P-ISSN 2708-6453	Pakistan Languages and Humanities Review	Oct-Dec 2023, Vol. 7, No. 4
O-ISSN 2708-6461	https://doi.org/10.47205/plhr.2023(7-IV)20	[228-240]

Pakistan Languages and Humanities Review
www.plhr.org.pk

RESEARCH PAPER

Contrastive Analysis of the Vowel Sound System of Urdu and English Languages

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ABSTRACT

Phonemic awareness plays a pivotal role in getting mastery and competence in second language or foreign language. English and Urdu languages both have different distinctive phonemic features. Both languages have their peculiar phonetic attributes. However, it is often seen that ESL learners face problems in picking up the pronunciation of the second language articulation process. The contrastive analysis approach was selected to analyze the vowel sound systems of English and Urdu languages. The contrastive approach is effective in analyzing the similarities and differences between two languages. The findings of the study reveal that there is a significant difference between the numbers of phonemic sounds of monophthongs and diphthongs in both languages. Some features were found similar while, some dissimilar features were also examined in both languages. Researchers observed the distinctive properties of nasal sounds in both languages. Findings of the study indicated that the 'h' sound is treated as consonant (in some cases as semi-vowel) in English language; however, in Urdu language it is considered as vowel sound and if 'h' sound follows a vowel in Urdu and the syllable is terminated, the vowel is pronounced with a breathy voice. On the other hand, in English language this feature of breathy voice is not present. Moreover, the findings of this study would be beneficial for personals of academic sectors, second language learners and teachers as well.

KEYWORDS Contrastive Analysis, English as Second Language, Phonemic Similarities, Phonemic Variances, Vowel Sound System

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 (Younus, Farhat & Ahmad, 2023). There are several languages spoken in the world but the main focus of present research is to analyze vowel sound system 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, 2004). 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 (Mahboob, 2002).

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 such as international business, academic conferences, diplomacy, science, and technology (Rahman, 2010; Mansoor, 2009). As a result, the demand for learning basic English skills becomes crucial to get mastery over English pronunciation in response to the importance of English and due to 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 someone's level of confidence and self-esteem to a greater extent (Farhat & Dzakiria, 2017). 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 non-native language users of English language that they need to improve the speaking skill for the purpose of international encounter (Hussain, Farhat & Aslam, (2023).

Literature Review

The term Urdu was derived from the Turkish language 'termordu' meaning "Camp or Army with its followers" (Saleem et al., 2002). Urdu language is widely used worldwide and according to ethnologic report, it is spoken by one hundred million people on the globe (Hussain 2004; Simons et al., 2017). The largest number of Urdu language users are found in Pakistan, while Indians occupy the 2nd position as Urdu is spoken in six Indian states. Urdu like Hindi languages belong to the New Indo-Aryan languages and around eight million people in Pakistan speak Urdu as their mother tongue (Kachru, 2005). Urdu language was declared as an official language of Pakistan in the constitution (Javed et al., 2010). Urdu is also considered one of the 11th most commonly spoken languages on the globe (Simons, 2018).

English language has its affiliation to the West Germanic branch of the Indo-European family and is regarded as lingua franca i.e., a language which is spoken throughout the world. Urdu and English, both languages are in linked with each other for more than 400 years (Sipra, 2013). English is spoken in several states equally as an innate and distant language (Sipra, 2013).

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. English language is written and read from left to right side while Urdu language is written and read from right to left. English and Urdu, both languages, belong to different language families and follow different grammatical structures. If the source and target languages differ, mainly the structure of the sentence as is the case with English and Urdu languages, the problem of machine translation becomes more challenging. Urdu is a morphologically rich language (Shahnawaz, & Mishra, 2013).

It is 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. 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 second language learning classrooms" (Farhat & Dzakiria, 2017, p.271). Therefore, there is a dire need that the second language learners must pay attention to improve the production of phonemic sounds of the target language; otherwise, the speaker as well listener would have to face communication breakdowns.

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 target language. 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.

