A Sociolinguistic Analysis of Dzongkha: Variation in Final Nasals and Rhotics

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Abstract

This first quantitative sociolinguistic analysis of Dzongkha (Bhutan's official language), as spoken by residents of the capital Thimphu, investigates variation and change in two salient and traditional linguistic features: syllable-final nasals (N) and postvocalic rhotics (R). Thimphu is Bhutan's central location for education, jobs, commerce and social network ties. Both (N) and (R) show variable deletion, as correlated with internal (phonetic environment, tone, grammatical category, phrase position) and external (style, sex, age, region, education) explanatory factors.

Data came from thirty-six participants originating in three regional communities (Eastern native Tshangla speakers, Western native Dzongkha speakers and Southern native Lhotshampa speakers). All were Bhutanese nationals now living in Thimphu, divided amongst school children at seven schools, their teachers and their parents. 3,636 nasal tokens and 2,196 rhotic tokens were analysed using Rbrul to perform multiple logistic regression. The findings demonstrate variation (and suggest change in progress) for both (N) and (R).

Low and mid vowels, prepositions and adjectives, preceding and following sonorants, low-toned syllables, and non-initial position favour deletion of (N). Lhotshampa and Dzongkha speakers delete nasals more; speakers with secondary education preferred the traditional form.

For postvocalic (R), among linguistic factors, low-toned syllables, certain grammatical categories, preceding front vowels, non-final positions and following obstruents promote deletion. Speakers with Western Dzongkha backgrounds favoured deletion, as did older adults generally. For both (R) and (N), principal results showed final consonants retained in formal reading tasks, but style could not be included in multiple regression analysis.

Variation in Dzongkha reflects external developments and socio-economic changes across Thimphu and the country in recent decades. Qualitative analysis of linguistic attitudes, ideology and identity also contribute towards explaining variation and potential change in the use of these features. A grammatical sketch and history of Dzongkha are provided.

Keywords:

Bhutan, Dragon Kingdom, Druk, Dzongkha, Official Language, postvocalic rhotics, primary schools, Rbrul, sociolinguistics, syllable-final nasals, variation and change.

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List of Abbreviations

The following table gives the list of standard abbreviations used for glossing in this thesis.

1	first person
3	third person
ABL	Ablative
ADJ	Adjective
AUX	Auxiliary
CAUS	Causative
DEM	Demonstrative
DET	Determiner
FUT	Future
GEN	Genitive
IND	Indicative
INDF	Indefinite
INS	Instrumental
NEG	Negation, negative
PL	Plural
POSS	Possessive
PRS	Present
PST	Past
PTCP	Participle
Q	Question particle/marker
SG	Singular

List of abbreviations for proper nouns and other well-known names used in this document.

A:	Adult
ABS:	Australian Burueau of Statistics
ADM:	Administrative Officer
ALDO:	Assistant Language Development Officer
BFA:	Bhutan Film Association
C:	Child
CBS:	Centre for Bhutan Studies
CLDO:	Chief Language Development Officer
D:	Degree
D:	Denasalized
D:	Derhoticised
D:	Dzongkha
DCLDO:	Deputy Chief Language Development Officer
DCRC:	Department of Civil Registration and Census
DCRD:	Department of Curriculum and Research Development
DDA:	Dzongkha Development Authority
DDC:	Dzongkha Development Commission
DEO:	District Education Officer
DIT:	Department of Information Technology
DSAC:	Dzongkha Special Advisory Committee
E:	East
E:	Elementary
E:	Executive
EDz:	Eastern Dzongkha
F:	Female
GIP:	Glassgow Indicators Project
GNHC:	Gross National Happiness Commission
GNHR:	Gross National Happiness Rececarch
H:	High
ID:	Identity
L:	Lhotshampa
L:	Low
LDO:	Language Development Officer
M:	Male
M:	Minimal pairs
MoE:	Ministry of Education
MoHCA:	Ministry of Home and Culture Affair
MoIC:	Ministry of Information and Communications
MPAB:	The Motion Picture Association of Bhutan
N:	Nasalized
NCWC:	National Commission for Women and Children
NISRA:	Northern Ireland Statistics and Research Agency
NLB:	National Library of Bhutan
NRS:	National Records of Scotland
NSB:	National Statistics Bureau
O:	Old
OCC:	Office of the Census Commissioner
P:	Parent
P:	Picture task

P:	Primary
P:	Professional
PMKBUN:	Permanent Mission of the Kingdom of Bhutan to the United Nation
R:	Reading passage
R:	Rhoticised
RCSC:	Royal Civil Service Commission
REC:	Royal Education Centre
RGoB:	Royal Government of Bhutan
PRC:	Pew Research Centre
S:	Secondary
S:	South
S:	Story
S:	Student
S:	Support
SDz:	Southern Dzongkha
SLDO:	Senior Language Development Officer
SP:	Speaker
T:	Teacher
T:	Tshangla
TCB:	Tourism Council of Bhutan
TCC:	Thimphu City Corporation
TEO:	Thromde Education Officer
UNGEGN:	United Nations Group of Experts on Geographical Names
US:	Underlying spelling
W:	West
WDz:	Western Dzongkha
Y:	Young

Note on Transcription

IPA transcription will be used throughout this thesis, and in places will be related to the orthographic symbols used in writing Dzongkha. The inventory of consonants and of vowels is provided in §2.5, and the coding of segments used for Rbrul analysis is discussed in §4.5 and given in full in coding sheets (**Appendix** 11).

Obstruents:
      a – [ʔ]
      b – [ba]
      B –[tʰ]
      c – [tʃ]
      C – [tʃʰ]
      d – [d]
      D – [ɖ]
      g – [g]
      h – [h]
      k – [k]
      K – [kʰ]
      p – p]
      P – [ɸ]
      Q – [q]
      s – [s]
      S – [ʃ]
      t – [t]
      T – [θ]
      z – [z]
      Z – [dʒ]
      2 – [dz]
      3 – [ʒ]
      4 – [ɦ]
      6 – [ts]
      7 – [ʈ]
      8 – [tsʰ]

Sonorants:
      G – [ŋ]
      H – [ɬ]
      l – [l]
      L – [l̥]
      m – [m]
      M – [m̥]
      n – [n]
      N – [ɳ]
      r – [r]
      R – [ɴ]
      w – [w]

W – [w]
y – [j]
Y – [j]
9 – [ɲ]

Vowels/sonorants
i – [i]
u – [u]
e – [e]
o – [o]
U – [ʉ]
O – [ö]
V – [ʌ]/[ɑ]

Other Symbols:

˧	High tone
˨	Low tone
ʰ	Aspirated
ẽ	Nasalized
Ø/0	Null

Chapter 1   Introduction

1.1   Overview

This present study investigates sociolinguistic variation and potential change in Dzongkha, specifically the realisation of nasality and rhoticity among residents of Thimphu, the capital city of Bhutan, focusing on the city (urban) primary schools and regional (rural) primary schools. Nasal deletion is a salient sociolinguistic feature often debated in social media (see 1.3 below), and explicitly discussed by teachers in Dzongkha classes; and it allows a point of comparison with other Sino-Tibetan languages where similar historical procedures occur. Rhotics are traditionally valued in the written and literary language but are undergoing change in the capital city, the focus of chapter 5. Since both of these features appear to be in the mid-course of change (43%), and deletion of nasal, (see 4.4.2 below); 61% deletion of rhotics, 5.5.1.1), and since the study examines a range of complex social factors which might constrain or promote variation, the thesis adopts a variationist approach.

Dzongkha is the official language of the Dragon Kingdom of Bhutan as cited in the constitution (2008), and also a *lingua franca* in this multilingual nation. Dzongkha is taught in schools and used in courts and military services (Dorji 1990, DDC 1999, Tshewang 2013). It is a member of the Bodish group of the Western Tibeto-Burman (TB) family, which is a subgroup of the Sino-Tibetan (ST) family (Benedict 1972, Bradley 1997, Matisoff 2003). To date, only a handful of general linguistic studies have been carried out in the country: for example, Byrne (1909), Mazaudon & Michailovsky (1988), van Driem (1992), Thinley (2002), Sherpa *et al.* (2008), Gelles (2010), Hasen (2010), Downs (2011) and Watters (2018).

Hitherto, no sociolinguistic studies have been carried out on Dzongkha or other languages or dialects in the country. This study investigates the use of two linguistic variables: the final nasals ([n], [m], [ŋ] and the null or deleted variant [Ø]) and final rhotics ([r], [ɾ], [ɹ], [ʀ] and the null or deleted variant [Ø]). It considers eight linguistic independent variables (three

preceding segments, the following segment, lexical tone, following tone, phrase position and grammatical category) and seven independent social variables (speaker style, role, speaker sex, age, education level or class of participants, origin of speakers and mother tongue). Notably, speakers from different geographical regions of Bhutan typically have distinct ethnic origins, and different relations to Dzongkha, with Western residents historically being privileged as native Dzongkha speakers. The research also briefly describes language ideology and attitudes towards Dzongkha, though no detailed survey was carried out.

Given the crucial importance of educational issues, including the use of Dzongkha (see 1.12 below), the sample was organised around the three categories of students, parents and teachers, though it is recognised that this prevents a full sampling of occupational and age ranges. The data were elicited through standard sociolinguistic devices: sociolinguistic interview modules, reading passages, minimal pairs reading tasks, picture tasks and language ideological questionnaires, in seven different primary schools located in the city and region under the Thimphu district, Bhutan. This study uses a sample of thirty-six speakers: twelve primary school students, twelve primary school teachers and twelve parents with different levels of education, in and around the capital. Being strategically located in the western central part of Bhutan, the political and economic centre of the country, and the location of the central government, Thimphu gathers people from all walks of life in Bhutan.

Previous works on Dzongkha are generally lacking in some aspects of concrete, scientific and sociolinguistic investigation. This research employs quantitative sociolinguistic methods and qualitative investigation in efforts to empirically study the linguistic processes at work. The research questions are discussed in detail below (§1.5), after the context of Dzongkha in Bhutan is explained; they focus on description of the distribution and variation of the nasal and rhotic features, their sociolinguistic profile in the community, and issues of possible language change in progress.

1.2   Motivation and Aim of the Study

Such goals complement language planning and policy (LPP) objectives to standardise Dzongkha, simplify it, make it user friendly and, moreover, to "make Dzongkha the main medium of communication for every Bhutanese in order to promote harmony, cohesion and stability in the country" (DDC 1989: 1). The above variation and change goals support efforts to document and describe the languages of Bhutan (e.g., Nyenkha project: Linguistic and ethnographic documentation of Western dialects of Nyenkha spoken in the Phobjikha valley in Wangduephodrang, Bhutan [2019]), and contribute to our understanding of sociolinguistic practices in underdescribed speech communities in Asia. They also complement LPP objectives… Script reform, graphisation and modernisation are crucial LPP efforts in many Asian countries but rarely studied in conjunction with variation and change. In the present case, lively debates on social media and in schools about whether to write final nasals and rhotics are evidence that LPP aims intertwine closely with variation and change.

1.2.1   The Context of Language Planning and Policy in Asia

These are typical of contemporary LPP objectives in the region: for example, China has commissioned "China's State Language Commission, an administrative department under the Ministry of Education" since 2006, which compiles "an annual Green Paper on the so-called 'language life' in China"(Li 2015: 01-02). These papers are also published under the title 'Language Situation in China' since language is seen as the key to the 'unity and identity' of the Chinese nation. Moreover, the Chinese people are tied to their linguistic history and ideology and the Ministry of Education encourages schools across the country to teach Chinese according to Chinese language policy and language planning. The Language Commission conducts "standard test[s] for individuals who wish to hold public offices." Hence, Chinese people are increasingly aware of their language policy, language planning and language rights (Li 2015: 01-02).

Likewise, as soon as India started exercising its self-government, "the question of which language to use for official purpose in the new nation sparked much discussion in light of the nation's vast linguistic diversity" (Groff 2017: 10). Henceforth, Mahatma Gandi and a number of Indian leaders decided to choose one of the nation's languages as the official language, including English to maintain efficiency in the government's system. There are some requirements for an official language, as listed below (Groff 2017: 10):

1. It should be easy to learn for government officials,

2. It should be capable of serving as a medium of religious, economic and political intercourse throughout India,

3. It should be the speech of the majority of the inhabitants of India,

4. It should be easy to learn for the whole of the country.

In this regard, "Hindustani, encompassing both Hindi and Urdu was promoted as the official language of India before the partition of India and Pakistan". However, Hindi, written in the Devanagari script was declared as "the official language of the new nation, with English as an auxiliary official language" (Groff 2017: 10-12).

Chand (2013) also states that the Hindi was recognized as the official language of India, "with 15 vernaculars designated as scheduled (officially sanctioned and funded) languages of government" (p. 858-59). Moreover, "Indian states were constitutionally authorized to establish their own state-based official language(s), resulting in an array of officially sanctioned languages and scripts" (Chand 2013: 859). Thus, Hindi, a standardized and Sanskritised register, is the *lingua franca* of Hindi land (Hindi belt), taught in schools, and used in courts and military offices.

As Shresta (2017) explains, Nepal is a multilingual country as "there are 123 languages and 125 castes and ethnic groups" according to the recent census (2011) in the country (p. 1). Since language planning is inevitable for the Nepali government which is the arbiter of national

identity, the first language planning and policy in Nepal was established in 1905. "Then, Nepali language was made as the language of law and government" with English language education in the government-run English medium school in a few places of Nepal (Shresta 2017: 03). "However, Hindu *Pathshalas* and Baudha *Gompas* were using Sanskrit and Tibetan respectively as medium of instruction from the time immemorial in Nepal" (*ibid*. p. 05).

According to Chand (2013), "Nepal is a multilingual and pluralistic nation with 104-plus living languages with at least six scripts, and a distinct Nepali Sign Language" (p. 874). Nepali (or Nepalese) also holds a crucial role in unifying the nation "through three recent socio-political periods and continuing today" (Chand 2013: 874). Likewise, the 1990 constitution acknowledged Nepali with Devanagari script as the official language and *lingua franca* in the country "while it permitted (yet did not fund) developing indigenous languages, cultures, and scripts and establish[ed] primary schools in various mother tongues" (*ibid.* p.875). Hence, Nepali is spoken throughout the nation, taught in schools, used in courts and military workplaces. It is also known as Khas language and belongs to Eastern Pahari, a sub-branch of the family of Indo-Aryan languages, which has three branches: Jumli, Nepali and Palpa. Familiar stages in a model of language planning and policy, including several of the nations above, are outlined in such works as Haugen (1983), Spolsky (2004), Shohamy (2006), Ricento (2006), Cassels Johnson (2013).

The purpose of this study is to describe language variation (and, where appropriate, signs of change) among Bhutanese people in spoken Dzongkha, and to obtain a fuller picture of the use, social distribution, and change in Dzongkha features among Eastern-Dzongkha speakers, Western-Dzongkha speakers and Southern-Dzongkha speakers in the capital city.

The survey examines the realisation of nasality and rhoticity in reading and speaking across the residents of the capital city – typical topics for sociolinguistic variation research (e.g. Barale 1982 on nasality in Mandarin; Abbas 2009 on nasality in Saraiki; Labov 1966 on

rhoticity). Speakers come from different social categories, e.g. age, education and sex: for example, primary students (the young), primary school teachers (different ages and levels of seniority), primary students' parents (different occupational classes and ages), all evenly divided between the sexes. Crucially, they also come from different ethnic and regional groups, typically originating in the western (Ngalong in Dzongkha), southern (Lhotsham in Dzongkha) and eastern (Sharchog in Dzongkha) regions. In some of these regions Dzongkha is typically not the first language of many adult speakers, though most people speak it as a second language. Ngalong is the western and northern part of Bhutan, including Thimphu, and has been a Dzongkha-speaking region for centuries. Lhotsham (which means "Southern" in Dzongkha) is the southern part of Bhutan, and a Nepali-speaking region.[1] Sharchog ("Eastern" in Dzongkha) is the eastern part of Bhutan and linguistically diverse; however, Tshangla is a dominant language, and all speakers in my sample from Sharchog who do not speak Dzongkha natively are first-language Tshangla speakers (van Driem 1993, Dorji 1990, DDC 1999, Tshewang 2013). All speakers were born and reside in Bhutan and use Dzongkha as their official language, i.e. the language in which they interact with government and authorities.

As an important member of the Tibeto-Burman family, Dzongkha also provides an interesting subject for researchers. Measuring the attrition of final nasal consonants and post-vocalic rhoticity in spontaneous Dzongkha speech may reveal interesting characteristics of an understudied language, and in future might help clarify its relation to the languages of South Asia in general. This research also aims to understand the nature of nasalization versus denasalization and rhotacization versus derhotacization processes, by employing the sociolinguistic research methods described in chapter three.

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[1] In this thesis I refer to it as Nepali; in Bhutan, the term "Lhotshampa" is used, and the *Ethnologue* language reference tool (Simons & Fennig 2018) uses the term "Lhotshammikha" for this variety.

1.3   Significance of the Study

At present, as mentioned in (1.1 above), debates and controversies over whether to pronounce the *-n* and *-r* endings are growing among teachers, parents and, of course, students at schools in general and within the department of Dzongkha curriculum, Ministry of Education, in particular. This study which analyses [de]nasalization and [de]rhotacization in Dzongkha speech will be germane to the sociolinguistic explanation of the nasalization and rhotacization process in the Dzongkha curriculum, and may serve as a resource towards the teaching and learning of Dzongkha. Understanding the power of language ideology in society, this study may provide an evidence base of actual everyday speech to inform future policy decisions.

This study hopes to contribute to our understanding of (socio)linguistics by presenting an empirical analysis of the processes and relationships between language and society and related categories in Dzongkha. Especially, it may make a contribution towards the development of literature on Dzongkha and provide a vital piece of information for future scholars or linguists in this field.

It also aims to offer an up-to-date account of linguistic variation and change in Dzongkha at large. In addition, this study makes further documentation and analysis available on nasalization and rhotacization in Dzongkha for those who wish to do more study on them and make any official changes in the Dzongkha curriculum in the near future.

1.4   Structure of the Thesis

This thesis is composed of six chapters. The first chapter presents the motivation and aims of the study in light of the linguistic situation in Bhutan. It provides a geographical, historical, and social overview of Dzongkha, including language policy in Bhutan. The linguistic history and classification of Dzongkha in Bhutan are described, and it concludes with research questions and main hypotheses.

