Segmental Phonology of English and Chhintang: A Contrastive Analysis with Pedagogical Implications

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Abstract

This paper attempts to compare and contrast the segmental phonology of English and the Chhintang language. English data were taken from secondary sources, whereas Chhintang data were taken from primary sources. Segmental phonology deals with the study of segments of human speech, which are basically consonants and vowels. This paper contributes to a contrastive analysis between consonants and vowels found in English and Chhintang based on structural linguistics. I explored the Chhintang segmental sounds from my own field work (2022, March). Then it suggests some pedagogical implications. The major findings of this paper include the different numbers in the inventory of sounds, aspiration as allophones and phonemes, sounds found in one language but not found in another, vowel length, and so on.

Keywords: contrastive analysis, pedagogical implications, phonemic inventory, segmental phonology

Introduction

The Chhintang language is one of the endangered languages and a member of the Rai Kirati under the Tibeto-Burman language family. The Chhintang language is identified by Ethnologue as ISO 639-3, *ctn* and this language is spoken by the same ethnic group called Chhintang Rai, who originally settled in Chhintang, Dhankuta, Nepal (Eppele et al. 2012). According to the Central Bureau of Statistics (CBS, 2021), the total population of Chhintang is 2,564 but all of them cannot speak their language. The number of speakers is decreasing in comparison to the earlier report (CBS, 2011). The earlier census report (2011) showed 3,712 in the total population (Tamang & Gurung, 2014). The Chhintang language is an interesting language in terms of morpho-syntax and the rare feature of this language is free prefix ordering (Bickel et al. 2007, pp. 43–73), which is not found in other Kirati languages so far.

In the Nepalese context, English is widely known as an international lingua-

franca, which is a member of the Germanic group of the Indo-European language family (Yule, 2010, p. 225). In Nepal, English is a foreign language and taught as one of the compulsory subjects from nursery to bachelor level. Besides that, English is also taught as a major subject at the university level. Nowadays, English speakers are increasing in Nepal, and the younger generation feels comfortable speaking English in Nepal. There is no chance for any student to escape from learning English. It is mandatory to study English in Nepal. If we check the results of students at all levels, the majority of students fail in English in the exam. There are many reasons for the weakness of students in English, but one of the reasons is the interlanguage differences. Lado (1957; as cited in James, 1980, p, 188) views that "those elements that are similar to his native language will be simple for him, and those elements that are different will be difficult". In this way, differences and difficulties are directly and proportionally related. Similarly, many studies suggest that mother tongue has a pivotal role in second language acquisition. The transfer of mother tongue may be positive transfer or negative transfer, when the features of two languages are similar, it is called positive transfer and the features of two languages are different, it is called negative transfer (Kasap & Emamvirdib, 2022, p. 5). It is argued that positive transfer between two languages helps learning and negative transfer hinders learning. So, the teacher should be able to predict the possible difficult areas of English in the Nepalese context, and such possible difficult areas should be taught by explaining the nature of the difficulty of the target language. For this, contrastive analysis, which is an old-fashioned theory, also plays a great role in predicting the possible difficult areas of English, and the teacher can receive helpful insight from it to focus on teaching the target language.

This study is based on contrastive analysis which deals with the comparison between the first language and the target language to explore the difficulty or ease of learning a target language. It was predicted that similarity in formal structure, meaning, and distribution in the systems between the first language and the target language would cause ease in learning the target language, whereas differences in form, meaning, and distribution would cause difficulty in learning the target language (Lado, 1957, p.15). In other words, similarities between two languages can make learning the target language easy, while differences create difficulty in learning the target language.

Contrastive analysis mainly works through the procedures of description (formal description of two languages, selection, comparison and prediction (Mishra, 2005, as cited in Khansir & Pakdel, 2019, p. 37). These are the main tasks to be done under contrastive analysis between two languages. It has been more famous to account for the difficulty or ease of learning the target language.