The process of text-to-speech synthesis is logically divided into two stages. First of the significant stages of a text-to-speech system is a Natural Language Processor (NLP) which takes textual input and converts it into an annotated phonetic string to be spoken with prosodic features (e.g., stress and intonation). The second stage generates the appropriate digital signals using a particular synthesis technique. To enable this, it is necessary to develop models which map textual input into the phonetic content. This model may be very complex in case of the English language which has an unpredictable pronunciation for foreign learners. On the other hand, Urdu language shows a relatively regular sound system. Urdu is written in the Arabic script in Nastaleeq style using an extended set of Arabic characters. Nastaleeq is a cursive, context-sensitive and highly complex writing system (Hussain, 2004).

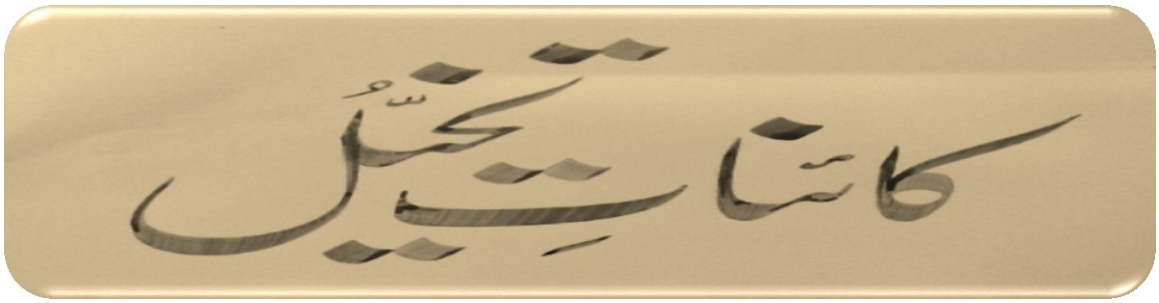

Figure 1 Urdu Nastaleeq Style

Sourse:(https://www.google.com/search?q=urdu+nastaleeq&sca_esv=572463874&tbm=isch&source=lnms&sa=X&ved=2ahUKEwjS-43dzu2BAxXFh_0HHb).

Additionally, correct articulation of English phonemic sounds is crucial for the development of spoken language skills. Poor pronunciation is a stumbling block in thorough learning of spoken English skills whereas, wrong pronunciation leads to misunderstanding in communication (Ulfayanti & Jelimun, 2018).

Research Methodology

The method which is employed by the researcher to resolve investigated problem is called research methodology (Ahmad, Farhat & Choudhary, 2022). The main purpose of the present research study was to conduct a contrastive analysis of the vowel sound system between Urdu and English languages on the basis of articulatory properties of both languages. It involves understanding the specific tongue and lip positions, vocal cord

tension (tense/lax). Conceptual research strategy is used for this research, this kind of methodology is used in the research in which data on the given topic is already present and this kind of research doesn't include directing practical experimentations, but only linked to abstract ideas and concepts (Makrygiannakis & Jack, 2018). The present research work is contrastive and correlated in nature in which the researchers did comparison of vowel sound system between the languages of Urdu and English. Moreover, the researchers listed vowels from both languages these kinds of steps are tracked when a comparison is made between two or more different languages to highlight the variances and similarities in the several aspects of two languages.

Contrastive Analysis Hypothesis (CAH)

The Contrastive Analysis Hypothesis (CAH) is a linguistic theory and methodology used to compare and contrast two or more languages in order to identify similarities and differences between them. The main goal of Contrastive Analysis Hypothesis is to predict potential difficulties that learners of a foreign or second language may encounter based on the differences between their native language and the target language. Kavanagh, (2007) stated that in contrastive analysis hypothesis two or more languages are structurally compared with each other and it has its origins in the theory of behaviorism.