Chapter 2 presents an overview of the literature review, including the nature of the speech community, an overview and examples of language ideologies and behaviours, and studies of nasal and rhotic codas in Dzongkha. It also offers a brief description of the Dzongkha consonant and vowel inventories, and lexical tones in Dzongkha.

Chapter 3 discusses the research methods used in this study. It gives detailed information about the choice of research site, the structure of social relations within the community, choice of participants, their social characteristics and problems encountered during the research in the field. It also provides information about the stratification of the sample and its size, and how the researcher gained access to the speech community. Additionally, this chapter gives detailed information about what kind of recording instruments and analysis tools have been used, including research questionnaires and materials, sociolinguistic interviews, transcription protocols, coding techniques and the software used for data analysis.

Chapter 4 explores linguistic variation among nasal finals in Dzongkha, considering both internal linguistic constraints and speaker variables. It also gives more detailed information about the quantitative analysis of this linguistic variable along with the results of the patterns observed.

Chapter 5 explores linguistic variation for postvocalic (r) in Dzongkha, again investigating internal linguistic constraints as well as social factors. It also gives more detailed information about the quantitative analysis of this linguistic variable along with the results of the patterns observed.

Finally, chapter 6 reports a summary of the core findings, relating them to the research questions and hypotheses. Contributions to sociolinguistic research are discussed, and limitations of the study and suggestions for further research are given.

1.5   Research Questions and Hypothesises

All Dzongkha speakers are well aware that there is variation and dialectal difference in the oral realisation of final nasals and rhotics. These variable features are frequently commented

on in classrooms and in discussions of writing and speech. In addition, everyone who has studied Dzongkha and/or Chöké is taught that final rhotics are to be pronounced in literary and high written forms. The fact that they are often not pronounced in the everyday speech of Thimphu today suggests strongly that change may be occurring. This wide popular awareness underlies the decision to study these features as possible changes in progress, employing the variationist paradigm. Thus, this sociolinguistic study addresses the important research questions:

1) What types of nasalization and rhoticity occur in Dzongkha?

2) Is there any deletion of nasal codas in Dzongkha by the residents of the capital city, Thimphu? What linguistic factors constrain the deletion?

3) Is there any deletion of rhotic codas in Dzongkha by the residents of the capital city, Thimphu? What linguistic factors constrain the deletion?

4) Have such changes already been completed, or are they still in progress?

5) Do eastern, western and southern Dzongkha-speakers differ in the realization of nasal codas and rhoticity?

6) Do social factors such as sex, educational level, age and social class constrain the realization of nasal codas and rhoticity?

Thus, the main hypotheses of the study are:

➢ H1: Realization of nasals in codas is hypothesized to show a systematic variation constrained by system-internal linguistic factors. The list of factors is discussed in Chapter 3, and their effects measured in Chapter 4.

➢ H2: Realization of rhoticity in codas is hypothesized to show a systematic variation constrained by system-internal linguistic factors. The list of factors is discussed in Chapter 3, and their effects measured in Chapter 5.

➢ H3: It is hypothesized that variable nasal and rhotic codas are changes in progress, thus significant differences among age groups are expected. (However, the design of the study

will not allow definitive results that might establish the nature of ongoing change in detail.)

➤ H4: It is hypothesized that Dzongkha itself shows dialectal variation in the realisation of nasal finals and rhoticity among groups of different geographical and ethnic origins which involve local accents and localised variants.

➤ H5: It is hypothesized that Dzongkha shows sociolinguistic variation according to sex, education, age and class, which are salient factors in acquiring linguistic competence.

➤ H6: It is hypothesized that language ideology and attitude, as well as stylistic context (including interview, narrative and reading styles), influence patterns of variation. In particular it is expected that reading styles will show conservative effects on variation of nasals and rhotics.

The remainder of this chapter provides useful background and historical material concerning the language ecology of Bhutan and the history of Dzongkha.

1.6 Diglossic Situation

Although Dzongkha is the official language of the Kingdom of Bhutan, Chöké or classical Tibetan has also been used as the religious language in Bhutan, particularly for Buddhist literature over the last few centuries. Chöké refers to the language of texts written in a Tibetan script which prevailed widely across the area of the Tibet Plateau and some areas of eastern Central Asia, including Nepal, Sikkim, Ladakh and Bhutan (Rinchen 1972, Hasrat 1980, Nado 1986, Tshewang 1995). Chöké and Dzongkha are historically related and structurally similar in a number of ways, although Chöké is not intelligible to a Dzongkha speaker without study.

Chöké was first introduced by the great master Guru Padmasambhava[2] in the 8th century and his followers. It is depicted in the Padmasambhava's treasured biography "Zanglingma"

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[2] Literally this means "Lotus-Bon"; also known as Guru Rinpoche, he was a 7th-century Buddhist master.

revealed by Nyangrel Nyima Özer (1136-1204). Both languages are used by the same language community, but today Chöké is used only in texts for liturgical purposes. It is used in certain situations, for instance, in formal Buddhist education for monks or lay practitioners, in liturgical performances, dialectical purposes (e.g. formal debates), or other specific settings, but it is not used for commonplace conversation by ordinary speakers in any everyday situation.

As in other countries, many speech communities in Bhutan also use two or more varieties under different circumstances; for example, "In Baghdad the Christian Arabs speak a "Christian Arabic" dialect when talking among themselves but speak the general Baghdad dialect, "Muslim Arabic," when talking in a mixed group" (Ferguson 1959: 325). In Bhutan, both Chöké and Dzongkha are written languages: Chöké had been taught in schools until the 1970s, and Dzongkha began to be taught in schools from 1971 based on the needs of its users, i.e. modernisation, and guided by the Royal edicts (Dorji 2009).

In addition, the diglossic situation in Bhutan is seen as a kind of bilingualism in society. The two languages are closely related. Traditionally, Chöké has high prestige (referred to as "H") and Dzongkha has low prestige (referred to as "L"). They share a number of similar linguistic features and morphosyntactic processes at grammatical level, and Chöké is only partially intelligible to a person who is well versed in Dzongkha, unless they have also studied Chöké. Most of the Chöké root letters remain unchanged in Dzongkha orthography, which requires replacing the subscribed letter in order to get the Dzongkha pronunciation and meaning, as Tshewang (1971) explains: "ར་འདོགས་ཅན་ནི་ཡ་འདོགས་སྒྱུར།" *Ra dog cen ni ya dog jur* /Rʌ-dog tʃʌn ni jʌ-dog ʒur/ which means, "Replace the /R/ subscribed letter with /Y/ subscribed letter", so that e.g. སྐྲ་ tra /ʈʌ/ become སྐྱ་ *ca* /tʃʌ/ 'hair'. Someone literate in Dzongkha can see that every letter remains in situ except that the subscribed letter has been replaced. Thus, both the languages have to be learnt through formal education in order to understand their relationships. Thus, Chöké and Dzongkha are in a classic diglossic relationship.

Following Fishman (1971), many approaches to diglossia have relaxed or ignored the requirement of historical relatedness in Ferguson's (1959) classic diglossia model (e.g. Rukh & Saleem 2014). However, here the classic model is considered as most applicable.

In relation to this, other languages that are also related to Chöké and Dzongkha, e.g. *Cho-ca-Nga-ca-Kha*, Kurtötkha or Bumthangkha (van Driem 1992) also may function as a diglossic L tongue to both Chöké and Dzongkha, given that they are not written or formally taught languages in the country. Therefore, Chöké is accessible to both native and non-native Dzongkha speakers within the country but only through education. However, many other languages of Bhutan (e.g. Tshangla) are not related genetically to Chöké and thus do not fit the classic model of Ferguson (1959).

1.7   Geographic and Demographic Information

Bhutan is a land-locked country situated in a buffer zone between China and India. The total area of Bhutan is 38,394 square kilometers. It is encircled by many scenic regions: the Tibetan-Plateau in the north, Sikkim-Darjeeling in the west, Bengal-Assam in the south, Arunachal-Pradesh in the east (Rinchen 1972, Hasrat 1980, Nado 1986, Tshewang 1995, Gutman & Avanzati 2014). In 2011, Bhutan introduced Thrompons 'Mayors' into four main cities including the capital and modern city of Thimphu with around one hundred thousand inhabitants, Phuntsholing with around thirty thousand residents, Gelephu with around ten thousand residents and Samdrupjongkha with around eight thousand residents (Gutman &Avanzati (2014). The only international airport is located in Paro, one of the twenty districts or counties of Bhutan. Trongsa was the capital until 1907, Punakha until 1955, and Thimphu to the present day (Hasrat 1980, Tshewang 1995).

Historically, Bhutan and its people remained a little-known country until the early 17th century. Subsequently, it was unified by Lam Zhabdrung Ngagwang Namgyel, who became both

a temporal and spiritual leader. In the meantime, it was then ruled by Desid[3] (presidents) known as Deb Rajas 'temporal king' until 1907. From 1907, Sr. Ugyen Wangchuck, the first king, ruled the Kingdom in peace leading up to the present 5th Dragon King of Bhutan, Jigme khesar Namgyel Wangchuck (Tshewang 1995, Nado 1986, Hasrat 1980, Rinchen 1972). In the present situation, the political system of Bhutan has transitioned from an absolute monarchy to a democratic, constitutional, and multi-party monarchy (Royal Government of Bhutan 2008). Ten years back, according to the most recent 2005 census, the population was estimated at around 651,163 citizens dwelling in the country. At present, according to *Countrymeters* of United Nations' [UN] (2015) revision of world population prospects, the population in 2017 is projected to be 793,437 people. Of the projected population, 420,199 (53.0%) are expected to be male and 373,238 (47.0%) female as estimated on 28th January 2017 at 18:32:21 (UN 2015).

Despite the fact that Bhutan is a tiny Kingdom, there are approximately two dozen languages of Tibeto-Burman, Indo-Aryan, Indo-European and Dravidian linguistic families spoken in the country in addition to Dzongkha. Dzongkha belongs to the family of Tibeto-Burman, in the major branch of Sino-Tibetan, and falls under central Bodish amongst other Bodish families and unclassified languages (van Driem 1992, 1993, 1994, 1998, 2004, 2005, 2008, 2011, 2014, Dorji 1990, DDC 1999, Tshewang 2013). A "complete list of Bhutan's living languages ordered by linguistic families and number of speakers" is shown in Table (1.1) below, listed by Gutman & Avanzati (2014: 1) and explained by van Driem (1992, 1994, 1998).

Table 1.1: List of languages spoken in Bhutan (Gutman & Avanzati 2014: 1)

Family	Branch Languages	Speakers	%
Tibeto-Burman			**74.75**
	Central Bodish	***255,100***	***34.00***

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[3]*Druk Desid* འབྲུག་སྡེ་སྲིད། 'administrative ruler', also called Deb Raja, was the title of the secular rulers of Bhutan under the dual system of Bhutan between seventeenth and nineteenth centuries.

	Dzongkha	210,000	28.00
	Chocangacakha	30,000	4.00
	Lakha	8,000	1.00
	Brokpake	5,000	0.70
	Laya	1,100	0.15
	Lunana	700	0.10
	Brokkat	300	0.5
	Eastern Bodish	*114,700*	*15.30*
	Khengkha	40,000	5.30
	Dzalakha	22,000	2.90
	Bumthangkha	20,000	2.70
	Kurtotkha	15,000	2.00
	Nyenkha	12,000	1.60
	Bupbikha	2,200	0.30
	Dakpakha	2,000	0.30
	Chalikha	1,500	0.20
	Other Bodish	*187,000*	*24.95*
	Tshangla	182,000	24.25
	Lhokpu	2,500	0.35
	Gongduk	2,000	0.30
	Olekha	500	0.5
	Unclassified	*2,000*	*0.3*
	Lepcha	2,000	0.3
Indo-European			

	Indo-Aryan	187,000	24.95
	Nepali	187,00	24.95
Dravidian	Northern	4,200	0.5
	Kurukh	4,200	0.5
Total		750,000	100.0

Bhutanese sign language began to be taught at Muenselling Institute since 1973, was officially approved in 2013, and is spoken in various areas of the country (Muenselling Institute of Visually Impaired [MIVI] 2012). It is likely related to the Indian and Nepali sign languages (Namgyel 2012, Deki 2012).

With respect to the ethnic groups in Bhutan, based on the estimated records from Central Intelligence Agency [CIA] (2014-2015), the Ngalop ("earliest dweller") or native indigenous population is estimated at around 50%, Lhotshampas (mostly Nepali speakers) are estimated to be around 35%, and other migrant tribes or refugees are estimated at around 16%. Ngalops refers to the first inhabitants who started to "arrive into Bhutan about a millennium ago" and are considered to be the earliest settlers in Bhutan (Gutman & Avanzati 2014: 1). They reside in central, northern, and western parts of Bhutan. They use Dzongkha for their main communication and other Central and Eastern Bodish relatives of Dzongkha.

Others like Sharchop ("eastern people") settled later in the eastern part of Bhutan, and they mainly use Tshangla for their day-to-day communication. Likewise, ancient tribal populations like the Lhokpu, Monpa, and Gongduk are smaller aboriginal communities who were settled in Bhutan from an unknown time and use their own languages for daily communication in their community. Lepchas migrated from neighbouring Sikkim to the south-western part of Bhutan and speak Lepcha for daily communication.

Additionally, Lhotshampas or Nepalese are the people who settled in the southern part of Bhutan and speak Nepali for their everyday communication. Moreover, Kurukh, the smallest community of Bhutan, migrated from India and speak Kurukh, a vernacular in the Dravidian phylum (Gutman & Avanzati 2014).

According to an estimate from Pew Research Center (2018), about 75% of Bhutanese people practise one of the major Buddhist sects, either Drukpa Kagyud lineage (new tradition), Nyingma school (old tradition), or other sects of Buddhism. The next largest religion is Hinduism with 22.6% (*ibid*.) of the population. As stated in Section 1 of Article 3 of the constitution, "Buddhism is the spiritual heritage of Bhutan, which promotes the principles and values of peace, non-violence, compassion and tolerance" (Royal Government of Bhutan 2008). They all practice in the form of Vajrayana or Mahayana Buddhism. However, a few indigenous people in mostly rural areas follow Bön religion, the country's old shamanistic belief which worships nature, and sometimes includes Buddhist ritual celebrations. Every citizen also has unrestricted access to Hinduism, Christianity and Islam as the Bhutanese Constitution of 2008 mentions freedom of religion in Bhutan.

Concerning literacy in Bhutan, as per UN (2015) revision of world population prospects estimation, 64.6% of the total population of Bhutanese people can read and write, with figures of 73.6% for males and 55% for females. The UN (2015) estimated life expectancy to be about 67.3 years at birth for the whole population, with males averaging 66.5 years at birth and female 68.2 years.

1.8   Maps and Dialect Classifications in Bhutan

As shown in the following map of the languages of Bhutan (2010), after van Driem (1993), two dozen languages are spoken in different parts of the territory.

In addition, the 2018 edition of Ethnologue has listed 21 distinctive languages or dialects in Bhutan with the regions of their speakers by mother tongue, as displayed in the linguistic map (1.1) of Bhutan below.

Map 1.1: Map of the major languages of Bhutan with the regions of their speakers, from the Ethnologue: Languages of the world (Simons & Fennig 2018)
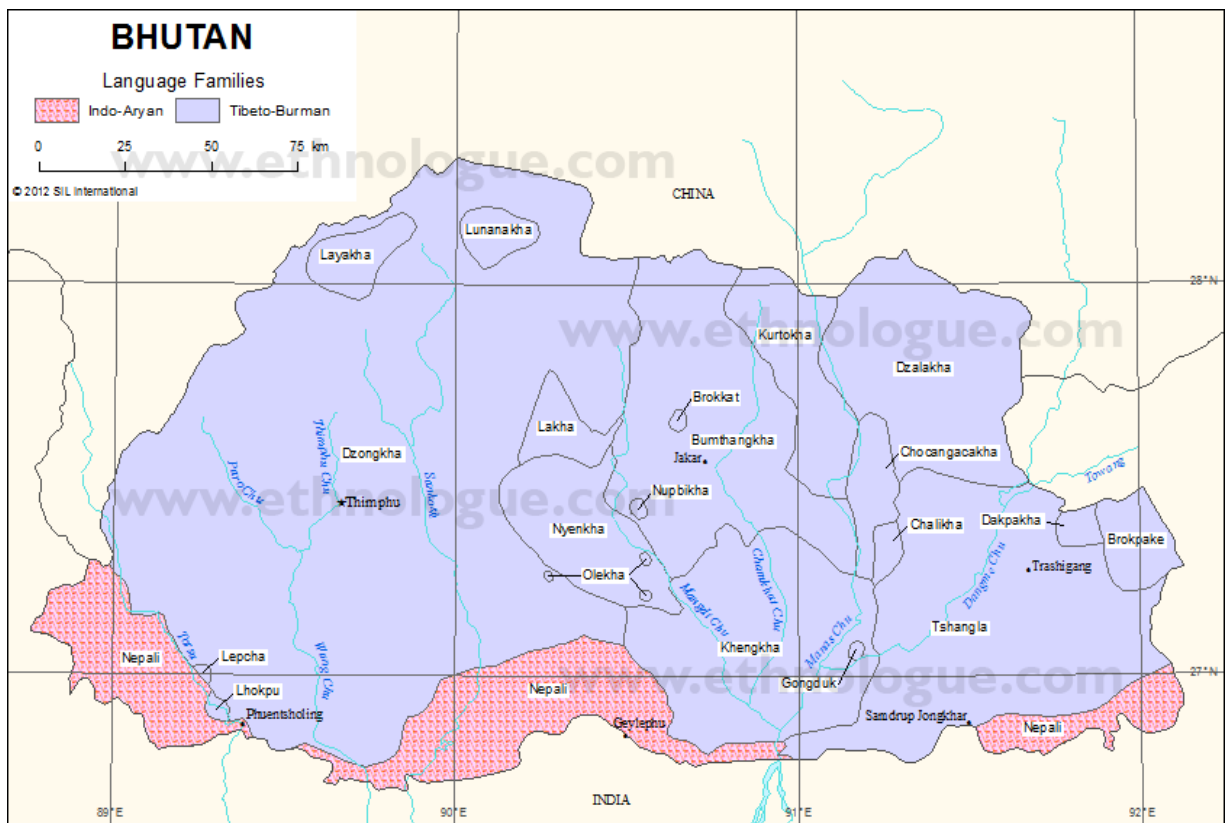
In order to capture a clearer picture of languages and regions or counties in Bhutan, a close-up map of Bhutan showing all twenty Dzongkhags (counties) is presented here.