The main objective of this paper is to compare and contrast the segmental phonology of Chhintang and English. Phonology is a basic and important component of language. Phonology plays a great role in each language. So, phonology is the beginning of the study of any language. There are so many

different phonological features found in English and Chhintang. Such differences between two languages create problems in learning, and it is almost impossible to overcome such difficulties without any explicit study and teaching of both languages. Without any good comparison between two languages, students cannot find out where they find the problematic areas of learning. For example, English /f/ and /v/ are fricatives, but Chhintang /pʰ/ and /bʰ/ are stops. So, Chhintang students pronounce English /f/ as /pʰ/ and /v/ as /bʰ/. Firstly, this article tries to determine the consonants and vowels of the Chhintang language. Secondly, it compares and contrasts between English and Chhintang consonants and vowels. Thirdly, it suggests pedagogical implications.

Methodology

For carrying out this study, the interpretive research paradigm was adopted, which is qualitative in nature. The term interpretive paradigm, as proposed by Tracy (2013), is also termed constructivist as proposed by Creswell (2009). According to the interpretive paradigm, reality is not something "out there" that a researcher can clearly explain, describe, or translate into a research report. Rather, both reality and knowledge are constructed and reproduced through communication, interaction, and practice. Knowledge about reality is therefore always mediated through the researcher (Tracy, 2013, p. 40). The main essence of the interpretive paradigm is that it views knowledge as socially constructed through language and interaction and reality as connected and known through society's cultural and ideological categories. Human activity is not regarded as a tangible material reality to be discovered and measured; rather, it is considered to be a "text" that can be read, interpreted, deconstructed, and analyzed (Tracy, 2013, p. 41). For Chhintang data, I explored them when I visited the field in March2022. I selected five male and five female native speakers as sample population through judgmental sampling procedures, and data were gathered through a semi-structured interview with them. English data were taken from the books, namely 'Introducing Phonetics and Phonology by Davenport & Hannahs (1998), 'English Phonetics and Phonology' written by Aslam and Kak (2008), English Phonetics and Phonology: A Practical Course by Roach (2009) and The Study of Language by Yule (2010).

Results

The results are presented and described on the basis of comparing and contrasting English and Chhintang consonants and vowels.

English Segmental Phonology

The English language is a well-described language. There are many research works and books on the description of different aspects of English. English sounds

were taken from secondary sources, namely Davenport &Hannahs (1998), Aslam &Kak (2008), Roach (2009) and, Yule (2010).

English Consonant Sounds

There are two types of speech sounds. They are consonants and vowels. Consonants are defined phonetically and phonologically. Phonetically, consonants are pronounced with an obstruction in the flow of air at any point during articulation. Phonologically, consonants function as the margins of the nucleus of a syllable. This section deals with the consonant sounds of English. There are twenty-four consonant phonemes in English. They are shown in Table 1 (Yule, 2010, p. 30).

Table 1

English Consonant Phonemes

	Bilabial		Labiodental		Dental		Alveolar		Palatal		Velar		Glotal	
	-V	+V	-V	+V	-V	+V	-V	+V	-V	+V	-V	+V	-V	+V
Stops	p	B					T	d			k	g		
Fricatives			f	v	θ	ð	S	z	ʃ	ʒ			h	
Affricates									tʃ	dʒ				
Nasal		M						n				ŋ		
Liquids								l r						
Glides		W										y		

As shown in table 1, there are six different types of consonants in terms of manner of articulation. There are plosive, fricative, affricate, nasal, liquid, and glide sounds, and there are eight different types of consonants in terms of place of articulation. They are bilabial, labio-dental, dental, alveolar, palati-alveolar, velar, and glottal. Some linguists define the phoneme /r/ as trill or tap. So, it looks like a problematic one in English.

The most interesting issue with voiceless bilabial plosives /p, t, k/ is that they are pronounced differently in different environments. They are pronounced with an extra puff of air when they occur initially in a stressed syllable, and /p, t, k/ becomes /ph, tʰ, kʰ/ respectively. This feature is called aspiration. In English, aspiration is only phonetic because it does not bring any changes in meaning.