The linguistics sub-discipline which is employed to make a comparison of two or more languages or linguistic sub-divisions for the purpose to determine resemblances and variances among them is called contrastive analysis. Kavanagh, (2007) analyzed the similarities and differences between the phonemes of English language and those of Persian language by using contrastive analysis approach. Teh, (2020) stated that contrastive analysis theory makes comparisons, distinctions between languages. He used contrasting analysis for the purpose of promoting conceptualization of English sentence structure in ESL teaching in Malaysia. It is just about a maxim to perceive that contrastive analysis provides choices of different methods on the prevailing linguistic concepts and the variety of language singularities (Oleksy, 1984). Ellis (1986) suggested six suppositions or possibilities in comparative study of two different languages:

i. No difference between L1 and L2 terms

ii. No similarity between L1 and L2 term

iii. Convergent phenomenon (similar features)

iv. Divergent phenomenon (dissimilar features)

v. Presence of terms in Li but absence in L2

vi. Absence of terms in Li but presence in L2

In Contrastive Analysis Hypothesis (CAH), researchers follow these above-mentioned steps and did comparisons and contrasts of the two languages. Lado (1957) devised the theoretical foundations for contrastive analysis hypothesis claiming that when a learner learns a new language, the similar notion of the target language with native one, would be easy to capture for the learner while dissimilar concepts of target language would become complicated due to non-availability of the same elements in mother tongue.

Some researchers conducted their research on the phonetic symbols of English language by comparing with the symbols of other languages of their native lands. Yang

(1996) conducted research on comparing American English language vowels and Korean language vowels by selecting sample size from both male and female genders. The researcher found out that the variations were revealed significantly by male and female participants of Korean and American English speakers. Yar-Mohammadi (2002) carried out the contrasting analysis of Persian and English languages. Hussain and Mahmood (2011) studied vowel replacement and comparatively studied English loans in Punjabi and Urdu languages. Another comparative study was conducted on Arabic and English phonetics by Javed (2013).

Amer (2001) investigated the variances among English and Arabic vowel sounds, a contrastive study with academic inferences. Kavanagh (2007) analyzed the phonemes of Japanese and English languages by using contrastive method. Barman (2009) analyzed the contrastive analysis of phonemic sounds of English and Bangla. Javed, (2013) conducted research and comparatively analyzed the phonetics of the Arabic and English languages and found numerous variances and resemblances among the sound system of English and Arabic languages. Ulfayanti and Jelimun, (2018) contrastively analyzed English and Indonesian vowels phonemes. Khan, (2021) explored the phonemic dissimilarities in equivalent words of Urdu and Turkish languages. She composed data from Pak-Turk school of Lahore by employing purposive sample method. The results of the research showed that there was a significant difference in their pronunciation. The Urdu language speakers used vowel sounds which are licensed by Urdu language and Turkish speakers used those vowel sounds which are allowed in their phonetic settings. Khan found that that there are only 6 similar vowel sounds 7 vowel sounds are different in both languages. Nahampun, Saragi, and Saputra, (2022) analyzed the vowel sounds in English and Batak Languages. The current study is concerned mainly with contrastive analysis of the vowel sound system of Urdu and English languages.

English and Urdu Vowel Sound System

English and Urdu languages are phonologically different in their structures as well. The discrepancy among the tense and lax vowel sounds divulges noteworthy variations in two languages. This difference might be one of the reasons behind facing serious language learning problems for ESL students (Ohata, 2004). Commonly, it is also believed that the most of the ESL/EFL learners speak English language in an accent that is different from the native or standardized accent of English language due to the influence of the variation of phonological sounds of their innate language (Kavanagh, 2007). It is also observed that due to the difference in phonemic sounds of English language and indigenous languages of Pakistan, teachers and learners feel communication barriers such as reluctance, lack of fluency and command over this language. (Kachru, 2003; Khan, 1997).

Classification of English Vowel Sounds (R.P)

Roach (2013) points out that there are 20 vowel sounds and he categorizes vowel sounds as seven short vowels, five long total 12 monophthong vowel sounds and 8 diphthongs). Different researchers analyzed the English vowels in their studies, a verbal sound modified by resonance in the oral passage, the peculiar resonance in each case giving to each vowel its distinctive character or quality as a sound of speech; distinguished from a consonant (Hawkins & Midgley, 2005; Ferragne, & Pellegrino, 2010).