Map 1.2: Map of the 20 districts of Bhutan (RAonline 2000-2016)

Dorji (1990), van Driem (1992), Chakravarty (1996) and Tshewang (2013) confirm that there are at least twenty languages spoken across the country, including Dzongkha. On the other hand, Dorji (2009) and the Dzongkha Development Commission **(**DDC 1999) assert that there are nineteen varieties of languages spoken in different parts of the kingdom, not including Chöké.

Additionally, RAOnline (2000-2016) declares that two dozen languages are listed for Bhutan. These are classified according to their locations in the country from west to east, together with the populations of speakers. Further details are provided in **Appendix** (1).

1.9   Multilingualism in Thimphu City

As mentioned in (3.2.1), many people migrate from rural areas to the most urbanised city (Thimphu). Lhotshampa and Tshangla speakers generally shift towards bi-/tri-lingualism in Dzongkha, English, Hindi and local dialects, including their own mother tongue.

Likewise, numerous Dzongkha native speakers also speak many Bhutanese varieties such as Tshangla, Lhotshampa, or Nyenkha with their mother tongue, including English and Hindi as international languages (DDC 2012).

Many have extensive contact with other Bhutanese languages through trade, migration, marriage, and labouring, commercial and religious activities. Almost all young speakers today speak Dzongkha, English, and other prestigious languages in Thimphu and other cities in order to maintain their socioeconomic status (*ibid*. 2012).

1.10   Linguistic History of Dzongkha

In Bhutan, over the course of centuries, a number of scholarly works were written in Chöké, which was continuously taught in the contemporary schools until it was replaced by Dzongkha in the early 1970s (Dorji 2009, 1999, Nado 1986, Hasrat 1980). However, Dzongkha was used as the spoken language and medium of instruction for the military service by Zhabdrung Ngawang Namgyel (1594-1651), who unified Bhutan into a nation state in the 17th century in Punakha, the capital of Bhutan at that time. The early historical records of Dzongkha and its speakers can be viewed in **Appendix** (2). This is part of the rationale for its eventual choice as the official language of Bhutan.

Gongsa Ugyen Wangchuck (1907-1926), the First Hereditary King of Bhutan, started a small number of schools for the first time in Bhutan with Chöké and Hindi as the medium of education. Dzongkha was not yet recognised as an official language, and English had not reached as far as Bhutan at that time (Wangdi 2015). Subsequently, Chöké was used as the written language and as a medium of Buddhist philosophy, history, medicine, Bhutanese code of conduct, and for a range of other themes as well. Due to the expansion of school numbers and modern economic development in the country, during the reign of the Second King, Jingme Wangchuk (1926-1952), English was also chosen as one of the mediums of education, and it is increasingly in use in schools, monasteries, and other important institutions.

Citing the need to uphold its identity, sovereignty and independence, Bhutan recognised Dzongkha as the official language and *lingua franca* in the country in 1970 as per the Royal Edict of the Third King, Jigme Dorji Wangchuk (1952-1972). Other aims included presenting the principal identity of the country to the United Nations in 1971 and introducing the Dzongkha grammar and literature as the medium of education in schools. The term *Dzongkha* literally means the language used in the administrative areas such as Royal courts, military services, schools, monasteries, house of laws or courts, institutions and offices. Hence, *Dzong* simply means 'fortress', *Kha* basically means 'language'. The Royal Edict issued by the Third King can be seen in **Appendix** (3).

According to van Driem (1994), His Late Majesty, the King Jigme Dorji Wangchuk in 1961 pronounced Dzongkha to be "the official language of the Kingdom of Bhutan, thereby conferring the official status to the role which Dzongkha had acquired in the course of Bhutanese history" (p. 93). After its identification as the official language of the Kingdom, a number of steps have been taken in developing, restructuring, simplifying, modifying and modernizing, making it user friendly, coining new terminologies and standardising it (Chakravarty1996). In addition, the DDC office has sponsored projects of standardisation and corpus planning including creation of grammar books (different levels), reference books, dictionaries (mono-, bi-, and trilingual) and a guide to letter writing for schools, government officials, general public and other Dzongkha users.

In 1971, the Dzongkha Division was established and "The New Method Dzongkha Handbook" and "Introduction to Dzongkha" were published by a group of Bhutanese scholars led by the Dzongkha Advisor *Lam Nadog*, with the help of *Lopen Pemala* and *Lopen Sangay Tenzin* (Chakravarty1996, Dorji 2009, Wangdi 2015). These books provide a brief introduction to the Dzongkha language including pronunciation, Dzongkha orthography and spelling,

development of Dzongkha script, construction of different (simple and complex) sentences and writing skills for Dzongkha learners.

In 1986, the Dzongkha Development Commission (DDC) was established under the Royal guidance of the Fourth King, His Majesty the King Jigme Singye Wangchuck (1972-2006), in order to carry out Dzongkha development and promotional activities in and around the nation. The Royal edict issued by the Fourth King can be seen in **Appendix** (4).

Furthermore, the commission also endeavours to work on documentation of endangered languages, archiving of oral literatures, collections of folk tales, compilations of ancient and traditional terminologies, standardization of Dzongkha spelling, computerization of Dzongkha Unicode and other necessary equipment to make it available for everyone. In addition to the Dzongkha script and orthography, the DDC office also introduced the "standard Roman orthography for Dzongkha" (van Driem 1991).

1.11   Linguistic Family of Dzongkha

1.11.1   Tibeto-Burman or Sino-Tibetan Family and the Position of Dzongkha

Dzongkha is generally thought to belong to the family of Tibeto-Burman, a branch of Sino-Tibetan, as identified in a range of sources by researchers such as Klaproth (1823), Przyluski (1924), Li (1937), Benedict (1942, 1972), Shafer (1955, 1966) Matisoff (1978, 2003), Starostin & Peiron (1996), van Driem 2001, 2005). The higher-level structure of the language families remains unclear; the family names for these languages have been restructured and renamed a number of times with different observations by different researchers. For instance, in chronological order, Tibeto-Burman (Klaproth 1823), Sino-Tibetan (Przyluski 1924, Shafer 1955, 1966, Benedict 1942), Indo-Chinese (Li 1937), Sino-Kiranti (Starostin & Peiron 1996) and Trans-Himalayan (van Driem 2011, 2014). In modern approaches, Sino-Tibetan is often the highest level, including Tibeto-Burman as a branch.

For example, Shafer (1955, 1966) retained the name 'Sino-Tibetan' and classified the

languages into different family branches mainly based on comparative phonology, such as consonant and vowel inventories, and tonal typology (described for e.g. Kürtop in Hyslop 2011). A critical review of language family attributions for Dzongkha appears in **Appendix** (5).

In sum, Dzongkha has regularly been classified as a central Bodish language under the umbrella of the Tibeto-Burman family.

The districts where Dzongkha is spoken natively are shown in light-yellow in the map (1.3) below (in black-and-white versions, they are shown in white).

Map 1.3: Regions in Bhutan whereDzongkha is natively spoken are highlighted with light-yellow with colour and light white with black and white print, from Wikipedia, the free encyclopedia (2001-2016)
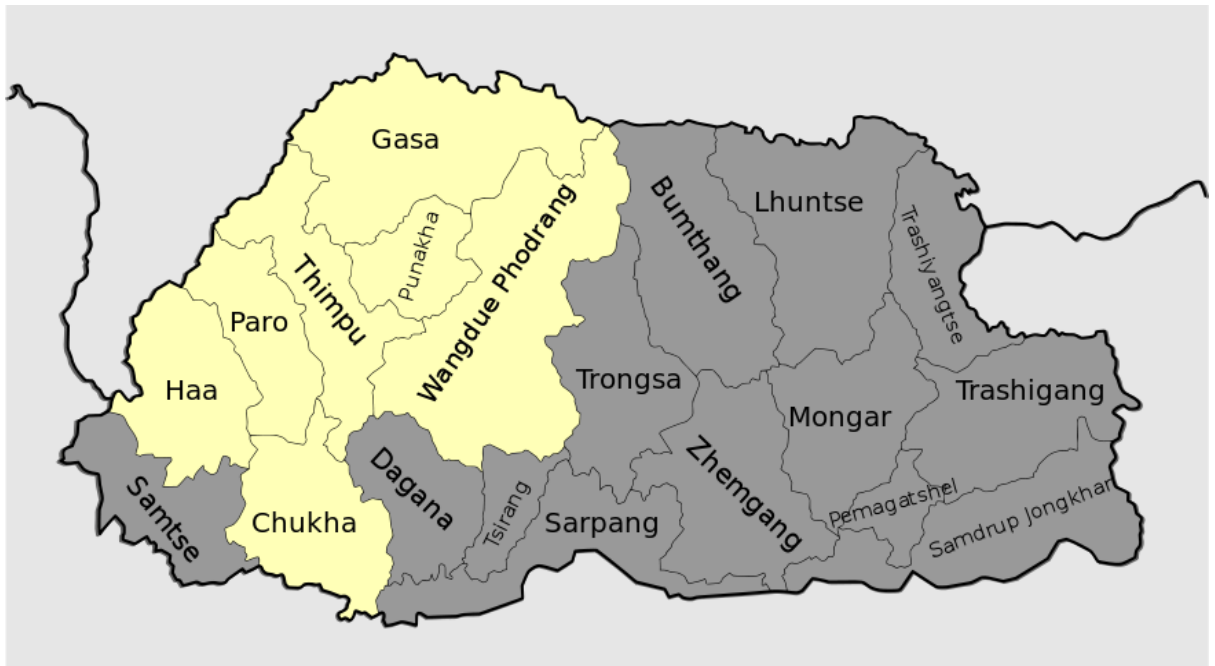
1.11.2   Old, Middle and Modern Dzongkha

Dzongkha can be categorised into three periods of time such as old, middle, and modern Dzongkha since a number of revisions and simplifications have taken place to date (Nado *et al.* 1971, DDC 1990, Dorji 1999, Tshewang 2013).

The old Dzongkha was spoken by inhabitants of Bhutan between the 7th and 17th centuries, and it developed into a language known as *Mon-Kha/Mon-Ked* 'language of darkness'.

It was widely spoken by people residing in the central, western and northern part of Bhutan who were thought to be the earliest settlers in the country. The regionwas called *Nga-Long or Nga-Lung* 'earliest valley', and the language was named *Nga-Long-Kha* 'language of early settlers'. However, Dzongkha was only a spoken language then and used the old style Chöké or classical Tibetan scripts for written communication (Rinchen 1972, Savada 1993, Hasrat 1980, Tshwang 1995).

Middle Dzongkha developed out of late Old Dzongkha between the late 17th century and the late 20th century (Rinchen 1972, Hasrat 1980, Savada 1993, Tshewang 1995, Dorji 1995). Dzongkha began to be used more often as the written language, with a mixture of Chöké (Nado *et al.* 1971, Rinchen 1972, Tsewang 1995).

The Modern or New Dzongkha began with the introduction of New Dzongkha Grammars based on the naturally occurring speech of Dzongkha speakers in Bhutan, commencing in the 1970s (e.g. Nado *et al*. 1971). Thenceforth, Dzongkha has been written in Bhutanese forms of the Dzongkha script known as *Jo-Yig* 'cursive longhand' (Nado *et al*. 1971, Dorji 1990, van Driem 1992, 1993, 1994, DDC 1999, Tashi 2004, Tshewang 2013). This new era has seen significant lexical borrowing, coining of new terminologies, and grammatical simplification due to modern technological processes and products (Dorjee 2007). Significant increases in general literacy have also led to changes in spoken Dzongkha, under these new influences and due to developments in the reformed script. In 1971, Dzongkha was announced as the official language of Bhutan by HM Jigme Dorji Wangchuck and made a compulsory subject in all schools.

Some of the different writing or orthographical styles of old, middle and modern Dzongkha can be seen in the following Table 1.2.

Table 1.2: The example of different forms in old and middle Dzongkha to the modern Dzongkha (Dorji 2011: 21-37)

Old (Pure olden Chöké or classical Tibetan for written communication)	**Middle** (Mix with some Chöké or classical Tibetan for written communication)	**Modern** (Pure Dzongkha with modern terminologies for written communication)	**English** (Translation)
ཉྱུ་ /ɲiɬ/	མི་ /miɬ/	མི་ /miɬ /	Person
གཅེར་བུ་ /tʃer-bu/	སྙེན་མོ་ /ɖen-mo/	སྐྱེན་མོ་ /gen-mo/	Naked
ཨུ་བུ་ཚག་ /hu-bu-tʃʌg/	འ་ཚག་ /hʌ-tʃʌg/	ང་ཅེ་ /ŋ-tʃe/	We
གར་ཤ་ /kʌr-ʃʌ	ཏམ་ཀ་ /ʈʌm-kʌ/	དངུལ་ཀྲམ་ /ŋʉɬ-ʈʌm/	Bhutanese Currency
གུ་རེ་ /ku-re/	རྩེད་མོ་ /tsed-mo/	རྩེམ་ /tsem/	Game

In sum, Dzongkha has come a long way through its codification, development, and simplification to "function as a modern language in a period of rapid economic, social and technological development in Bhutan" (Nado 1982: 100).

1.12   Language Policy in Bhutan

1.12.1   Brief Account of Language Planning and the Dzongkha Development Commission

In 1961, the Dzongkha Division was created under the Department of Education in order to develop Dzongkha with sufficient modern terminologies (Nado 1982, van Driem 1993, Dorji 2012). During the decade of the 1960s, Chöké and Hindi were taught in schools as a medium of instruction. In 1971, the 3rd King pronounced Dzongkha the official language of the country. In 1986, a Special Dzongkha Advisory Committee was set up, headed by a member secretary, Dasho Sangay Dorji, who was also the first secretary of the Dzongkha Development Commission (van Driem 1993, Dorji 2012, Wangdi 2015), which was established in 1989 by the Fourth King, Jigme Singye Wangchuck. The DDC was launched as an independent government office not only to carry out work for the advancement of Dzongkha such as its codification,

development, user friendliness and simplification, but also to set the policy framework for the official language of Bhutan (Dorji 2012).

The activities of the DDC office include: to develop Dzongkha curricula for schools at all levels; to develop dictionaries (monolingual, bilingual and trilingual); to coordinate, document and conduct linguistic research on Dzongkha and other endangered languages; to set standard spellings, usage and orthography; to set the strategy of Dzongkha development and promotion; to set the policy framework and look after the official language policy in the country; to preserve and promote the linguistic heritage of country; to make available Dzongkha literature and grammatical texts for schools and the general public of Bhutan; to organise national and international linguistic symposiums; to produce translation works from Dzongkha to English and vice versa; to develop and promote the official language through modern technological methods and to make the official language user-friendly in simplified ways, among others.

The vision, mission, and values of the DDC office (1989) are, as stated at www.dzongkha.gov.bt:

Vision: to make Dzongkha the main medium of communication for every Bhutanese in order to promote harmony, cohesion and stability in the country.

Mission: to provide service through development and promotion of the official language in keeping with changes brought by development in the country.

Values: to be guided by accountability, honesty, integrity, loyalty, professionalism, selflessness and teamwork.

Mandates: to formulate language plans and polices; develop and promote Dzongkha, the Official Language and preserve other languages of Bhutan.

The DDC office has recently set up a policy framework containing 11 objectives and 97 points under these objectives. The document entitled "National Policy and Strategy of Dzongkha Development and Promotion" was presented to the 100th cabinet meeting and approved (National

Policy and Strategy of Dzongkha Development and Promotion 2012). All in all, the fundamental language policy in Bhutan is not only to promote it as the official language, but also to preserve it as a key part of the country's identity and rich linguistic heritage.

1.12.2   *Lingua Franca*, **Official Status and Decrees of Dragon Kings**

Dzongkha and its mutually intelligible dialects are the native and home-born tongues of eight regions and other interrelated districts of Bhutan. Moreover, Dzongkha is the only language widely spoken throughout the nation with a long-established "native literary tradition" (van Driem 1993: 1). It received international recognition when Bhutan was admitted as a member of the United Nations on 21 September 1971 (Dorji 1990, DDC 1999, Wangdi 2015).

Continuing the development of Dzongkha, His Majesty Jigme Singye Wangchuck issued in 1983 a Royal Edict with Royal commands on development and promotion of Dzongkha in schools at all levels in Bhutan. Especially, all the country's academic and artistic traditions such as literature and grammar, guiding philosophy (Gross National Happiness/Buddhist philosophy), traditional science, language and culture and code of conduct should be carried out in Dzongkha (DDC 2012, Dorji 2012).

Subsequently, in 1988 the Fourth King issued a long Royal Edict to all Dzongkhags (districts) to uphold the national policy and strategy on Dzongkha development and promotion at district level, in all schools, public sectors, institutions and other related organizations (DDC 2012: 56-61).

Furthermore, the Fourth King issued a Royal Edict to all concerned ministries, departments, institutions, authorities, organizations and stakeholders in 1993, stating that Dzongkha should be used as a medium of communication in all meetings, lectures, public speeches, presentations and reports, moreover, in discussions such as parliament sessions, cabinet meetings, Dzongkhag Tshogdu ('discussion at district level'), Thromde Tshogdu ('discussion at city level'), Gewog Tshogdu ('discussion at county level') and daily

corresponding. Translation and shadowing should be provided if foreigners are present at such meetings and discussions (DDC 2012, Dorji 2012).

In sum, Dzongkha has been codified, developed, promoted and stabilized throughout the nation. Dzongkha grammar and literature are also mandatory in all schools, institutions and public learning centres, using original Bhutanese forms of the *Jo-Yig* script. Recognition as the official language was encoded in Section 8 of Article 1 of the Constitution of the Kingdom of Bhutan (2008). Dzongkha has also been cast as central to the first of the four pillars of Gross National Happiness that are designed to lead to sovereignty, peace, harmony and prosperity in the country, namely: 1) preservation and promotion of culture, 2) good governance, 3) environmental conservation and 4) sustainable and equitable socio-economic development.

1.12.3   Dzongkha Curriculum in Schools

This section reviews the changes in medium of instruction. English was introduced in schools as primary medium of instruction in 1964, and Dzongkha instruction followed in 1971 with the New Method Dzongkha Handbook, *rDzong-kha'i 'grel-bshad rab-gsal skya-rengs dangpo*, (van Driem 1993: 7). The author remembers learning and memorising this text when he was at Phobjikha Primary School from 1979-1984. That was the only Dzongkha grammar text available with very few Dzongkha novels as literature; for instance, *rGalpo Kala dWangpo dang mKha 'gro ba bZangpo*, 'a novel of King Kala Wangpo and Queen Drowa Zangpo' or *Ashi sNang Sa'I 'od 'Bum*, 'a novel of queen Nang Sa'. Most of the terminology was still in Chöke, and every student had to memorize many Chöke stanzas and sentences for exams and writing practice.