English Vowel Sounds

Phonetically, vowels are produced with no any obstruction in the flow of air at any point during articulation. Phonologically, vowels function as the nucleus of a syllable. So, this section deals with English vowels. English vowels are classified as monophthongs and diphthongs. English monophthongs are shown in the figure 1 (Aslam & Kak, 2008, p. 46).

Figure 1

English Monophthongs
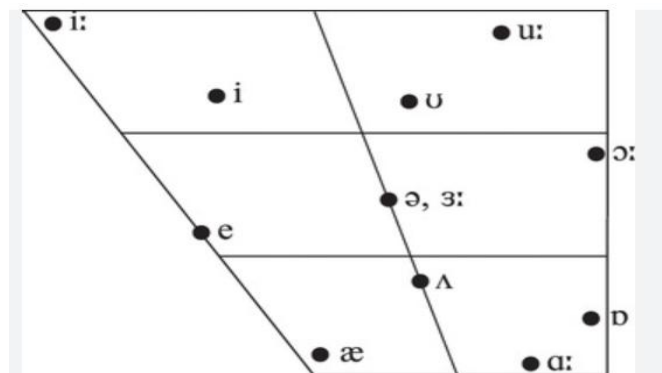
English monophthongs can be described in terms of the position of the tongue raised, the height of the tongue, and the position of the lips. According to the position of the tongue raised, vowels can be categorised as front centre and back (Davenport & Hannahs, 1998, p. 52). They are given below.

Front: /i:, I, e, æ/

Centre: /ə, ɜ: i, ʌ /

Back: /u: ʊ ɔ: ɑ a:/

According to the relative opening in the oral cavity between the tongue and the hard palate, vowels are categorised as close, half close, half open, and open (Aslam & Kak, 2008, p. 46). They are given below.

Close: /i:, u:/

Half close: /i, ɜ: ʊ/

Half open: /e, ə, ɔ:/

Open: / a:, ʌ ɑ/

According to the lip position, vowels are categorised as rounded and unrounded (Aslam & Kak, 2008, p. 46). They are given below.

Rounded: / u:, ʊ, ɔ:, ɑ/

Unrounded: /i:, I, e, æ, ə, ɜ:, ʌ, a:/

Similarly, there are 8 diphthongs. Diphthongs are also known as gliding vowels. These diphthongs are classified into two types as closing and centring. Closing diphthongs are shown in figure 2 (Roach, 2009, p. 18).

Figure 2

English Closing Diphthongs
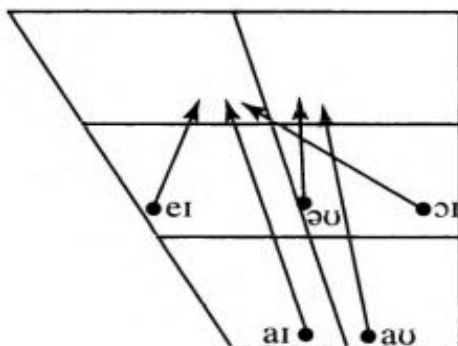
As shown in figure 2, there are five closing diphthongs. The closing diphthongs are those that start with one and glide to the close vowels /u/ and /i/ which are /au, eu, ei, ai, ɔi /. Similarly, centering diphthongs are those that start from one and glide to the centre vowel /ə/. They are shown in the figure 3 (Roach, 2009, p. 18).

Figure 3

English Centring Diphthongs
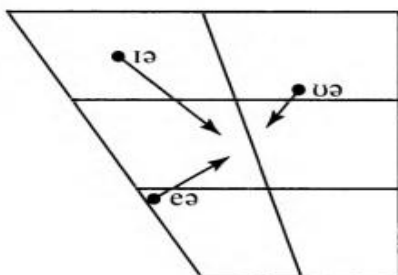
Chhintang Segmental Phonology

Chhintang phonology deals with consonant and vowel sounds.