Table 1
Classification of English Vowel Sounds (R.P)

Vowel	Pt. of Tongue Raised	Extent of Tongue Raised	Lip Position	State of Muscles	Example
/iː/	Front	Close	Spread	Tense	Tea
/ɪ/	Front	Close	Neutral	Lax	Tin
/e/	Front	Half Close	Neutral	Lax	Ten
/æ/	Front	Half Open	Neutral	Lax	Tap
/ɑː/	Back	Open	Open	Lax	Arm
/ʌ/	Central	Open	Slightly Open	Lax	Luck
/ɒ/	Back	Open	Neutral	Lax	Trot
/ɔː/	Back	Half Open	Open Rounded	Lax	Tall
/ʊ/	Back	Half Close	Open Rounded	Lax	Book
/uː/	Back	Close	Close Rounded	Lax	Tool
/ɜː/	Central	Half Close	Neutral	Lax	Turn
/ə/	Central	Half Close	Neutral	Lax	Traveler

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., 2002; Ali & Hussain, 2010). Khan and Alward (2011) stated that there are 8 vowels in Urdu language, but in the same way, Raza in (2009) 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 (1997) 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.

Table 2
Classification of Urdu Vowel Sounds

Vowel	Pt. of tongue raised	Extent of tongue raised	Lips Position	State of Muscles	Example		
/iː/	Front	Close	Spread	Tense	تین دین	tiːn diːn	(three) (Faith)
/ɪ/	Front	Close	Natural	Lax	دل	dɪl	(heart)
aʼa	Front	Open	Natural	Lax	اعلیٰ جعلی	aʼala Jaʼali	(superior) (fake)
ɛ	Front	Half close	Natural	Lax	محشر محفوظ	mɛhʃər mehfuːz	(doom's day) (secure)
/e/	Front	half close	Natural	Lax	**اک** **نیک**	Ek nek	(one) (pious)
/æ/	Front	half open	Natural	Lax	پیر بیر	Pær bær	(foot) (enmity)
/ʌ/	Font	Open	Natural	Lax	اب کب	ʌb kʌb	(now) (when)
/ɒ/	Back	Open	Natural	Lax	اوچ موج	ɒdʒ mɒdʒ	(height) (wave)
/ɑː/	Back	Half open	rounded	Lax	تار بار	tar bar	(wire) (load)
/uː/	Back	Close	rounded	Lax	اون	uːn	(wool)

					خون	khu:n	(blood)
/ʊ/	Back	half close	rounded	lax	تم دم	tʊm dʊm	(you) (tail)
/o/	Back	half close	rounded	lax	چور مور	ʧor mor	(thief) (peacock)
/ɜ:/	Central	half close	natural	lax	گرم نرم	gɜrm nɜrm	(warm) (soft)
/ɔ/	Central	half open	rounded	tense	ڈرو	drɔ	(be afraid)
/ə/	Central	half close	natural	lax	گر مگر	gər məgər	(if) (but)

In the table given above, PTR is used for 'Position of the tongue raised'; ETR is the abbreviation of 'extent of the tongue raised'; LP stands for 'lip position'; SM denotes 'state of the muscle'. Examples with their English equivalents are given in brackets, at the end.

Nasal Varieties of Urdu Vowel Sounds

A unique attribute of Urdu phonology is the existence of the nasal forms of vowels which are alien to the English vowel system. The non-nasalized forms of Urdu vowels usually represent the singular subjects/ objects, whereas the nasalized articulations of vowels in Urdu are used in case of plural subjects/objects as shown in Table 3.