From the time when the DDC office was established in 1989, Dasho Sangay Dorji published an inclusive Dzongkha grammar textbook entitled *New Dzongkha Grammar* (1990). At the same time, a Japanese linguist, Imaeda Yoshiro also produced a guidebook entitled *Manual of Spoken Dzongkha* primarily for Japanese Dzongkha adult learners (van Driem 1993:

8). In 1999, the DDC office revised the *New Dzongkha Grammar* text and republished it with a number of references and readers in Dzongkha.

In 2010, the DDC office categorised the Dzongkha grammar text into three levels: Basic, Intermediate, and Advanced Level Dzongkha Grammar Textbooks. Hence, every Bhutanese (native or non-native) has to learn Dzongkha grammar starting from pre-primary school up through higher degree levels. Presently, the DDC office produces a huge number of grammar texts, readers, references, novels, written and oral literature, [auto]biographies, dictionaries, guide and manual books, and ICT related works.

The DDC office has been working hand in hand with the Dzongkha Curriculum Division under the Department of Curriculum Research and Development (DCRD) of the Ministry of Education (MoE) to improve the Dzongkha curriculum. In the course of a decade, the Dzongkha Curriculum has been significantly improved and put in place for schools, although a number of changes have been taking place in designing Dzongkha syllabi (DCRD 2010). Most of the syllabi for Bachelor and Degree levels differ from college to college or institution to institution. Nonetheless, they teach Dzongkha as a subsidiary subject which includes Dzongkha general grammar, literature and some units of Bhutan history and cultural studies.

However, in association with the DDC office, the Dzongkha Curriculum Division has designed a Dzongkha syllabus from pre-primary class to year XII. All book lists for Dzongkha references and reading the syllabus and curriculum from pre-primary class to year XII are available on the following DCRD (2014) websites, respectively:

http://rec.gov.bt/blog/category/downloads/booklist/

http://rec.gov.bt/blog/category/downloads/syllabus/

Nonetheless, since the 1970s most school subjects have been taught in Bhutan through English as the medium of instruction, regardless of the student's home language. Gyatso (2004) and Dorji (2017) raise some concerns about challenges and difficulties in teaching Dzongkha in

such a system. Dzongkha instruction typically has only a single period per day (DDC 2012). Researchers like Thinley *et al*. (2013) argue that English is a powerful means to preserve the Bhutanese cultural heritage while Dzongkha lacks the capability to do so. They indicate three reasons: 1) it cannot develop as rapidly as English due to the limited capacity to teach subjects in Dzongkha; 2) it causes a loss of other oral literature in endangered dialects in the name of Dzongkha development and promotions; and 3) Bhutanese youngsters enjoy learning English more than Dzongkha due to the lack of attractive resources and teaching methods. Moreover, Dzongkha faces a number of challenges in fixing a stable curriculum for schools at all levels.

1.12.4   The Current Standing of Dzongkha

Nearly all official works and daily correspondence are executed in English, with a few exceptions such as the monastic bodies (the medium of instruction in monastic bodies, Buddhist colleges, and Centres for Language and Cultural Studies is Chöké), the language of courts (Dzongkha is used in both written and oral media), and some service users who never studied English. Likewise, most of the official and unofficial documents and file records are maintained in English in both government and non-governmental organisations. It is also noticed that all kinds of meetings at every level are conducted in English when there are foreign participants.

A majority of Bhutanese prefer English to Dzongkha for social media as well as TV broadcasts, newspapers, advertisements, magazines and entertaining channels like popular music and motion pictures. Accordingly, English is gaining popularity over Dzongkha at present, and is likely to expand in future as well. In order to capture the clearer picture of the linguistic behaviour of speakers across the capital city regarding the use of the languages (Dzongkha versus English), Figure (1.1) indicates the total usage of Dzongkha on social media among Bhutanese Dzongkha speakers. The data captured from twenty-six participants are classified into five main responses according to participants' reactions concerning Dzongkha use on social media: 'never use', 'sometimes', 'frequently', 'all the time' and 'don't know'.

Figure 1.1: The frequency of use of Dzongkha on social media among Bhutanese Dzongkha-speakers in Thimphu

How often do you use Dzongkha on Facebook or social media?

- Never
- Sometimes
- Frequently
- All the time
- Don't know

55% · 30% · 4% · 4% · 7%
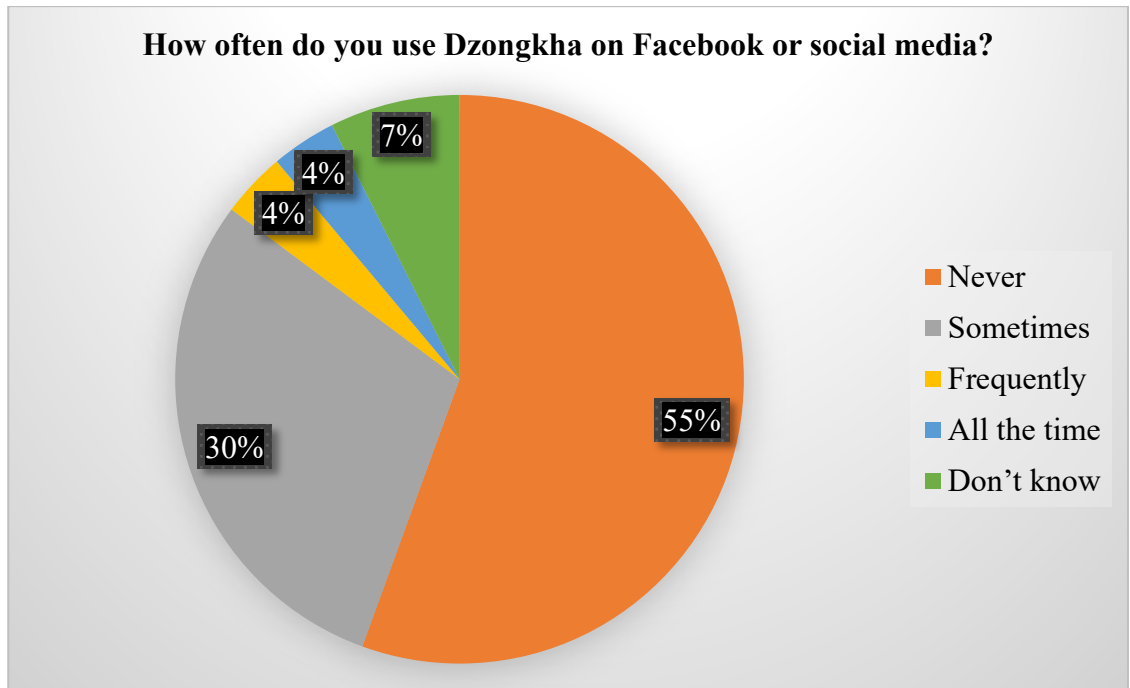
Interestingly, the response of 'never use' Dzongkha on social media is exceptionally high (55%) comparing to other responses: 'sometimes (30%), 'frequently' (4%), 'all the time' (4%) and 'don't know' (7%). This finding noticeably shows that a majority of the participants tend to adopt English in using social media and fundamentally detach themselves from the use of official language, that is, Dzongkha.

In addition, Gyatsho (2004) also warns that there are a number of challenges to educating Dzongkha in an English-medium school system; a person dominant in Dzongkha but with lesser English skills would have less scope in the job market and opportunities in their career. At present, most of the higher-level graduate students have no confidence to write a sentence in Dzongkha without making grammatical mistakes and other related errors. Gyatsho confirms that the standard of Dzongkha is very low compared to that of English (p. 69-74).

Besides native Dzongkha speakers, other minority language users have even less scope for use of their language in formal education and employment. Despite the fact that Tshangla speakers make up a very large part of the population (§1.6 above) – nearly the same size as Dzongkha speakers – there is no Tshangla-medium instruction in schools, and it cannot be used in communication with government. In line with this, Dorji (2016: 1) affirms that children received punishment for speaking their mother tongue or Dzongkha, as opposed to English, in school areas at all times. Students are asked to wear a tag or label saying "Speak English" on their uniforms. For this reason, Dorji urges the government and UNESCO to give more attention in education policy to frame a decent education system in saving and developing the only official language, that is, Dzongkha (Dorji 2016: 2). Other linguists and educators might well urge the use of the main mother tongues at primary level education, as is common in many countries. Again, Dorji (2016) has expressed great concern, arguing that the education system in Bhutan must be changed in order to prevent native languages from dying. He proposes that children be taught in their mother tongues as a medium of instruction, at least in pre-primary or primary level.

With this in mind, there are a number of things to be reorganised, reformulated and restructured for language policy in the Education system. In doing so, many scholars and linguists believe that a positive attitude towards home languages is the key issue to maintain them and prevent complete disappearance (Spolsky 2004, 2012; Fishman 2006, Johnson 2013). For instance, linguists like Choi (2003) consider that languages will develop when their users have positive attitudes toward them: they will become extinct when the users have negative attitudes (*p*. 81). However, other linguists believe that if a language is imposed and maintained by an elite, then negative attitudes on the part of lower strata do not necessarily result in language loss (Kasstan[4], p.c. 2019).

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[4] Kasstan, J. P.c. 12 March 2019

Presently, Dzongkha is considered to be a well-equipped subject, as all fundamental facilities and learning materials are provided free-of-charge by the Bhutan government.

Chapter 2   Literature Review

2.1   Overview

This chapter briefly outlines the relevance of sociolinguistic studies for Bhutan and explores the context of language and society in the speech community of Thimphu.

The frst two sections present the brief account on language ideology and behaviour (2.2) with the common concept of speech community in the capital city, Thinphu (2.3).

Section 2.4, considers the range of language beliefs and attitudes among the speakers studied; this is done by introducing examples collected during the research, since there is no published language attitude survey research for Bhutan (e.g. beliefs about identifying features in 2.4; see also §1.12.4 – the current Dzongkha standing and detailed analysis in Chapter 4 and 5).

Finally, the fifth section serves to provide a concise description of Dzongkha consonant and vowel inventories, inlcuding tones and tone contours (2.5).

2.2   Brief Account on Language Ideology and Behaviour in Bhutan

In general, language is inseparably interlinked with the members of the society; social factors are noticeably mirrored in their speech (Downes 1998). The area of language and society, the study of sociolinguistics, is projected to show how use of one's language is interrelatedly governed by those both linguistic (internal) and social (external) factors (Hickey 2010). For instance, Labov (1966) asserted that linguistic variation does not randomly occur anywhere but follows patterns according to the social location of the speakers. Likewise, variation not only occurs between different speakers, but also "occurs within the same speakers according to the context of language use as well" which can be called 'stylistic' variation (Kailoglou 2010: 25).

According to Trudgill (2000), there are two sociolinguistic functions of language: "first, the function of language in establishing social relationships; and, second, the role played by language in conveying information about the speaker" (p. xi). Thus, it clearly denotes that there is an interdependent relationship between language, linguistic ideology and behaviour, society,

and its extralinguistic social factors. Moreover, Linguistic ideology is a concept that is used as an intermediating nexus of connection within social systems, between social distinctions, and in the forms of conversation, such that speakers can put into practices that which they consider to be suitable in their linguistic community (Woolard 1986, 1998).

Bourdieu & Thompson (1991: 502) argue that any kind of particular symbolic form of language is associated with power, authority, politics, and social distinctions between a speaker and a hearer "based on 'enciphering and deciphering' and therefore on the implementation of a code or a generative competence". For example, it is like "an 'economic exchange' which can be established in a particular symbolic relation of power between a producer and a consumer with a certain 'linguistic capital' that can be producing a certain material or symbolic profit." In other words, language is not only a plain utterance, it is also associated with power, wealth and authority which needs to be 'evaluated', 'appreciated', 'believed' and 'observed' (*ibid*. p. 502).

2.3   Speech Community

2.3.1   The Concept of Speech Community

In Bhutan, it is hypothesised that all localized groups of people would know each other and share the same linguistic norms by interacting with each other regularly. In particular, they are hypothesized to all belong to the same local community, though they come from different regions like east or south or west. Thus, it is considered that a homogeneous set of norms should exist. In the Thimphu speech community where the author has visited, interacted and collected the data for the present sociolinguistic study, this set of assumptions largely hold true. However, given that shared linguistic and sociolinguistic norms are one measure of speech community membership, the results of analyses in Chapters 4 and 5 will be investigated in order to examine this.

The concept of speech community has been used since the 1960s for the purpose of sociolinguistic analysis for both large and small "geographically bounded urban communities" -

for example, the large survey done by Labov (1989) in the city of Philadelphia and the small survey done by Feagin (1996) in Anniston, Alabama (Patrick 2002: 574).

It is not always necessary to be fully-fluent and have good command of a language with deep grammatical and phonological knowledge of the speech variety in order to be a member of a speech community. For instance, Dorian (1982) observes that there are a number of different levels in linguistic communication such as 'fully-fluent', 'high-proficiency semi-speaker', 'low-proficiency semi-speaker', and 'near-passive bilingual' in the Gaelic-speaking community in East Sutherland (p. 25-33), a classic case of language loss and near-death. Thus, Speech Community can be a big or a small group of speakers, who can be monolingual or bilingual or trilingual as well. The only thing that is required is to be united by linguistic and cultural norms in general and linguistic communication networks. These criteria are reviewed below.

In the modern sense, the speech community can share a variety of social norms for language use through meeting, living, and interacting together. A speech community can be an ordinary community, or a professional and support working community; it has been used for urban immigrants (Kerswill 1994), rural settlements (Bavin 1989), large discontinuous areas (such as the Gaeltacht in Ireland, Watson 1989, which is defined culturally and not linguistically), and smaller assemblages such as groups of family or friends who come to share their living styles, and so forth. In recent decades, many of these smaller and less permanent groups of speakers have been treated instead as Communities of Practice (Lave & Wenger 1991, Meyerhoff 2002). For Gumperz (1968), Labov (1972a, 1972b), the speech community also shares common linguistic knowledge, e.g. of grammatical and vocabulary elements, speaking styles, as well as shared social norms and rules for interaction (Patrick 2002). Because of this vagueness in the definition, this section presents some selected definitions and observations on the speech community made by distinctive scholars and linguists.

Gumperz (1971: 114) perceives the speech community as "any human aggregate characterized by regular and frequent interaction by means of a shared body of verbal signs and set off from similar aggregates by significant differences in language usage." For example, Eastern-Dzongkha speakers are naturally bilingual, and they participate in two speech communities, of Dzongkha speakers (some of whom are monolingual) and Tshangla speakers (mostly bilingual). Conversely, Western-Dzongkha speakers are generally monolingual, and they just belong to one speech community. Both groups thus fit Gumperz's criteria.

Hymes (1972: 54-5) suggests that the speech community is "a community sharing rules for the conduct and interpretation of speech, and rules for the interpretation of at least one linguistic variety... it postulates the basis of description as a social, rather than a linguistic, entity." Furthermore, Hymes (1974: 47) also affirms "the entire organization of linguistic means within it", which considers that anyone can partake in a speech community whether they have fully fluent linguistic knowledge or not. It is enough to participate in a speech community, if one knows how to speak appropriately based on "receptive skills and knowledge of the sociolinguistic norms" (Dorian 1982: 29). Based on this view, every speaker from east and south can be obviously included in a single Dzongkha-speaking speech community since they share general knowledge of Dzongkha linguistic communication.

Labov (1972a) argues that "the speech community is not defined by any marked agreement in the use of language elements, so much as by participation in a set of shared norms. These norms may be observed in overt types of evaluative behavior, and by the uniformity of abstract patterns of variation which are invariant in respect to particular levels of usage" (p. 120-21). For him, a complex community like New York City is observed as a single speech community which shares similar phonological patterns and social attitudes towards the usage of language.

In line with those different definitions, Thimphu can be considered to be a single speech community which shares a set of Bhutanese cultural norms, but it requires further observation on linguistic communication. In essence, sociolinguistic analysis is often rooted within the speech community, based on sharing sets of both linguistic and social norms. The evaluation of nasals and rhotics by members of the Thimphu speech community was briefly noted in chapter 1 and commented on below in §2.4. The variation among speakers according to style, for different age and social groups, is discussed in §4.6.5 and §5.7.5, where observations of earlier linguists on these features are also described.

2.3.2   Preliminary Introduction on Ethnicity and Language

In general, ethnic identity is often perceived to be common or shared fundamental cultural values, including communication and interaction, interests, nationality, religion, history, language, membership identities, etc., which constitutes a category distinguishable from other categories of the same order (Barth 1969, 1998). Many linguists think that "ethnicity is a socially constructed category, not based on any objectively measurable criteria" (Fought 2006: 4). On the other hand, "the first thing we notice about people when we meet them (along with their sex) is their race" (Omni & Winant 1994: 59). Thus, 'race' – a closely related concept to ethnicity – always carries more meanings than mere physical characteristics, including ethnolinguistic differences which can be perceived as different aspects of the same identity as Smelser *et al* (2001: 3) state:

> The concepts of race and ethnicity are social realities because they are deeply
>
> rooted in the consciousnesses of individuals and groups, and because they are
>
> firmly fixed in our society's institutional life.

Barth also asserts that ethnic boundaries are flexible and that "ethnic groups are seen as a form of social organization" (1969: 13). In general, 'race' and ethnic group in the Bhutanese society, especially in Thimphu, can be regarded as the same concept: a single and unique group united by "physical marker[s] transmitted through reproduction" (Smelser et al. 2001: 3) with no

outside influence, which shares common values and customs, and a distinct language variety. Zelinsky (2001: 10) explains the dangers involved in such notions of 'race':

> [We] dare not overlook a crucial distinction between race and any of the several
>
> cultural elements that contribute to defining the ethnic group. Specifically, none
>
> of those attributes is subject to anything so virulent and ineradicable as racism.

Hence, the study of linguistic behaviour as it associates with ethnic identy clearly requires an understanding of ethnic boundaries based on the local (Thimphu) context in which the speech is produced, as proposed in Giles's studies (1977, 1978 and 1979). More examples of general issues in ethnicity and language (different definitions and issues of ethnicity and race) taken together with "language and the contruction of ethnic identity" and "linguistic features and ethnicity in specific groups" (e.g. African-American groups and Latino groups) can be seen in Fought's (2006: 3-68) study on language and ethnicity in the USA. Further explanation for the present study can also be viewed in §3.4.2.4 (ethnic identity of participants) and §6.4 (discussion of ethnic variation).

