the speaker's first language, lack of adequate exposure to proper pronunciation, and emergence of new variants of English in Pakistan. Nonetheless, despite these differences, communication does not suffer, since communication remains mostly understandable. In conclusion, it should be noted that the study shows that /v/ and /w/ are used asymmetrically; /v/ stays constant while /w/ is replaced by /v/.

8.3. Recommendations

Recommendations that stem from the findings include suggestions for improvements in terms of teaching pronunciations as well as additional research on the issue of pronunciation in Pakistani English.

First, teachers of the English language in Pakistan are advised to focus on the difference between sounds /v/ and /w/. Emphasis should be put specifically on minimal pair practice (e.g. wine-vine, west-vest, wall-val), since the data collected shows that the sound /w/ is constantly substituted by /v/.

Second, pronunciation classes are recommended to involve the use of audio-visual material to familiarize learners with authentic English pronunciations.

Third, it would be useful to include an element of phonetics in language teaching classes, in which the learners will be made aware of articulatory aspects of pronunciation. Illustrations showing the difference between labiodental fricative /v/ and labio-velar approximant /w/ could be used.

Fourth, self-correction techniques are strongly advised, whereby learners record their speech and compare it to native models.

Fifth, developers of curricula and textbooks are encouraged to include pronunciation in their syllabus and textbooks.

Sixth, further research should employ larger samples and acoustic phonetic techniques.

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