Chhintang Consonant Sounds

Consonants are defined phonetically and phonologically. Phonetically, consonants are pronounced with an obstruction in the flow of air at any point during articulation. Phonologically, consonants function as the margins of the nucleus of a syllable. This section deals with Chhintang consonants. There are 27 consonant sounds (Paudyal, 2015, p. 14) and 26 consonant sounds in Chhintang (Rai et al., 2011, p. 286). I also explored 27Chhintang consonant sounds through minimal pairs (Field work, 2022). Minimal pairs found in consonant sounds are

shown in table 2. But, /g/ and /gʰ/ do not have contrastive minimal pair in Chhintang. There are a few words in Chhintang beginning with these sounds.

Table 2

Minimal Pairs of Chhintang Consonants

Phoneme	Examples in Chhintang	Gloss in English	Phoneme	Examples in Chhintang	Gloss in English
/p/	poŋma	'to deliver a child'	/t/	tuma	'to fight'
/pʰ/	pʰoŋma	'to take it'	/tʰ/	tʰuma	'to ripe'
/b/	boŋma	'to explode'	/t/	tuma	'to fight'
/bʰ/	bʰoŋma	'to pile'	/d/	duma	'to collect'
/k/	Kam	'friend'	/d/	dɨkma	'to be thick'
/kʰ/	kʰam	'soil'	/dʰ/	dʰɨkma	'to cut'
/g/	gomma	'to be fenced'	/n/	nekma	'to bite'
/gʰ/	gʰoŋma	'to be fat'	/m/	mekma	'to like'
/ʔ/	phaiʔma	'to exchange'	/s/	sakma	'to weed'
/ø/	phaima	'walk'	/ɦ/	ɦakma	'to measure'
/c/	cemma	'to grind'	/l/	lɨkma	'to enter'
/cʰ/	chemma	'to taste'	/lʰ/	lʰɨkma	'to be heavy'
/j/	Jogo	'who/which'	/ŋ/	ŋema	'to study'
/m/	Mogo	'saying that'	/k/	kema	'to be long'
/jʰ/	jʰumma	'to be narrow'	/y/	yaŋma	'to use'
/cʰ/	cʰumma	'girdle'	/w/	waŋma	'to climb'

Consonants are classified in terms of voicing, place of articulation, and manner of articulation. There are bilabial, alveolar, palatal, velar, and glottal sounds in terms of place of articulation, and there are stops, fricatives, affricates, trill, nasal, lateral, and approximant sounds in terms of manner of articulation. They are presented in table 3 (Field work, 2022).

Table 3

Chhintang Consonant Phonemes

	Bilabial		Alveolar		Palatal		Velar		Glotal	
	-V	+V	-V	+V	-V	+V	-V	+V	-V	+V
Stops	p	b	t	d			k	g		ʔ
	pʰ	bʰ	tʰ	dʰ			kʰ	gʰ		
Fricatives			s							ɦ
Affricates					c	j				
					cʰ	jʰ				
Trill			r							
Nasal		m		n				ŋ		
Lateral				l						
				lʰ						
Approximant		w				y				

Stop sounds are rich in Chhintang. Glottal sound is a common feature of the Kirati language, which is also found in Chhintang. Aspiration is found in all stop sounds, and one of the strange features of consonants is that aspiration is found in lateral sounds. In Chhintang, aspiration is phonemic.

Chhintang Vowel Sounds

Vowel sounds can be defined phonetically and phonologically. Phonetically, vowels are pronounced without any obstruction in the flow of air at any point during articulation. Phonologically, vowels function as the nucleus of a syllable. So, this section deals with Chhintang vowels. There are two types of vowels, viz., monopthtongs and diphthongs. I explored 6 monophthongs and 12 diphthongs in Chhintang through minimal pairs (Field work, 2022). Monophthongs are determined by the following minimal pairs which are shown in table 4.
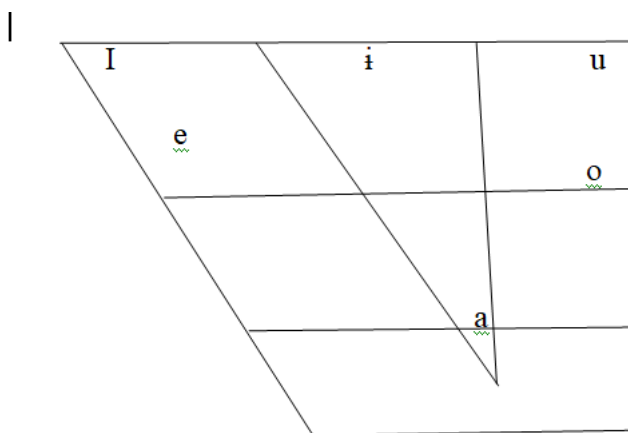
Table 4