Table 3

Urdu vowels involving nasalized articulation

Vowel Used	Phonetic transcription	Urdu word	Eng. Equivalent	Vowels used	Phonetic Transcription	Urdu word	Eng. Equivalent
ĩ	Kəhi:	کہی	said	ĩ	Kəhĩ:n	کہیں	some where
ẽ	Rəhe	رہے	Lived	ẽ	Rəhen	ر ہیں	may live
æ̃	Mae	مے	Wine	æ̃	Mæn	میں	I
ã	Kəha	کہا	Said	ã	Kəhãn	کہاں	where
ũ	tu:	تو	Thou	ũ	ʤu:n	جوں	as, Lice
õ	Hogi	ہوگی	Will happen (singular)	õ	Hõngi	ہوں گی	Will happen (plural)

Breathy or gasping Urdu Vowel

English has the /h/ sound as a consonant, but in Urdu, the phoneme /h/ is mixed up with other vowels to make a compound vowel. In English, the consonant /h/ stands as a phoneme, but it is a peculiar unit of the Urdu language when /h/ combines with a vowel sound to make a distinct vowel itself.

Table 4

When 'h' follows a vowel in Urdu and the syllable is terminated, the vowel is pronounced with a breathy voice as in

Lɛhʤa	لہجہ	Tone	ʧehra	چہرہ	Mohre	مہرے	Pawns
Lɛhza	لمحہ	Moment	Pɛhne	پہنے	Bohran	بحران	Crisis
Sohbʌt	صحبت	Company					

Table 5

Description of Central Diphthongs of English Language

Centering diphthongs	*Examples*
/ɪə/	ear, bear, fear
/eə/	dare, fare, hair
/ʊə/	tour, abjure, lure

In Table 5 there are three examples of central diphthongs. Roach (2009) discussed that the diphthongs are sounds that move or glide from one vowel to another vowel and no existence of such kind of movement or glideness in utterance of monophthongs.

Table 6
Description of closing diphthongs of English Language

Closing diphthongs	*Examples*
/eɪ/	pain, stain, brain
/aʊ/	proud, shroud, found
/ɔɪ/	coin, loin, join
/aɪ/	side, bind, tide
/əʊ/	road, boat, home

In Table 6 a noticeable differentiation can be observed that starting point of diphthongs glide from open toward closing sound. Although, the closing sound does not stop because in vowel air stream flows without restriction yet they are near to close due to their weakness.

Table 7
Diphthong sounds of Urdu Language

Diphthong	TonguePart	Extent of Glide	Length		Examples	
eI (Falling)	Front	Half close to half close	Narrow	teIs	تئیس	Twenty Three
aI (Falling)	Front	Open to close	Broad	laI	لائی	Brought
oI (Falling)	Mixed	Close to close	Broad	soI	سوئی	Slept
uI (Falling)	Mixed	Close to close	Broad	suI	سُوئی	Needle
əI (Rising)	Centering	Half open to close	Broad	kəI	کئی	Many
Ua (Rising)	Mixed	Close to open	Broad	JUa	جُوا	Gamble
Ia (Rising)	Front	Close to open	Narrow	PIa	پیا	Drank
Ue (Rising)	Centering	Close to open	Narrow	hUe	ہُوے	Took Place
ae (Falling)	Front	Open to half open	Broad	Gae	گائے	Cow
əe (Rising)	Centering	Half open to open	Narrow	Nəe	نئے	New
ie (Rising)	Front	Half close to half open	Broad	Jie	جیئے	Lived
ao (Falling)	Front	Open to half close	Broad	Lao	لاؤ	Bring
oe (Falling)	Mixed	Half open to half open	Narrow	oər	اور	And
io (Rising)	Mixed	Close to close	Broad	Jio	جیو	Live
oe (Falling)	Mixed	Half close to half close	Broad	roe	روئے	Wept

Table 7 depicts the inventory of Urdu diphthongs. There are 15 diphthongs on the bases of basic monophthog sounds. Among these double sounds 6 sounds are frontal which is articulated by front side of tongue, 6 sounds are mixed (frontal and central); whereas, 3 sounds are produced by the center of the tongue which are called central sounds.