2.4 Distinctive Features in Dzongkha Speech Among Different Social Groups

This field investigation was carried out in order to find out the differences and similarities in usage and attitude of Bhutanese Dzongkha-speakers towards Dzongkha as their official language. There are always unique and distinctive linguistic variables and stylistic features across diverse social groups, which are considered to be saying the same thing in different ways (Macaulay 2009). Likewise, speakers often vary in pronouncing words (accents), choosing lexical items, tones and using morphosyntatic components based on their social backgrounds, which is a core concept of sociolinguistics. In this context, sociolinguists such as Labov (1963, 1968, 2001, 2006), Tagliamonte (2006, 2012) and many others principally examine linguistic variation and its correlation with sociological categories.

The attitudinal data is based on questions (#30 and 46) in the survey questionnaire (**Appendix** 10). This sub-section of the thesis briefly sheds light on some unique stylistic and variable features such as accent, tone and style, which depend on context and social groups among Dzongkha speakers. It endeavours to look into language use in public and official areas by using an open-ended questionnaire, a qualitative method, to elicit data. Eighteen primary school teachers and parents of various social levels, sexes and geo-ethnic groups across Thimphu responded to the questionnaire. The questions included the following.

> ❖ *Can you recognize where a speaker is from, east, west, or south by his or her Dzongkha accent, tone, style, or any other reasons?*

This section offers some naturally occurring quotes uttered by informants in the face-to-face interviews (Labov 1981), which are, in fact, dependent on social indexicality in their human territory (Eckert 2008). The answers or quotes have been elicited by asking the questions from the module devised and prepared with some additional and relevant questions by the author, based on original modules developed by Labov (1973-77) and best guidance in Labov (1984).

Furthermore, some extended quotes or answers extracted from the answers to the questions for language ideology and attitudes are presented to support the mentioned claim (Chand 2009). As in other examples throughout the thesis, extracts are given first in Dzongkha script, which is written left to right but has its own method of signalling word divisions. The example is then transliterated into Roman script on a phonemic basis, using italics to differentiate it from the following level. Next, this is glossed according to the Leipzig Glossing Rules (Lehmann 1982, Croft 2003, Bickel *et al.* 2015), with each morpheme aligned. Finally, there is a relatively free translation enclosed in quotation marks.

The sample used in the sub-section of this survey is narrowed to primary school teachers and parents since primary school children have a limited capacity to respond to this kind of question. Hence, the group consists of eighteen respondents who are a mixture of teachers and

parents from various social backgrounds. The data was elicited through face-to-face interview along with other sociolinguistic interviews.

The data captured from each respondent are categorised into four main themes according to participants' responses: 's' for 'style', 't' for 'tone', 'a' for 'accent' and 'd' for 'don't know'. Each of the themes are labelled with a letter-code based on the responses uttered by individual respondents in order to examine frequency or proportion of responses statistically. Finally, the data are converted into percentage figures, tabulated and graphed, as in Figure 2.1.

Figure 2.1: The frequency of unique Dzongkha-features used among Bhutanese Dzongkha-speakers
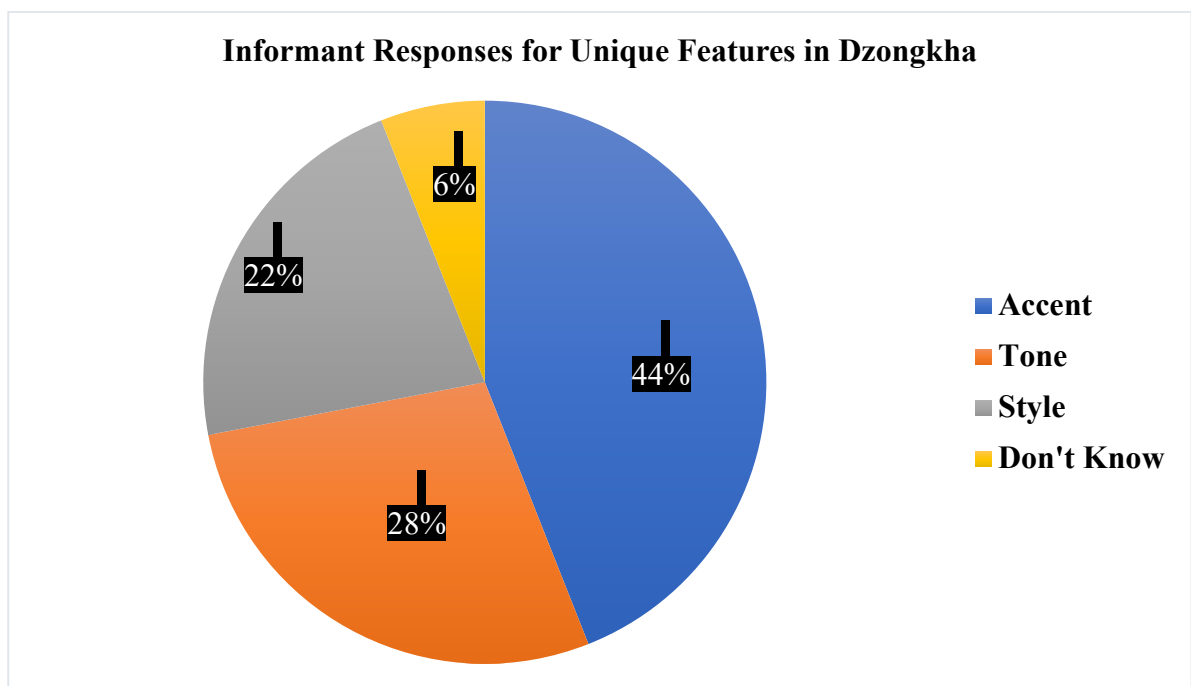
Figure (2.1) displays the frequency of typical responses (accent, tone, style and don't know) by various respondents across the city irrespective of sex, age and occupational level. Most of the respondents believed that various kinds of distinct features do exist in Dzongkha speech which are associated with the social categories and ethnic groups. Of four responses, the results in this graph demonstrates that the use of unique Dzongkha accent or pronunciation is the most popular feature (44%) to recognise where a speaker is from; east, or west, or south, or other parts of Bhutan.

Pronouncing final nasals and rhotics are among the most typical and distinctive features used and recognized among Eastern Dzongkha speakers, as detailed in chapter four (final nasals) and chapter five (postvocalic rhotics), respectively. From their use one can generally recognise whether a speaker is from east, or west, or south. It affirms that within Dzongkha there are multiple accents and different ways of speaking, as described by a 42-year-old male teacher, and Southern Dzongkha speaker by responding to this open-ended question:

(1)   ཁྱད་པར་ཅིག་འདི་ཡོད་ལགས་མི་འདྲ་བས་ལགས་ག་ཅི་སྒོ་རེར་བ་ཅིན་

Khedpar   cidi   yoed   la midrawai la gacimo   zerwa   cin

Difference DET-SG exist-PST sir different sir reason-CAUS-Q say-PRS if-CAUS

སྤྱ་ལོང་ད་ཤར་ཕྱོགས་པའི་བར་ན་ཡང་ཁྱད་པར་ཅིག་འདུག་ལགས་དེ་བཟུམ་བྱེ་

Ngalong   da Sharchopai barna   yang khedparci   dug   la dezumbey

west-POSS and east-POSS   between also difference-INDF exist-PST sir likewise

ལྷོ་མཚམས་དང་སྤྱ་ལོང་གི་བར་ན་འདི་ཁྱད་པར་མང་འདུག་ལགས་

Lhotsham da Ngalongi   barna di   khedpar   mam dug   la

south-POSS and west-POSS between-DET difference more exist-PST sir

དབྱེ་བ་ཕྱེ་འདི་བལྟ་བ་ཅིན་ལགས་སྐྲོའུ་སྐྲབ་པའི་སྐྲབས་སུ་མ་པ་ལས་མི་འདྲ་བས་ཟེར་ཞུ་ནི་ལགས།

Yewachedi   tawacin   la   Low Lapai-kabsu mapaley midrawai   zer

differentiate-DET look-CAUS sir speech speak-PRS totally   different   call-PST

zhuni   la/

report-FUT sir

 "There is a difference and Eastern Dzongkha is dissimilar from those of the Western Dzongkha; moreover, there are more differences between Western Dzongkha and Southern Dzongkha in terms of accent and way of speaking and styles, especially."

Dzongkha is also a language with a two-way tonal contrast of high register (H) and low (L) register (Lee *et al.* 2017, Hansen 2012, Downs 2011, Mazaudon & Michailovsky 1988, van

Driem 1992), as described in section 2.4.[5] Figure (2.1) shows that tone is the second highest (28%) particular characteristic in Dzongkha that denotes one's sociocultural background through speech. It is considered to be quite salient in eastern and southern regions, Bhutan. For example, Dzongkha tones uttered by Eastern Dzongkha speakers and Southern Dzongkha speakers are believed to be distinct from Dzongkha tones uttered by Western Dzongkha speaker, as described by a 32-year-old male teacher and Eastern Dzongkha speaker:

(2)   དཔེར་ན་ང་ཅེ་ར་ཤར་ཕྱོགས་པ་དང་ལྷོ་མཚམས་པ་ཚུ་གིས་ང་གིས་སླབ་དོ་ཟེར་མི་

Perna   ngacera Sharchog dang Lhotshmpa tshu gis nga gis   /lʌbɬ/ do

For example 1PL   easterner and   southerner-PL   INS-1SG-INS   tell-PRS

ཟེར་མི་ལབ་དོ་ཟེར་ལུ་ས་ལུ་ཤ་ཟེར་སླབ་ཐངས་མ་འདྲཔ་ད་

zermi   /lʌb/ do zew   da /sʌ/ lu /ʃʌ/ zer   Lab   thang   madraw da

call-PRS tell-PRS call-PST   and /s/ to /ʃ/   call-PRS /lɬʌb/ way   different and

འ་ནི་བཟུམ་སྦེ་གདངས་དབྱངས་ར་སོ་སོ་སྦེ་འགྱོ་སླབ་ཟེར་ཞུ་ནི།

ani-zumbe   dangyang ra   sosobey   jowmey zer   zhuni/

DEM-likewise   tone   itself differently go-PRS call-PRS report-FUT.

"For example, our eastern and southern speakers would pronounce /lʌb/ 'mountaineer' (low tone) instead of /lʌbɬ/ 'tell' (high tone), they also pronounce /sʌ/ 'soil' for /ʃʌ/ 'meat', and they make big difference between tones as well.

In the case of style, the graph shows that the use of the typical speech style or way of speaking Dzongkha is the lowest (22%) in recognition for the Dzongkha speech community. It varies from speaker to speaker according to their occupational and social levels and connotes typical relationships between superior and subordinate, teacher-student, parent-child, husband-wife, etc. (National Library 2008, Tshewang & Gyeltshen 2009, Rinzin 2010, Rinchen & Subbha 2015). Eastern and Southern Dzongkha are varieties with unique regional and stylistic features dependent on the speakers' sociocultural backgrounds. In support of this assertion, a Southern

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[5] In transcriptions, the low tone is not marked as it is the default; high tones are marked with a symbol following the syllable.

Dzongkha speaker also accepts that they are endowed with different stylistic features in terms of Dzongkha accent and way of speaking, as explained by a 43-year-old female teacher, and Southern Dzongkha speaker who responds to the question here.

(3)   དཔེར་ན་ཤར་ཕྱོགས་པ་ཅིག་གིས་རྫོང་ཁ་གི་རྫོད་སྒྲ་ལེགས་ཤོམ་སྦེ་བཏོན་

Perna   Sharchop chigis   Dzongkha joedra   lekshom-bey toen

for example easterner-INDF-INS Dzongkha pronunciation good-ADJ   say-PRS

མ་ཤེས་པར་ཨ་ལུ་ཚུ་གིས་ད་མི་གོ་བས་པ་ལགས་ང་ཅེ་ལྷོ་མཚམས་པ་དང་ཤར་ཕྱོགས་པ་ཚུ་

masheypar   alutshugis   hamigowaipa   la   ngace Lhotshampa da sharchoptshu

NEG-know child-PL-INS understand-NEG sir   1-PL easterner   and easterner-PL

ཤར་ཕྱོགས་པ་ཚུ་ཙོ་ར་གཅིག་པས་ལགས་ཁོང་ར་གི་ཨའི་གི་ཁ་སྐད་མེན་ནི་འདི་གིས་ལུ་ལཁ་

Sharchoptshu coracigpey la khongrang aigi khaked   menidigis   lakha

Easterner-PL similar   sir 3-PL   mothertongue NEG-DET-CAUS difficult

བཏངས་སླས་ལགས་སྟེ་རོགས་རྭ་ལོང་གིས་འབད་བ་ཅིན་རྫོང་ཁ་འདི་སྤྲས་གཙང་སྦེ་

Tamey la tey rog ngalongis   bewacin Dzongkha-di puetsang bey

face-PRS sir and westerner-3-PL-INS if-CAUS Dzongkha-DET pure-AUS

སླབ་སླས་ཟེར་ཞུ་ནི་ལགས།

Labmey zer zhuni la/
speak-PRS say-PST report-FUT

 "For example, Eastern Dzongkha speakers have a problem in pronouncing Dzongkha words vis-à-vis Southern Dzongkha speakers since it is not their mother tongue. It creates communication gaps between teacher and student and others as well. With regard to Western Dzongkha speakers, they can utter original Dzongkha words with clear accent which reduces communication gap between speaker and hearer."

This teacher expresses common views about the superiority of Western Dzongkha accent features, which are viewed as if they objectively facilitate better communication and does not acknowledge social and regional prejudices.

This speaker's comment in Dzongkha mixes pronunciation and style features. Finally, an interesting observation from Figure (2.1) is that only one respondent produces the response 'don't know' (6%) concerning distinctively typical Dzongkha-features. The lone respondent is a 36-year-old female teacher and Southern Dzongkha speaker. She consented to use her real name, K. Rai, and she spent her whole childhood living in western Dzongkha-speaking zones with her parents who served the country with the same profession. She acquired native-like Dzongkha and her speech does not contain any unique features that would mark her as a Nepali and Southern Dzongkha speaker. She is different from other respondents in the sense that she tends to adopt a more modern Dzongkha-speaking style and detach herself from the traditional southern community. Hence, she is the only respondent who claims not to recognize the unique features among Bhutanese Dzongkha-speakers.

These excerpts from respondents clearly show evidence that speakers believe they can recognize overt typical linguistic features in Dzongkha speech. For example, it is often claimed that if someone is from Paro in the west, one can make out where he/she is from by their accent, pronunciation, and way of speaking. Likewise, one can also recognize whether he/she is from Kheng (an Eastern region of Bhutan), by his/her Dzongkha accent, pronunciation and unique stylistic features.

2.5   A Brief Phonetic Description of Dzongkha Consonants and Vowels

2.5.1   Dzongkha Consonant Inventory

Consonants are deployed as second and third explanatory predictors in the analysis of both nasal finals and postvocalic rhotics, thus are succinctly presented here. Traditionally, Dzongkha has thirty consonants, presented in the traditional syllabary form, with the inherent vowel, seen in §2.5.3 below (Sambhota 7th century CE, Lotsawa 1538, DDC 1990, Dorji 1999, Dorji 2012, Tshewang 2013).

Table 2.1: The sample of thirty Dzongkha consonants

ཀ' ka	ཁ' kha	ག' ga	ང' nga
ཅ' ca	ཆ' cha	ཇ' ja	ཉ' nya
ཏ' ta	ཐ' tha	ད' da	ན' na
པ' pa	ཕ' pha	བ' ba	མ' ma
ཙ' tsa	ཚ' tsha	ཛ' dza	ཝ' wa
ཞ' zha	ཟ' za	འ' 'a	ཡ' ya
ར' ra	ལ' la	ཤ' sha	ས' sa
ཧ' ha	ཨ' a		

However phonetically, as in reports by Mazaudon & Michailovsky (1988), van Driem 1992, 1998, Downs 2011 and Hansen (2012), Dzongkha has forty-four initial consonants: sixteen oral stops, six fricatives, two fricative trills, one lateral fricative, seven affricates, four complex bilabial-palatal affricates, four nasals and four approximants as tabled below.

Table 2.2: The phonetic inventory of Dzongkha consonants (Downs 2011: 12)

	Bilabial	Dental/Alveolar	Retroflex	Palatal	Velar	Glottal
Stop	p b pʰ b̥	t d tʰ d̥	ʈ ɖ ʈʰ ɖ̊		K g kʰ g̊	
Fricative Trill		r̥ r				
Fricative		s z z̥		ɕ ʑ ʑ̥		
Lateral Fricative		ɬ				
Affricative		ts dz tʂ̥		tɕ dʑ tɕʰ dʑ̥		
Complex Affricate				ptɕ bdʑ ptɕʰ b̥dʑ̥		
Nasal	m	n		ɲ	ŋ	
Approx	w			j		H
Lateral Approx		l				

In addition, Hansen (2012) also reported Dzongkha initial consonants based on van Driem (1992, 1994) which portrayed that "Dzongkha has a complicated system of consonants with a four-way distinction in plosives and affricates (except for the alveolar affricate), a three-way distinction in fricatives and the alveolar affricate and a two-way voicing distinction in the alveolar rhotic and lateral", as tabled below (*p*. 5).

Table 2.3: Phonetic inventory of Dzongkha consonants (Hansen 2012: 5)

Phonetic Description	High Tone		Low Tone		High or Low	
	Voiceless	Aspirated	Voiced	Devoice	Nasal	Approximant
bilabial plosive	p	pʰ	b	b°	m	W
dental plosive	t	tʰ	d	d°	n	
retroflex plosive	ʈ	ʈʰ	ɖ	ɖ°		
velar plosive	k	kʰ	g	g°	ŋ	
alveolar affricate	ts	tsʰ	dz			
palatal affricate	tʃ	tʃʰ	dʒ	dʒ°	ɲ	J
palatal affricate with bilabial plosion	ptʃ	ptʃʰ	bdʒ	bdʒ°		
alveolar fricative	s		z	z°		
palatal fricative	ʃ		ʒ	ʒ°		
alveolar rhotic	r̥		R			
alveolar lateral	l̥					L
pharyngeal approximant	h					

According to van Driem (1992), as paraphrased by Hansen, "tone can be distinctive on syllables with nasal, liquid or glide onsets (except /r/) and in onset-less syllables… but is completely predictable" elsewhere (Hansen 2012: 6). (The first condition is illustrated in the two rightmost columns of Table 2.3.)