Minimal Pairs of Chhintang Monophthongs

Phoneme	Examples in Chhintang	Gloss in English	Phoneme	Examples in Chhintang	Gloss in English
/i/	Lima	'to be'	/o/	poŋma	'to deliver a child'
/u/	Luma	'to tell'	/a/	paŋma	'to send'
/a/	haŋma	'to measure'	/ɨ/	mɨk	'eye'
/e/	hekma	'to cut'	/u/	muk	'hand'

Through minimal pairs, six monophthongs were determined (Field work, 2022). They are presented in Figure 4.

Figure 4

Chhintang Monophthongs

Similarly, I determined twelve diphthongs in Chhintang through minimal pairs (Field work, 2022). They can also be categorised into closing and centring. Minimal pairs of diphthongs are shown in table 5.

Table 5

Minimal Pairs of Chhintang Diphthongs

Phoneme	Examples in Chhintang	Gloss in English	Phoneme	Examples in Chhintang	Gloss in English
/ei/	tʰeima	'to uproot'	/ui/	huiʔma	'to burn'
/eĭ/	tʰeĭma	'to lift'	/uĭ/	huĭʔma	'to remove tooth'
/ai/	taiʔma	'to bring'	/ɨĭ/	rɨĭma	'to clean pots'
/aĭ/	taĭma	'to jump'	/ɨi/	rɨiʔma	'to scatter'
/oi/	soiʔma	'to move'	/au/	pʰauwa	'leaf'
/oĭ/	soĭma	'to slide'	/aŭ/	saŭwa	'buffalo'

As shown in the table 5, there are twelve diphthongs in Chhintang. They are /ei/, /eĭ/, /ai/, /aĭ/,/oi/, /oĭ/, /ui/, /uĭ/, /ɨĭ/, /ɨi/, /au/, /aŭ/.

Conclusions and Pedagogical Implications

Conclusions

Conclusions include a summary of the consonant and vowel sounds of English and Chhintang.

Consonant Sounds of English and Chhintang

The following is a comparative analysis of English and Chhintang consonants.

English Consonant Sounds.

/p, b, t, d, k, g, f, v, θ, ð, s, z,/ is of English and Chhintang consonant

Chhintang Consonant Sounds.

/p, pʰ, b, bʰ, t, tʰ, d, dʰ, k, kʰ, g, gʰ, c, cʰ, j, jʰ, m, n, ŋ, s, onant Sounʰ, w, y, ŋ,

Observations

i.   There are 24 consonants in English, whereas there are 27 consonants in Chhintang.

ii. In both languages, voiceless stops are aspirated phonetically. Aspiration in English is allophonic, and aspiration in Chhintang is phonemic. As a result, voiceless stop sounds such as /p, pʰ, t, tʰ, k, kʰ/ are separate phonemes in Chhintang, and all of them are allophones in English.

iii. Chhintang has a good number of stop sounds, which are 13 altogether, whereas there are only six stop sounds in English. On the other hand, English has a good number of fricative sounds, which are nine, whereas Chhintang has only two fricative sounds.

iv. English consonants /f, v, θ, ð, s, z, ʃ, ʒ, h/ are not found in Chhintang, whereas Chhintang consonants /pʰ, bʰ, tʰ, kʰ, dʰ, gʰ, cʰ, j, jʰ, lʰ, ɦ/are not found in English.

v. Chhintang /ɦ / is voiced, whereas English /h/ is voiceless.

vi. Glottal stop /ʔ/ is found in Chhintang but not in English.