Results and Discussion

The results of the present research illustrate, that the ESL speakers articulate English vowels in different way rather than the native speakers of English language and this is one of the main reasons for reluctant articulation of oral skills as there is a divergence between sounds of Urdu and English languages (Khand 1997 & Kachru (2003). So, the difference was found in the phonemic sounds of both languages. The present research study evidently shows that phonemics of Urdu and English different from each other. Firstly, the numbers of phonemes are dissimilar in English and Urdu language. In English language there are 20 phonemic vowel sounds whereas, in Urdu there are 15 vowel sounds with two additional sounds of /h/ and nasalized articulation of vowels in Urdu used in case of plural form of the words. Moreover, whole Urdu vowels are generally nasalized when they are used with nasal consonants such as (Rəhen/ ر ہیں, Kəhãn/ کہاں) while in English there are three nasal sounds /m/, /n/, /ŋ/ such Urdu like nasalization features are not found in English language.

Similarly, there are three different sounds which are not present in English language like two frontal and lax sounds of /a'a/ اعلی /a'ala (superior), /ɛ /mɛhʃər/ محشر (doom's day) and one back and lax sound is /o/ ʧor/ چور (thief). English has /h/ sound as a consonant, but in Urdu, the phoneme /h/ is mixed up with other vowels to make a compound vowel.

In English, the consonant /h/ is considered as a phonemic sound; if 'h'sound follows a vowel in Urdu and the syllable is terminated, the vowel is pronounced with a breathy voice. For examples:

- Lɛhʤa,لہجہ, tone.
- ʧehra, چہرہ, face.
- Mohre, مہرے, pawns.

Additionally, difference between diphthongs can also be observed. In English there are 8 diphthongs while in Urdu the number of diphthongs is approximately 15. Next, there is a difference of frontal, central or mixed sounds in Urdu; while, in English diphthongs can be observed with the properties of central and closed position of the tongue.

The current research work is an effort of the researchers to highlight the differences between the phonemic systems of English and Urdu languages. It displays several properties of English vowel sounds. The results of the present study match with the results of many previous studies such as a comparison was conducted by Yang (1996) regarding American English language vowels and Korean language vowels. English and Arabic vowel sounds systems variances were investigated in contrastive research by Amer (2001). Persian and English languages contrasting analysis was made by Yar Mohammadi (2002). The phonemes of Japanese and English languages were analyzed by Kavanagh (2007) by using contrastive method; Barman (2009) made contrastive analysis of English and Bangla phonemics. Javed, (2013) comparatively analyzed the phonetics of the Arabic and English languages. Similarly, Ulfayanti and Jelimun, (2018) contrastively analyzed the English and Indonesian vowels. Khan, (2021) explored the phonemic dissimilarities in Urdu and Turkish languages. Nahampun, Saragi, and Saputra, (2022) contrastively analyzed the vowel sounds in English and Batak Languages.

Conclusion

The present study postulates the several variances and resemblances among the vowel sounds system of English and Urdu languages. These differences and similarities were highlighted by the researchers using contrastive analysis hypothesis. The findings of the present research depict the classification and description of vowel sounds of Urdu and English languages on the bases of monophthongs (single sound) and diphthongs (double sound). In a nutshell, the purpose of this research study was to facilitate the ESL learners to identify the two different sound systems of two different languages. After identification of the sound systems, the task of learning English as second/foreign language becomes easier and nonnative learners can enhance their communication skills in a better way.

Recommendations

In view of the results, the researchers give some suggestions and recommendations for the future researchers which will be prove helpful for them in their upcoming researches.

The present research is conducted only on vowel sounds further research works can be conducted on other phonetic units as consonants.

In the present research vowel sound system of two languages is contrastively analyzed by using contrastive analysis hypothesis. This approach can also be applied while analyzing phonetic symbols of other languages.

The present research study carried out contrasting analysis of English and Urdu vowel sound system. This approach can also be applicable to other languages of the world.

Majority of the vowel sounds in English and Urdu languages match each other in perfect way. We have to dedicate time to identify those sounds which are different and propose easier approach of their articulation by the ESL learners.

The objective of the research study is to benefit individuals who face problems in articulating sounds accurately.

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