Likewise, Sherpa *et al*. (2008) has presented the initial Dzongkha consonants as a representation of spoken Dzongkha, as illustrated in the Table below which puts manner of articulation against place of articulation:

Table 2.4: Spoken Dzongkha represented by initial consonants (Sherpa et al. 2008: 2)

	Bilabial	Labio-velar	Alveolar	Palatal	Velar	Glottal
Stop	p pʰ b	t tʰ d			k kʰ g	ʔ
Nasal	m		N	ɲ	ŋ	
Fricative			s z	ʃ ʒ		
Approx		W	ɹ	j		H
Affricative			ts tsʰ dzʰ	tʃ tʃʰ dʒʰ		

Furthermore, Mazaudon & Michailovsky (1988) also reported Dzongkha initial consonants based on spoken Dzongkha in Chapcha, Phuntsholing and Thimphu region, as stated in the chart beneath, which roughly locates the traditional syllabary representation of stops (Table 2.4 above) in a taxonomy according to manner of articulation:

Table 2.5: The Dzongkha initial consonants (Mazaudon & Michailovsky 1988: 117)

Stops	ka	Kh	Ga	Gh
	ca	Ch	Ja	Jh
	ts	Tsh	Dz	dzh
	ta	Th	Da	Dh
	tr	thr	Dr	dhr
	p	Ph	B	Bh
	pɕ	pɕh	Bj	bjh
Sibilants	ɕ		ʑ	ʑh
	s		Z	Zh
Nasals	ng	Ny	N	M
Voiceless Nasals	hn	Hm		
Liquids	r	L		

Voiceless Liquids	hl			
Glides	y	w		
Aspirate	h			

It is not possible in this thesis to reconcile the different schemes and their associated arguments that various linguists have put forth. The final nasals and rhotics are highlighted red in the above tables to indicate that these are the forms relevant to the pronunciation variation of the present study, even though there is no complete agreement among linguists on the phonetic versus phonemic status of all variants. Hence, the coded individual variant forms can be viewed in the following sections such as (§3.8.2, §3.8.3) for both variables (N and R), (§4.2, §4.2.2, §4.3, §4.4.2) for (N) variants and (§5.2, §5.5.1, §5.6) for (R) variants. It is also noted that the the flap or tap is not given in the literature review due to its rare occurrence, but it is coded as it appears occasionally in the data.

2.5.2   Dzongkha Vowel Inventory

Vowels are employed as immediately preceding segments in the analysis of both nasal and rhotic variables and are briefly described here. Dzongkha has four main vowels (i, u, e, and o) and one inherent vowel (a) as described by Sambhota (7th century CE), Lotsawa (1538), DDC (1990), Dorji (1999), Tshewang (2013).

Once again, Mazaudon & Michailovsky (1988), van Driem (1992, 1998), Downs (2011) and Hansen (2012) report different numbers of Dzongkha vowels based on their descriptive studies and surveys. For example, van Driem (1992: 53) reported that there are eight vowels in Dzongkha: /i/, /ü/, /u/, /e/, /ö/, /o/, /ä/ and /a/. In this case, five /a/, /e/, /i/, /o/ and/u/ of the eight phonemic vowels have both short /a/, /e/, /i/, /o/ and /u/ and long /â/, /ê/, //î, /ô/ and /û/ durations in length based on "duration and timbre or vowel quality" (van Driem 1992: 53-54). Three

umlauted vowels /ü/, /ö/, /ä/ are normally long in length and with the diacritics above in written form, in order to avoid the mistakes between short and long vowels (*ibid.* p. 54). Thus, the present study will employ five key Dzongkha vowels (see table 2.6) by following van Driem's system for vowel phonemes, even where he does not mark phonemic length, for consistency with the literature; vowel length is not relevant to the analysis below.

Likewise, Mazaudon & Michailovsky (1988) stick with van Driem's (1992) inventory of eight Dzongkha vowels according to quality, but with different representations of umlauted vowels or diphthongs: /i/, /ue/, /u/, /e/, /oe/, /o/, /ɛ/ and /a/. They also confirmed that three umlauted vowels /ü/, /ö/, /ä/ or /ue/, /oe/, /ɛ/are derived from the three back vowels /u/, /o/, /a/ through a 'historical fronting' (*ibid.* p. 118).

However, Hansen (2012) has admitted eleven vowel sounds in naturally occurring Dzongkha speech, such as /i/, /ɪ/, /e/, /ɛ/, /ä/, /ü/, /ö/, /a/, /ə/, /u/ and /o/. Like van Driem (1992), eight are phonemic vowels: /i/, /ü/, /u/, /e/, /ö/, /o/, /ä/ and /a/. Of these, five vowels: /a/, /e/, /i/, /o/ and /u/ "have a binary distinction in length." For instance, long vowels are normally tensed with longer duration, short vowels have normally short duration, and contrast between tense and lax: they tend to become lax in 'word-medial' and tense in 'word-final' positions (Hansen 2012: 8-9).

Conversely, van Driem (1998) has found thirteen vowels in modern Dzongkha speech: /i/, /i:/, /u/, /u:/, /ʏ/, /e/, /e:/, /ø/, /o/, /o:/, /ɛ/, /ɑ/, and /ɑ:/. Of those vowels, the same five /a/, /e/, /i/, /o/ and /u/ vary as to length, giving ten; while the other three vowels, /ɛ/, /ø/ and /ʏ/, are normally found long in length (van Driem 1998: 62), cited in Downs (2011: 19-20). Moreover, van Driem (1998) suggested that Dzongkha vowels are always long in duration when followed by velar nasal final [ŋ] and "contrastive vowel length is neutralized in this environment" (p. 63, cited in Downs 2011: 20).

In yet another analysis, Sherpa *et al*. (2008) presented six vowels, /a/, /e/, /i/, /o/, /u/, /ʉ/,

in their 'pioneering Dzongkha text-to-speech synthesis'. They just added a 'close central unrounded vowel', /ʉ/, to the five classical written Dzongkha vowels.

In practice many speakers from Thimphu use the pronunciation [ʌ], which is not given by any of the sources above. It is a phonetic raising of the vowel /a/, as shown by the fact that it occurs as a long vowel before velar nasals, e.g. in /tʃaŋ/, pronounced /tʃʌːŋ/ "wine" (see §2.5.3 below). Thus [ʌ] will not be treated as a separate phoneme.

The following table provides an over viewe of the five Dzongkha vowels used in the present sociolinguistic study:

Figure 2.2: The Dzongkha vowels used for the present study, depicted by author (16/07/2019).

```
                        Close

              i                   u
  Front                                   Back
              e                   o
                        ʌ

                        Open
```
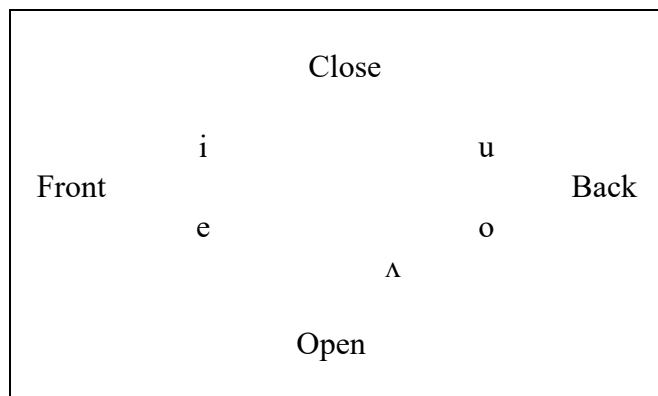
Note that the open-mid unrounded vowel /ʌ/ was used for this study, as /a/ or /ɑ/ (often represented in other linguists' analyses) are often phonetically realized as [ʌ] in the naturally occurring speech of Dzongkha speakers across Thimphu. Further information is briefly outlined in §4.4.1 and §4.5.1.2.

2.5.3   Dzongkha Inherent Vowel

Since all of the conditioning environments for the variables (N), (R) specify an inherent vowel (see Table 2.1), a brief description of this particular vowel is provided here. Dzongkha usually has an inherent vowel /-a/ which is pronounced after every consonant by default (Dorji 1999, Choden *et al.* 2008). It is also sometimes included with the standard vowels, where it accounts for the total of five vowels rather than four as described by Sambhota (7th century CE)

and Lotsawa (1538). The vowel /-a/ is also specified in the list of consonants in Dzongkha (Table 2.1). Thus, this vowel /-a/ stands in for other sounds, as in Urdu, Sanskrit, Tibetan and other related languages. It is inbuilt and implied in every consonant and has no particular diacritic sign to attach to the root letters (Jaschke (1883: 4), DDC (1999: 12), Tshewang (2013: 16).

Dzongkha is a tonal language. Every sound and tone have to begin with the /-a/ sound; for instance, ཨ་པ་ /apʌ/ 'father', ཨ་ལ་ /alʌ/ 'exclamation of suffering', ཨའི་ /aji/ 'mother', ཨ་ཁྱུ་ /atʃu/ 'exclamation of cold', and so forth. Likewise, it is implied in all other consonants such as ཀ་ལ་ /kala/ 'aluminium', མཁའ་འགྲོ་མ་ /kʰanɖom/ 'female angel', དགའ་ /ga/ 'happy', ངམ་ /ŋlam/ 'amaze', et cetera. Like Sanskrit, Dzongkha does not have any sophisticated rules for the inherent vowel /-a/ and one just needs to pronounce every consonant with a short vowel /-a/, whether or not the diacritic vowel is attached to the consonant.

2.5.4   Tones and Tone Contour System in Dzongkha Words

Lexical tone is employed as a conditioning factor in the analysis of both variables, hence is briefly reviewed here. Dzongkha is predominantly a monosyllabic language with a two-tone system – high and low (Mazaudon & Michailovsky 1988, van Driem 1992, 1998; Downs 2011, Hansen 2012, Watters 2018). The two-tone system was first discovered and presented by Weidert (1986) in the paper entitled 'Tonogenesis in the Tibetan Dialects of Bhutan' (circulated for the 19th Sino-Tibetan Conference and cited in Mazaudon & Michailovsky 1988, Downs 2011).

In Dzongkha, the correlation between high and low tone is based on the number of moras and the orthographical spelling composition. For example, a syllable which orthographically contains nasal onsets and affixes like prefix, superscript, or subscript take high-tone; whereas those that do not have orthographic affixes take low-tone (Weidert 1986, Mazaudon & Michailovsky 1988, van Driem 1992, 1998, Downs 2011, Hansen 2012). In most cases, "a syllable beginning with a voiced nasal, glide, or a vowel" is considered to be articulated in a

high-toned register (van Driem 1998: 100), and all other syllables are generally known to be low-toned register. For instance,

- ང་ /ŋʌ˥/ [velar nasal-H] 'Drum',

- ང་ /ŋʌ˩/ [velar nasal-L] 'I',

- གནམ་ /ŋʌ˥m/ [dental nasal-H] 'sky', and

- ནམ་ / ŋʌ˩m/ [dental nasal-L 'when'

etc. (van Driem 1992: 49-52).

In addition to the high and low-toned registers, Michailovsky (1986) reported on the existence of two contour tones in Dzongkha, level tone and falling tone. Mazaudon & Michailovsky (1988) proposed a new 'four-tone system' in the Dzongkha spoken in Chapcha, Phuntsholing and the Thimphu region (*ibid.* p. 118-22). They established that the distinction between high and low is found in both mono- and disyllables, whereas distinctive contours like level vs. falling contours are found only in some syllables; that is, commonly in disyllabic words with diphthongs. The authors also confirmed that there is no distinctive contour in short open syllables or in monosyllables affixed with nasal final /n/. In this case, they perceived these words to belong to either 'H' or 'L' registers, based on their pitch and orthographical affixes. However, the contour tone opposition is hard to find in every dialect of Dzongkha, e.g. Dzongkha spoken in the Paro region (*ibid.* p. 118).

For the distinctive contour tone opposition, Mazaudon & Michailovsky (1988: 118) tagged the 'four-tone system' with superscript numbers in order to identify their particular pitch; for instance, [1] high-level, [2] high-falling, [3] low-level, and [4] low-falling. As a matter of fact, the words with high-level tone – also sometimes called rising contour – are usually glottalized, while the words with falling contour tone are lengthy in duration; especially, in low-toned syllables. Likewise, diphthongs are always found with falling contour tones in Dzongkha (p. 118-19). In low-toned registers, the contour opposition is easier to notice on long and open syllables. These

have high-level tones which rise slightly and end with glottalized sounds, as seen in words 1 and 3 below. Examples 2 and 4 illustrate the falling contour – they seem to fall and end smoothly.

The minimal-pair examples shown below are from Mazaudon & Michailovsky (1988: 119; note that they write the tone in superscript before the syllable).

Table 2.6: The examples of contour opposition in low-toned register (Mazaudon & Michailovsky 1988:119)

No.	Dzongkha	Syllable	English Meaning
1	སྤ་	^{1}pa:	Slice of meat
2	པར་	^{2}pa:	Picture
3	བྲ་	^{3}bja:	Paddy
4	བྱར་	^{4}bja:	Summer

As mentioned above, similar contour oppositions are found in high-toned registers, as in examples illustrated below (Mazaudon & Michailovsky 1988: 119).

Table 2.7: The examples of contour opposition in high-toned register (Mazaudon & Michailovsky 1988: 119)

No.	Dzongkha	Syllable	English Meaning
1	གསུམ་	^{1}sum	Three
2	སུང་མ་	^{2}sum	Talisman
3	འཛིནམ་	^{3}dzim	Tongs
4	ཛིམ་	^{4}dzim	Eyebrow

This chapter has introduced relevant aspects of the linguistic structure of Dzongkha, and the language attitudes held by its speakers, as well as outlining general sociolinguistic literature and studies of the two main variables, in preparation for the analysis to follow.

Chapter 3   Research Methodology

3.1   Overview

This chapter describes the research method used in this survey, explaining data collection and analysis. It begins with the choice of research site (3.2), followed by description of the community of practice (3.3) and the overview of the sampling design in the present study (3.4). The final section (3.5) discusses choice of participants and gives brief background information for them.

The data collection and analysis methods are reviewed, including research questionnaires, data transcription and coding procedures (3.6). Information is also provided on the pilot study (3.7), coding and extraction of tokens of the linguistic variables and statistical analysis (3.9 and 3.10).

3.2   Choice of Research Site: Geographical and Social Distribution

3.2.1   Thimphu Dzongkhag (District)

Thimphu ཐིམ་ཕུ་ /θim-ɸu/ 'dissolving valley' is the capital and the most modernized city of Bhutan. It is located in the western central part of Bhutan, at an elevation of 2,320 meters above sea level, and surrounded by numerous valleys such as Babisa, Motithang and Kabisa, and eight Gewogs ('councils') such as Kawang, Mewang and Chang. In 2005, the population of the capital city was 79,185 over an area of 1,843 square kilometers (Office of the Census Commissioner 2005). At present, it is home to around 115,000 people, including the Royal family (Tourism Council of Bhutan 2016). According to the assumptions and goals of the Thimphu City Corporation (2001), it will be home to a population of 150,000 in the year 2025 with upcoming development and modernization. Wangchhuk (2008) gives a description of Bhutan and its capital city with demographic information, geographical report and current setting.

Such sociolinguistic survey in urban areas is relatively common, though it has less population compared to the evidence from the conducted studies in big countries which have greater population. However, being a virtue of the capital city, Thimphu houses the most population of Bhutan. Comparable sociolinguistic surveys in urban areas are, as indicated below:

- o Macaulay's (1977) study of Glasgow. 1971 population of Glasgow metropolitan area was c. 900,000, or c. 17% of Scotland's population in 1978 (5.25 million [GIP 2018]).

- o Milroy' s (1980) syudy on Belfast (in 2014, Belfast metropolitan area population of 585,000 was c. 31% of the total for Northern Ireland of 1.87 million [NISRA 2017]).

- o Horvath (1985) study of Sydney Australia. In 1986 Sydney's population of 2.99 million was c. 19% of Australia's popn of 15.6 million (ABS 2016).

- o Patrick (1999) on Kingston in Jamaica (in 1982, Kingston urban area population of 524,000 was c. 24% of the total for Jamaica of 2.19 million; Jamaica 1982 Population Census, Volume II-B)

By contrast, Thimphu's current estimated population of c. 115,000 (Tourism Council of Bhutan 2016: 68) is c. 14% of the national population of 826,229. However, the next largest urban area, Wangdue Phodrang, has a population of only about 9,000 (1.1% [NSB 2017]).

Bhutanese in rural areas are migrating to the capital not only for educational purposes, but also for jobs, commerce, and to achieve a better livelihood. As Porpora (1987) and Lopez & Scott (2000) suggest, Thimphu is considered to be Bhutan's central gathering point where Most people in Bhutan have relatives and other important members of their social network who reside in or frequently visit Thimphu.

The sample of twelve primary school students and twelve primary school teachers, as well as twelve parents with different levels of education, is drawn from the schools (three schools in the city and four schools in nearby regions) described below. As noted above, this

focus on sampling speakers engaged in education limits the age range and occupational categories that can be sampled.

3.2.2   Thimphu City Schools

The author was able to conduct interviews in schools at any time with prior access to all schools granted through the Ministry of Education (MoE).

3.2.2.1   Zilukha Lower Secondary School

Zilukha Lower Secondary School is situated in the northern part of Thimphu and just above Trashi Chodzong, the main administrative building for both the King and the Chief Abbot of Bhutan. It is also just a kilometre away from the main town and has a view over the golf course and other majestic landmarks like the SAARC building and National Assembly Building. The primary school has been upgraded to a Lower Secondary School, adding years 7 to 10, and now contains more than one thousand students. Students come from all over Bhutan irrespective of social class and ethnic group.

Zilukha school is a popular school due to its location and diversity of students, teachers, and parents from all social classes and backgrounds.

3.2.2.2   Jigme Losel Primary School

Jigme Losel primary school is located at Chubachu in the heart of the city, surrounded by shopping centers, restaurants, vegetable markets, and other commercial activities. It is also flanked by national and international offices, government and non-government organizations and courts and military offices. It houses more than one thousand students coming from all directions of Bhutan. It is a culturally diverse population, and there is a huge chance of one's language being influenced by other social classes, ethnic groups, social interactions and regional dialects (Trudgill 2000). Nevertheless, they are obliged to speak Dzongkha on school campus for maintaining the national identity and one's own prestige level.