Vowel Sounds: The following is a comparative analysis of English and Chhintang vowels.

English Monophthongs: /iː, i, e, ə, ɜ:, ʌ, æ, aː, ɑ, ɔ, uː ʊ/

English Diphthongs: /au, eu, ei, ai, ɔi, iə, eə, uə/

Chhintang Monophthongs: /i, ɨ,u,e, o, a/

Chhintang diphthongs: /ei/, /eĩ/, /ai/, /aĩ/,/oi/, /oĩ/, /ui/, /uĩ/, /ɨĩ/, /ɨi/, /au/, /aũ/

Observations

i. There are 12 monophthongs and eight diphthongs in English, whereas there are six monophthongs and 12 diphthongs in Chhintang.

ii. Vowel length is phonemic in English, but it is not found in Chhintang.

iii. Nasalization is phonemic in Chhintang, but it is not found in English.

iv. There is no central vowel in Chhintang, whereas there are three different central vowels /ə, ɜ:, ʌ/ in English.

v. There is an unrounded back vowel /ɨ/ in Chhintang, which is not found in English.

Pedagogical Implications

On the basis of contrastive analysis between English and Chhintang consonant and vowel sounds, the following pedagogical implications can be suggested:

Many fricative sounds such as /f, v, θ, ð, s, z, ʃ, ʒ, h/ found in English are not found in Chhintang. Chhintang speakers find English fricative sounds difficult to learn. So, teachers should pay attention to the English fricative sounds while teaching English fricative sounds to Chhintang speakers. Chhintang speakers cannot pronounce these fricative sounds accurately and pronounce them wrongly. For examples, they pronounce /pʰ, bʰ/ instead of /f, v/; /tʰ, d/ instead of /θ, ð/; /j/

instead of /z/; /s/ instead of /ʃ/; and /ɦ/ instead of /h/. So, such differences should be explored first. Then teachers can adopt some strategies for teaching such difficult and different sounds. The teacher can display a picture of the figure of speech of each difficult sound or draw the figure of speech of each. According to it, the teacher asks them to pronounce them accurately. If they cannot pronounce it, the teacher should give a model pronunciation. It should be repeated until students pronounce these sounds accurately.

Similarly, aspiration is allophonic in English but phonemic in Chhintang. Chhintang students should be taught allophonic variationsand their environments in English. The sounds /p, t, k/ are aspirated and are pronounced as /pʰ, tʰ, kʰ/ when they occur in the initial position, and they remain unchanged in the middle and final positions. /pʰ/ is an allophone of /p/, /tʰ/ is an allophone of /t/, and /kʰ/ is an allophone of /k/. These allophonic features of /p, t, k/in English should be explained and taught while teaching it to the Chhintang speakers. On the contrary, English students should be taught the phonemic status of aspiration in Chhintang. There are many aspirations in Chhintang. Sounds like /pʰ, bʰ, tʰ, kʰ, dʰ, gʰ, cʰ, j, jʰ, lʰ/ occur in all positions with aspiration. So English students who learn Chhintang should pay attention to these sounds found in Chhintang.

Likewise, there are two series of /s, ʃ/ and /z, ʒ/ in English that are not found in Chhintang, so Chhintang students should practice rigorously on these sounds to pronounce them accurately.

In the same way, there is no glottal stop in English, but in Chhintang. It would be problematic for English speakers, so it should be paid attention to while learning Chhintang.

Similarly, English /h/ is voiceless, and Chhintang /ɦ/ is voiced. Such differences should be paid attention to while learning English /h/ for Chhintang speakers and Chhintang /ɦ/ for English speakers.

Indeed, English central vowels /ə, ɜ:, ʌ, æ/, back vowels / ɑ, ɔ/ and vowel lengths /u, u:, i, i:/ are problematic for Chhintang learners. So, these vowels should be given attention to while teaching Chhintang learners.

Finally, in Chhintang, there is an unrounded central vowel /ɨ/. It is very difficult to pronounce for English learners, so it should be paid attention to while pronouncing.

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