3.2.2.3   **Zilnon Namgyaling Primary School**

Zilnon Namgyaling primary school is grounded at Changzamtog in the southern part of the main town. It is strategically located just below the Jigme Dorji Wangchuck National Referral Hospital and in the center of the family residences of the Royal Bhutan Police. Many parents are police employees from the eastern part of Bhutan, and so are the majority of students in Zilnon Namgyaling, with only a few from the south and west. However, given the sample size, the author faced no problems in getting participants from all three regions: east, west and south.

3.2.3   **Thimphu Regional Schools**

The remaining schools are nearby but outside the city limits.

3.2.3.1   **Khasadrapchu Middle Secondary School**

Khasadrapchu Middle Secondary school (recently upgraded) is strategically nested between the Thimphu-Paro national highway and the titanic Thimchu (Thimphu river). It is located in Khasadrapchu town, a nearby village 18 kilometres away from the capital city; nowadays the village has an urbanized character and is part of an unbroken urban landscape stretching into the city. Owing to the low house rents and living standards, there are settlers with diverse social backgrounds in neighboring areas. Various office-going individuals work in the capital city and live in the area because of cheap housing and accessible road connections.

Furthermore, the school is a member of the *i*-school project with the aim of learning through interaction among the participating schools. It has been jointly run by Royal Government of Bhutan and Telecom and Ericson Company, India. This brings special programmes organized by international organizations to the school. The school has good social interaction and closely-tied social networks.

3.2.3.2   Yangchen Gatshel Lower Secondary School

Yangchen Gatshel Lower Secondary School is situated on the hilltop of Chamgang village, hedged by various thick bushes and fenced by prison camps. It is around seven kilometers from the capital city to Chamgang settlement. The major settlers are western nomads, who are however native Dzongkha speakers, and it was originally a nomadic settlement. It is more isolated from the urban context than Khasadrapchu. The school was built to serve the families with members in nearby prison camps and Bhutan central prison, but there are also a number of new settlers from various parts of Bhutan. For example, some incomers are from the east and speak Tshangla, whereas some new immigrants are from the south and speak Lhotshampa.

However, they have been settled at Chamgang for a number of years, and they generally speak Dzongkha at high-proficiency level, so it is a fully fluent bilingual community to a considerable extent (Dorian 1982). They are obliged to speak Dzongkha for their day-to-day communication in school and at gatherings, though some students and parents who are native Tshangla speakers, and some from the south who are native Lhotshampa speakers, use their mother tongues amongst themselves. Likewise, there are teachers from various ethnic groups due to the transferring culture within the whole of Bhutan.

3.2.3.3   Hongtsho Primary School

Hongtsho Primary School can be found at Hongtsho just above the road between the Thimphu-Wangdue/Punakha national highway, around 18 kilometers from the capital city and separated from the urban context. It is listed under 'regional schools. The earliest settlers were native Dzongkha speakers, but it is said that numerous Tibetan refugees were settled there later due to convenient locations for their businesses. They are Tibetan speakers, but they also speak Dzongkha at high proficiency level in the present day, and they are considered to be a fully-fluent bilingual community. There were no Tibetan-speaking students, parents or teachers in the sample.

However, a number of students are from other parts of Bhutan, including Tshangla speakers and Lhotshampa speakers, due to the new settlements, and some of them were included in the Eastern and Southern components of the sample. It is a very small community and has close relationships between the members of all households. Frequently, everybody gathers at the same place for religious purposes and school activities with their children (Barnes 1954: 40), which makes it easy to conduct interviews.

3.2.3.4   Kuzhugchen Middle Secondary School

Kuzhugchen Middle Secondary School is located in the beautiful valley of Kabisa approximately 10 kilometres from the capital city but is largely urbanised. The community is originally native Dzongkha speakers, with recent incomers from other parts of Bhutan hoping to get a good education for their children and local employment. The area is flanked by the Centre of Royal Bhutan Armed Forces in the front and the Religious Centres of Monastic Body on the upper surface of the school's rear, with lush hills and slopes. Teachers are from every part of Bhutan as per the internal and external transferring system in the Ministry of Education.

3.3   Community of Practice

3.3.1   Social Relations within the Community

Bhutanese have a unique commitment to maintain social harmony, integrity, identity, and sense of belonging to the local community in the context of the Bhutanese traditional social system. This is closely reflected in the structure of community schools (van Driem 1994, National Library 1999, RGoB 2008, Rinzin 2010, DDC 2012), and makes them a candidate for employing the CoP concept. The Bhutanese CoP arguably meets most of the criteria mentioned above. The fact that participants come from different ethnic groups does not constitute a difficulty for examining the speech community, given that the mutual relationships may be either harmonious or conflictual, and there is social pressure to seek harmonious solutions.

Bhutan normally practises the *Driglam Namzhag* /ɖig-lʌm nʌmˈ-ʒʌg/ 'Traditional Bhutanese Code of Conduct' as the key mechanism to keep up the sociocultural practice of a community (National Library 2008, Rinzin 2010: 46). In other words, there is a "set of social norms to maintain faith, respect and politeness between superior and subordinate, between teacher-student, parent-children, husband-wife and between relatives and friends" (Rinzin 2010: 45). The intention is to foster good relationships, and in my observations, they typically existed between parent-teacher-student in the schools studied.

Community relations in the Bhutanese context are manifested in outer settings such as participating in meetings (the Student Association Board brings together parents and teachers) and social gatherings (schools' consorts and religious ceremonies bring together all three groups) held at schools for their children. In addition, some officegoers and workers are able to come to the schools for lunch and tea break with their children during working hours. Beyond the school context, gatherings on national celebrations and official holidays (DDC 1999), annual festivals (national festivals) in public places and individual places (seasonal rituals), and so on, also foster a sense of shared community.

Moreover, in the modern situation, most Bhutanese use other types of meeting platforms such as WeChat, Facebook, FaceTime, mobile communication and other related social media in order to expand their radial friendship circles around the globe. Both English and, increasingly, Dzongkha are used in these platforms. Thus, the principal social role-relations between people in a Bhutanese context include teacher-student, parent-teacher, parent-children, newcomer-old-hand, superior-subordinate, king-public, and of course needless to say between researcher-informant. The very nature of schools, with their mission to socialize children, and the strong participation of parents in school events (for example, they often participate in flower-planting, cleaning schools and other activities), ensures sustained mutual relationships, shared ways of engaging, mutually-defining identities, and learners' interest in participation.

3.4   Sampling Design

3.4.1   The Sampling Method in the Present Study

To obtain naturally spoken data is a typical goal of a variationist study. In doing so, the researcher must select a representative sample of speakers from the target population by using an effective sampling method.   There are a number of approaches to the method of finding informants which have been adopted in sociolinguistic studies by different sociolinguists. For example, Labov (1964) built on a pre-existing random sample (the Mobilisation for Youth) in order to conduct the large-scale investigation for his Lower East Side survey in New York City.The US Census population, based on a random sample, was c. 107,000 residents; the MFY survey population consisted of c.33,000 households and 100,000 individuals, of which they surveyed 988, or a 0.99% sample. Labov's target population, drawn from this, was 8,000 households and 23,000 individuals, out of which he selected 312 and interviewed 122, using stratified sampling methods (Labov 2006).

Many subsequent sociolinguistic samples have been smaller, however. Hibiya's (1995) study of sound change in Tokyo looked at 62 speakers; Marshall's (2003) of glottals in northeast Scottish English sampled 64; Baranowski's examination of vowels in Charleston SC recruited 100 speakers but analysed 43, etc. For a PhD sample, conducted under shorter time constraints, numbers often range from 2 to 4 dozen.

Likewise, Labov (1966, 2006) used another method called 'rapid and anonymous survey' for the social stratification of (r) in New York City department stores. Labov (1972a) also used an alternative method with the concept of 'centrality' in the strong social network of the black English community in Harlem. Other researchers like Milroy (2002) suggest using the method of loose-knit social network 'snowball' sampling for studying linguistic innovation, change and variation.

Milroy and Gordon (2003) describe using a 'snowball' method of accessing social networks to locate a sample. This method was adopted in the present research. It is a type of

'judgement sampling' that predominantly depends on the strength of participants' social networks. In this method, loosely termed as 'a friend of a friend', the principal investigator requests a participant or other agent to deploy another informant from the sample with whom he/she has acquaintance, and who is likely to take part in the study. In other words, it gives more encouragement against the refusal of a participant since they are already assured performance towards the promised project (p. 32). However, since numerous participants are previously known to each other, the method cannot claim replicability or representativeness.

Of a number of sampling methods in finding speakers from the target community, two of the most popular methods are random sampling and judgement sampling. However, common difficulties with random sampling include that it requires ensuring equal opportunity to all speakers to be selected as informants from a community, which demands considerable time and effort.

Conversely, in the judgement sampling technique, the researcher has full control on deciding about the selection of participants, its size and types of sample required according to his/her research questions. The first task is to demarcate the *sampling universe* in order to decide about the boundaries, geographical areas and social groups of the speech community. Thereby, the researcher defines and decides who could be included in the specific study from the entire target population. In some cases, some participants have been included in one survey while they might have been excluded in another research design. For example, Labov's (1966) study in New York City excluded non-native English speakers and Horvath's (1985) study in Sydney includes non-native English speakers (Al-Qahtani 2015: 81-82). However, this method requires the researcher to be familiar with the detailed demographic information and knowledge of the community which is being investigated. Hence, judgement sampling is also called 'quota sampling' or metaphorically described as 'the snowball effect' which is also known as the 'friend of a friend' technique (Milroy & Gordon 2003). The main drawback with this method is

that it often is not representative of the wider community from which the target population is drawn.

The sampling method for this study falls under the judgment sampling technique in selecting participants from the speech community. Firstly, although the author is an insider to the investigated Dzongkha-speaking community, it was impossible for him to gain access to the target community (schools) without gaining prior permission from the Ministry of Education (MoE). Therefore, the author was dependant on his parent office, the DDC, in getting approval from the MoE.

Next, the judgement sampling is more appropriate to this survey since the Dzongkha-speaking community consists of three main geo-ethnic groups: eastern Dzongkha-speakers, western Dzongkha-speakers and southern Dzongkha-speaker, each of whom has unique regional and stylistic features. There are no schools or neighbourhoods within which these populations are evenly distributed.

Another reason is that the author could ensure an equal number of speakers with their socio-cultural backgrounds in the cells to be examined in this study.

Lastly, the author himself is a fluent speaker of Dzongkha as well as knowledgeable about the tradition and culture, and he had no difficulty in accessing the community.

All in all, in the present study, the speakers have been selected based on two different criteria, their geographical and social backgrounds (Piercy 2010). The sample also included both native and non-native speakers of Dzongkha, since it is the official language of the country. Therefore, this sample should represent the members of the Dzongkha speaking community residing in and around the capital city, since the goal of this research is to investigate the variation in the Bhutanese Dzongkha speaking community.

3.4.2   Sampling Stratification

After the decision has been made on the sampling method, the researcher has to stratify the sample in a way that should include all the social factors and variables a fieldworker wishes to observe, as proposed by Milroy & Gordon (2003). For instance, if the variables to be investigated are likely to be sensitive to various social measurements like age, gender, education, social strata and origin, "the researcher should stratify the sample into smaller groups according to these social dimensions in order to make generalizations across the whole community" (Al-Qahtani 2015: 83-84).

Thus, the sample speakers come from three different local regions of birth or origin: Eastern-Dzongkha-Speakers from east, Western-Dzongkha-Speakers from west, and Southern-Dzongkha-Speakers from southern part of Bhutan.

Likewise, the participants are stratified into three groups of age gradation: young (y) from (06-18), adult (a) from (19-50), and old (o) from (51-80). Age is used in order to examine "sound change in progress by use of the apparent time construct" (Piercy (2010: 110) which can also be defined 'etically' or 'emically' (Eckert 1997: 155). However, the present study primarily adopted the systematic approach of 'etic' age stratification that groups individual into randomly determined with equal age spans like decades (Eckert 1983, 1997) according to their date of birth printed on the Citizen Identity Cards (see §3.4.2.1).

The speakers' sex is divided into two categories, male (m) and female (f). Sex and the gender roles based on it play a crucial "role in the mechanism of linguistic evolution" as observed by Labov (1972b: 303) and many subsequent studies.

The speakers were also stratified into three distinctive categories based on their roles related to the schools chosen for this specific study; for example, whether they are a parent (p), or a teacher (t), or a student (s). (Note that these have implications for age as well.)

Social status is categorised into three different hierarchical levels based on the Bhutan civil service rules and regulations of Royal Civil Service Commission (2018): Executive &

specialist level (E), Professional & management level (P), and Supervisory, support & operational level (S). It is the main model of social stratification according to their income and standard of life, which is also well connected to the levels of their education in years from 0-5— Elementary (E), 6 to10—Primary (P), 11—12—Higher Secondary (S) and qualifications like MA, B. Ed, BA, PhD—degree (D). However, we combined social status with educational level for this study. The teachers' occupation is not independent of their social status.

3.4.2.1   Age of Participants

As Eckert (1996) indicates, although aging is a natural phenomenon and process of life, different stages (birth, childhood, young, adulthood, middle age, old age) of life experiences may result constant implications on language use and their variation according to speakers' different age groups. Hence, Milroy and Gordon (2003: 39) state:

> Age by itself has no explanatory value; it is only when examined in the context
>
> of its social significance as something reflecting differences in life experiences
>
> that it becomes a useful analytical construct.

To date, many sociolinguists have commonly used age-gradation as an 'extralinguistic factor' (Macaulay 2009: 1-6) in their sociolinguistic surveys to examine language change either with the *apparent-time* or the *real-time* approaches such as Labov (1963, 1966), Trudgill (1974), Macaulay (1977), Milroy & Gordon (2003). In this regard, the apparent-time method is synchronically used to examine the differences in the usage of language between younger and older generations in the same community, which are sampled at one point in time (Tagliamonte 2012: 44).

Although there is no fixed rule of thumb on age-gradation in sociolinguistic studies, the present study categorised age into three groups for both city and regional participants based on the theory of Eckert's (1997) life-stage model (adolescence, adulthood and old-age) and Macaulay's (2009) distribution of age groups. In order to investigate age and apparent changes in language use in this study, participants were categorised into three different age groups

according to their date of birth printed on the Citizen Identity Cards (CIDC) which are registered with the Department of Civil Registration and Census, the Ministry of Home and Cultural Affairs [MoHCA], Bhutan (1962-2017).

For instance, the youngest age group consists of male and female ranges between 6 and 18 years old (young). Most Bhutanese children start primary school at about 5 or 6 years old; a very few may start at an older age if someone has unusual qualities or needs. The majority of the student informants were born and raised in the capital city. They were in their primary level of schooling and many acquired Dzongkha from their childhood through learning at school and everyday dialect contact with their friends and local communities living in the city.

Many of these 6 to 18 years-old group could speak fluent Dzongkha with a native-like accent since they have wider contact with local speech communities, which are more modernised, and a multicultural society in general. Some of them even had the opportunity to visit abroad on cultural study tour, or exchange program, or scout training tour, thereby gaining a deeper awareness of the culturally diverse population with modern lifestyle which has familiarised more easily with change, including language.

Similarly, the middle-aged group consists of males and females aged 19 to 50 years of age. It represents the middle generations of both primary school teachers and parents that grew up during the process of economic and sociocultural development in the country. Education has improved with the establishment of a number of public schools, colleges and institutions under the Royal University of Bhutan, which led to the creation of more job opportunities in teaching and many educated personnel are encouraged to work in the teaching profession, especially, in Dzongkha subject. Thus, this age group (both teachers and parents) has more opportunity to influence younger generations to follow the usage of their style at school and at home, respectively. The middle generation is at a pivotal moment in Bhutanese people's life – an important point that signifies a shift in direction from traditional to modern ways of life. The

middle group also represent the generation that has more experience in political transition from an absolute monarchy to a democratic, constitutional, and multi-party monarchy (RGoB 2008). With this age group, many changes have taken place over the past 30-40 years, thereby Bhutan has developed culturally, socio-economically and educationally in many ways. Therefore, this age group is chosen to examine the correlation between age and language variation and apparent change in progress in this study.

The final age group consists of males and females aged between 51 and 80 years (old). This age group also represents the older generations of both primary school teachers and parents who grew up before embarking on the modern socio-economic development in the country. The participants of this generation were considered to be associated with long-established sociocultural practice; that is, mainly relying on the local agricultural system: simple trading (mostly barter system) and farming system. These speakers may be averse to change or innovation and hold traditional values and strong social ties among family, relative and people. Thus, the particular periods of people's live were distinguished as young, adult and old in order to observe differences in speech habits within the Bhutanese Dzongkha-speaking community that are associated with age.

Nevertheless, given that the age groups cover a limited range, it will not be possible to draw strong conclusions about change in progress, only suggestive ideas.

3.4.2.2   Gender of Participants

Gender is one of the key extralinguistic factors in sociolinguistic studies. It is commonly understood as referring to sociocultural differences and viewed as a range between masculine vs. feminine (Eckert 1998, 2000, Meyerhoff 2011), not merely limited to the biological aspects and regarded as male vs. female, as many earlier studies apparently did (Labov 1966, Trudgill 1974, Macaulay 1977, 2009, Milroy 1980, Cheshire 1982). As described by Cameron (2003), each single speaker has the potential ability to manipulate the usage of linguistic variations that

symbolically reflects the identity of their gender and attitudes towards language. A similar view is described by Meyerhoff (2011: 213):

> In other words, sex is something you have, and it can be defined in terms of objective, scientific criteria – that is, the number of X chromosomes a person has. Gender, on the other hand, is a social property: something acquired or constructed through your relationships with others and through an individual's adherence to certain cultural norms and proscriptions.

Gender is used more broadly to denote the range of identities that correspond to established ideas of masculine and feminine, thereby speakers can perceive their social standing either consciously or subconsciously (Eckert 1998). For instance, when a man is constantly socializing with a group of women, he might gradually adapt the way in which languages or words are normally used by his female colleagues so as to be accepted in the group. Such accommodation might, or might not, have longer-term consequences for gender identity of the male, both as perceived by himself and by others. Thus, a gender-based distinction is justified fundamentally based on the beliefs, ideologies, attitudes, morals, identities, values, traditions, culture and standards of the community under investigation.

Most of the erstwhile sociolinguistic studies were conducted in western communities and tended to generalise gender-based linguistic patterns; for example, women are more likely to use standard forms than men and to lead linguistic change (Milroy & Milroy 1991, Romaine 2003). With regard to this, Labov (1990, 2001) proposed three specific principles regarding gender and linguistic change: stable sociolinguistic variables, change from above and change from below.

In respect of stable variables, men tend to use more non-standard forms than women and these variables have been around for generations. Moreover, these variables denote more stability in their variation and predictions on speakers' behaviours and attitudes towards language can be made at an easy pace (Labov 1990, 2001, Tagliamonte 2012).

For change from above, linguistic changes happen knowingly: speakers intentionally categorize linguistic variants into standard and non-standard features, from where they make a choice to borrow prestigious forms in language use. It is also socially motivated, which makes women likely to choose the incoming prestigious forms more frequently than men (Labov 1990, 2001, Tagliamonte 2012).

With respect to change from below, it occurs subconsciously within the same speech community, and is mainly linguistically motivated. Women are considered to be most often the innovators that leads to linguistic change (Labov 1990, 2001, Meyerhoff 2011, Tagliamonte 2012). All in all, "for stable sociolinguistic variables, women show a lower rate of stigmatized variants and a higher rate of prestige variants than men" (Labov 2001: 266). Likewise, "in linguistic change from above, women adopt prestige forms at a higher rate than men" (*ibid*. p. 274). Finally, "in linguistic change from below, women use higher frequencies of innovative forms than men do" (*ibid*. p. 292).

These kinds of gender-based linguistic patterns may be valid not only in the western context but also in the eastern societies, including Eastern Europe, Arab countries, Asia and so on. Up to the present time, a number of prominent sociolinguistic studies have explored generalizations on the linguistic differentiation of male and female, as demonstrated by variationist researchers such as Labov (1966), Trudgill (1974), Macaulay (1977), Haeri (1997), Al-Wer (2002), Al-Qahtani (2015), Al-Ammar (2017), Hussain (2017). Hence, the effect of gender as an external explanatory factor on language variation and change appears to be significant when interpreted within its speech community and specific sociocultural patterns.

Traditionally, the roles of men are distinct from those of women in the community of Bhutan. Women spend more time at home, preparing meals, house cleaning, weaving clothing, bearing children and looking after their families. Moreover, illiterate women are housewives and, customarily, they are confined to their home and its nearby surroundings. On the other hand, the

old urban men are considered to be more educated and have more space in public areas. Some had the opportunity to become educated in developed countries like India, the USA, the UK, or other south Asian countries. Daughters often stayed home and inherited all land and wealth of their parents, while sons received more educational opportunities and went out to stay with their wives (Wangchuck 1999, NCWC 2004, Aris 2005). Hence, older urban men were more into external affairs and have experienced wider dialect contact than the housewives (women) in Bhutan. Moreover, men from the oldest age group had better opportunities and held the dominant senior position in politics, as well as the government offices.

In the current situation, city and regional women from the middle and young age groups have more mobile and flexible lifestyles. The traditional Bhutanese culture does not isolate women, they share workloads and households' responsibilities and work side by side in the field due to urbanization and modernization in Bhutan; especially, in the city. Girls and boys now receive equal educational opportunities, and properties are divided equally between sons and daughters (Wangchuck 1999, NCWC 2004, Aris 2005). Like men, adult and young women nowadays have the opportunity to study not only in Bhutan but also abroad and have wholesome experience in dialect contact as men do. Likewise, the number of women, from adult and young age groups, have drastically increased in holding the senior position in politics, government workplaces and non-government organizations.

Owing to these age-gradation and gender differentiations, one might expect that gender would have some effect on the realization of the variables in Dzongkha: nasal finals and postvocalic rhotics, which are under examination. In this study, the interest is in 'gender of participants' that compares sociolinguistic variable use between men and women within the Dzongkha-speaking community. Relevant comparisons include the New York City study by Labov (1966) for (th), (dh), (ing); the Glasgow study by Macaulay (1977) for (t); the Norwich study by Trudgill (1974) for (ing), et cetera. This study determined to collect data from

both men and women equally (50/50) to observe gendered patterns in the use of Dzongkha (N) and (R) variables. However, too little is known about the speech community to make predictive hypotheses – any patterns emerging according to speaker gender will be examined in Chapters 4 and 5.

3.4.2.3   Education Level or Class of Participants

This study also examines the variation in Dzongkha across the levels of education and classified into four different levels among Bhutanese society: elementary, primary, secondary and degree levels. The reason behind the idea of employing education as an external factor for this study is precisely because the main causes of linguistic innovations like social, occupational, educational, geographical or spatial factors, including individual speaker's identity, are interdependently correlated. As Al-Wer (2002) described, the educational factor not only draws the line between educated and uneducated but also demarcates the levels of qualifications: lower, middle and higher levels of speakers' education. Hence, a clear correlation between "speakers' level of education and their linguistic choices" are found, thereby education can be defined as a "*proxy* variable" in the present research (p. 2). With respect to this, education acts as one of the key tools for speakers to have opportunities of contact with speakers of the target feature (Al-Wer 2002: 15).

Similarly, the level of education also significantly affects linguistic influence by creating social space for people to interact with each other through informal and face-to-face interactions (Trudgill 1986, Chambers 1995). This includes building relationships between individuals, groups, organisations and societies, or friends, neighbours, classmates and workmates, which is not only nationwide but also abroad and international western universities. Labov (1996) and Trudgill (2000) also asserted that education level is one of the key sources of income differentiation and a fundamental measure to demarcate social strata which accounts for standard and local dialects.

Eckert (1989) also highlighted that education, its environment and social network clusters have more effect on language use than parents' socioeconomic status. See for example her observation on backing and lowering of (uh) between the groups of Jocks and Burnouts in a high school in Suburban Detroit. The jocks were a group in the school who actively engaged in academic work and enjoyed school life with the expectation of achieving the corporate workplace. Burnouts, on the other hand, were quite opposite of the jocks who mostly engaged in rebellious behaviour, skipped classes and prepared to enter the blue-collar workplace. Likewise, the jocks' social networks are restricted to those within the same age group in the school environment, whereas burnouts' social networks extended across age group and local and urban environments. This shows one must be sensitive to cultural and social differentiation among students of the same age and level.

Due to the shared social practices together, some of the linguistic features are more likely to be accommodated to by their friends, social networks and environments (e.g., school) — than other demographic categories like parental occupation. Thus, a good learning environment has more impact on the usage of language towards others, and it denotes that the higher quality of education the speaker acquired, the politer and more respectful they may be in their speech, tending towards the standard forms (Eckert 1989, Al-Wer 2002).

Likewise, in the social practice of Bhutan, level of education also corresponds to the position categories in the civil service structure, as detailed in Bhutan Civil Service Rules and Regulations [BCSR] (2012, 2018). The higher the education level of the civil servants, the more advanced higher position in the civil service structure that too leads to linguistic influence through in(formal) interactions between friends, workmates and neighbours at both national and international levels. The education levels described below will thus be correlated with occupational hierarchies in the following section.

The education level of the speakers is divided into 4 categories in the present study: Elementary, Primary, Secondary and Degree.

I.   Primary School students studying from class 1 to 5, and parents who only studied between 0 to 5, are labelled as "E" (elementary).

II. Primary School students, teachers and parents who studied school between class 6-10, but did not complete secondary education, are categorised as "P" (primary).

III. Primary School teachers and parents who completed school between 11-12 are branded as "S" (secondary).

IV. Finally, Primary School teachers and parents who obtained between bachelor's degree level to master's or PhD Postgraduates are coded as "D" (degree/ postgraduate).

This study notes that the education levels and the position categories of the speakers are correspondingly interconnected, including speakers' social strata, occupation and residence value. Hence, due to internal, transnational migrations, urbanisation and high level of contact of other speakers (e.g., Tshangla-speakers and Nepali-speakers) with speakers from Dzongkha-speaking background, it is expected that communities become more heterogeneous and tend to share more innovative features.

It is worth adding that in Thimphu education is universal, so that all children attend school; thus, the sample is not biased in this respect.

3.4.2.3.1   Correlation of Educational Level and Occupational Hierarchy

Under the definition of civil service structure outlined in BCSR (2012, 2018), the positions and authority to make decisions are mainly relied on for the qualification (education level) of the civil servants, as outlined here:

1. Executive and Specialist Category (ESC) have more scope of authority and huge responsibility in making decisions both within and outside of government. In order to

take up the highest position in the civil service, one should have a minimum of PhD/Master's Degree/Bachelor's Degree in a relevant field. "A secretary to the Government is the highest position in the civil service" following the *Dzongdag*, the District Chief Administrative Officer (BCSR 2018: 15-16). Hence, they are equivalent to educational level "D" (see point IV in previous section).

2. The second highest level in the civil service is Professional and Management Category (PMC), which should have a minimum of bachelor's degree in a relevant field. "It's decision-making scope is within broad guidelines established within existing policies". The work-scope of this position goes beyond the day-to-day issues and holds important responsibilities in implementing decisions determined by EX/ES by developing and recommending changes in policies and procedures for Government (BCSR 2018: 15-16). Hence, they are equivalent to educational level "S" (point III in previous section).

3. Supervisory and Support Category (SSC) is the second lowest position in the civil service and should have a minimum of class 10 to 12/Diploma/Certificate in a relevant field. "It's decision-making scope is within defined guidelines established within existing policies". This position holds the responsibilities to implement day-to-day decisions determined by EXC/PMC by supervising and supporting employees with their scheduled and assigned works in office (*ibid* p. 15-17). They are equivalent to educational level "P" (point II in previous section).

4. The lowest position in the civil service is Operational Category (OC) which should have a minimum of class 5 to10 in a general field. "This category is required to comply with set objectives, methodology and specific task assignments". It is responsible for contacting and receiving phone calls, sorting out daily corresponding

and mails, typing, data punching and preparing reports of the respective office (*ibid* p. 15-17). They are equivalent to educational level "E" (point I in previous section).

3.4.2.4   Ethnic Identity of Participants

Ethnic identity or ethnic group is a social organisation that shares a common genetic descent, kinship ties, distinctive culture, nationality, religion, language, society and a state of belonging to a social group (Barth 1998). Such social groups are believed to share common motives and goals, and to exhibit some degree of sense of unity with flexible geo-ethnic boundaries. Contemporary approaches to ethnicity involve both self-assignment to a group, and perception by outsiders of ethnic group membership. In the present project, the sample is classified into three different ethnic groups according to their common or shared cultural characteristics, including interests, values, social backgrounds, verbal or non-verbal communication and social networking and interactions. They are—Eastern Social Group (ESG hereafter), Western Social Group (WSG hereafter) and Southern Social Group (SSG hereafter). Concise accounts of the three ethnic groups are described here and further explanation can be seen in §6.4:

1) The ESG is regarded as a distinctive group who share common goals, history, shared cultural characteristics, norms and values, and a distinct language variety. They are native Tshangla speakers, also called Sharchop, which is a Tibeto-Burman language of the Eastern Bodish branch. ESG are speakers of Sharchop descent, an Indo-Mongoloid tribe that originally migrated from Assam or Burma (Hasrat 1980, Tshewang 1995). They are also closely related to the Mönpa and mostly live in the eastern regions of Bhutan (van Driem 1993). Sharchop people's livelihoods traditionally primarily depend on *Tseri* agriculture 'slash-and-burn', planting maize, rice crops and other vegetable, including potatoes, turnip, beans, etc. Moreover, they are required to learn and speak the official language, Dzongkha, in offices, meetings and public areas for official, commercial,

political and societal prominence in the country (Hasrat 1980, van Driem 1993, DDC 1999, Tshewang 2013). Thus, they are known to be Eastern Dzongkha-speakers (EDzS hereafter) who have distinctive features in the variety of language they use. Most ESG practise Nyingma (old translation school of Buddhism) and Tersar (newly discovered treasure of Buddhist school) with some elements of Bön as their native religion. However, after the modernisation of Bhutan, ESG underwent a radical transformation in infrastructure and an immense number of immigrations into Thimphu resulted. This started bringing them into regular contact with urban people of western cities, including their capital city and their language variety, which may have triggered significant effects on linguistic variation and change.

2) The WSG can be referred to as a single and unique group who share a common history, culture and values, and a distinct language variety with unique discourse markers. They are native Dzongkha speakers, also known as Ngalop, a Tibeto-Burman language of the Central Bodish branch. WSB are speakers of Ngalong ancestry, the earliest risen or earliest settled people, who migrated from Tibet to Bhutan as early as the 7th century (Rinchen 1972, Hasrat 1980, Tshewang 1995, Phuntsho 2013). They live in western and northern Bhutan, including Thimphu and the Dzongkha-speaking region. Ngalop people traditionally earned their livelihood from agricultural farming such as Bhutanese red rice, potatoes, chili, different kinds of fruits, and other seasonal climate crops. Ngalops speak Dzongkha as their first language and are regarded as Western Dzongkha-speakers (WDzS hereafter), seeing their language as derived from old and classical Tibetan (van Driem 1993). The majority of WSG practise the new tradition of *Drukpa Kagyud* School of Buddhism introduced by *Zhabdrung Ngawang Namgyel* (1594-1651) as their inherent religion. It is also the state religion of Bhutan which is officially known as *Ka-Nying Zungdrel* 'dual system of old and new school of Buddhist tradition'. At present, the

practice of Bön is in the minority, although it was their older ethnic religion (Rinchen 1972, Tshewang 1995). However, another typical characteristic of this particular group is the unique variety of language they use (*n*-less and *r*-less forms) which is suspected to be the innovative forms of Dzongkha. It will be studied bleow to determine whether it has significant effects on language variation.

3) Finally, SSG are regarded as a distinctive group who share a common history, socio-cultural norms, shared values and customs, and a typical language variety. They are a Nepali-speaking community, a language also colloquially termed as Lhotshampa, which belongs to the family of Indo-Aryan or Indic languages, the dominant language family of the Indian subcontinent (van Driem 1993). This group is a heterogeneous Bhutanese people of Nepalese background who migrated to Bhutan form eastern Nepal in the early 20th century. They settled in the southern part of Bhutan and are referred to as southerners or Lhotshampa in Dzongkha. Lhotshampas' traditional source of income mainly depends on sedentary agriculture and some *Tseri* 'slash-and-burn' agriculture, and planting some temperate crops like orange, mango, sugarcane, etc. (Rinchen 1972, Hasrat 1980, Savada 1993, Tshewang 1995, Phuntsho 2013). Lhotshampas speak Nepali (the language used across the southern border) as their mother tongue and are referred to as Southern Dzongkha-speakers (SDzS hereafter) in the present survey. They learn speaking and writing Dzongkha from schools (van Driem 1993, DDC 1999) since the official view is that "the official language is Dzongkha, while regional *lingua francas* exist (i.e., in the east, Tshangla, in the south, Nepali, and across the country, English" Chand 2013: 870). Moreover, "Dzongkha is the only indigenous language with a literary history" and "has been the language of the court, military, government administration, and educated elite for centuries" Chand 2013: 870). SSG speakers largely follow Hinduism as their fundamental religion, and they tend to abstain from beef, following the orthodox Hindus

(Hasrat 1980, Savada 1993, Tshewang 1995). Due to massive social mobility, urbanisation, industrialization, including internal and transnational migrations and undergoing rapid gentrification, speakers from rural communities get regular contact with the urban people of Thimphu and their language variety, which may influence language variation in the use of the traditional features (nasal finals and postvocalic rhotics).

According to the sociolinguistic perspective, the different abilities in speaking Dzongkha differ hugely in the significant results due to the different geo-ethnic social groups in the Bhutanese Dzongkha-speaking community. The higher the level of social interaction and dialect contact of a speaker with speakers from different dialectal background, the more innovative Dzongkha forms they tend to use. Hence, the present study employs four external explanatory factors (age, gender, education and ethnicity) in order to measure speakers' level of dialect contact that leads to spot linguistic variation and change in progress within the same speech community.

3.5   The Participant Sample Design of the Study

As described in §3.4.2, the sample for the current study is distributed over three social groups (ESG, WSG and SSG), with three generations (younger, middle-aged and older) two genders (male and female), three types of roles (parents, teachers and students) and four levels of education (E, P, S and D), who are currently residing in (city) and around (region) Thimphu. Eighteen cells are stratified in order to represent all social groups identified in this investigation. Two participants are allocated per cell, consisting of two male speakers 1 and 2 in the first cell, and two female speakers 1 and 2 in the second cell (see Table 3.1 below).

In this respect, some of the social variables, such as age and education among parents and teachers, are not equally distributed. However, multiple logistic regression is compatible with this kind of distribution in principle, as many variationist studies attest (Johnson 2009). Similarly, Clark (2010: 8) affirms:

Logistic regression is well-suited to the type of data that we usually have in sociolinguistics because it is a method that is nonparametric – it does not require equal variance in the cells of a model and does not require that data be normally distributed.

Sociolinguistic studies vary widely in sample size (number of speakers), since the amount of variation occurring in a data set and the effect size of each predictor variant are dependent on the social backgrounds of speakers, not merely on the number of speakers. For example, Milroy (1980) interviewed 16 informants in each of three working-class neighbourhoods of Belfast for her Language and Social Networks survey (Milroy & Gordon 2003: 76). Gordon (2001) interviewed 16 participants for his study of *Small-town Values and Big-city Vowels: A Study of the Northern Cities Shift in Michigan*. Al-Qahtani (2015) employed 28 speakers for a sociolinguistic study of Tihami Qahtani dialect in Asir, Southern Arabia. Macaulay (2005) recorded 32 speakers for the variationist study on *Talk That Counts: Age, Gender and Social Class Difference in Discourse*. Stenström, Anderson & Hasund (2002) recruited 32 interviewees for their research on *Trends in TeenageTalk: Corpus Compilation, Analysis and Findings*. Shuy, Wolfram and Riley's study on linguistic correlates of social stratification in Detroit speech sampled 702 informants, however in the end only 36 participants were chosen for analysis (1968:7, 77). Most studies employ a moderate sample size of speakers to avoid data handling problems, to ensure appropriate informants, to achieve significant results and in the interest of saving time (Sankoff 1980, Milroy & Gordon 2003).

Likewise, regarding the length of interview, in most sociolinguistic studies, thirty minutes is good enough to gain phonological data and longer interviews do not necessarily generate high-quality data (Milroy and Gordon 2003).

Thus, the actual sample size for the present study is comprised of thirty-six participants as stratified below.

Table 3.1: Stratified sample displaying the age, gender, education level (social categories), geo-ethnic groups, roles and number of speakers

Group / Role	ESG		WSG		SSG		
	M	**F**	**M**	**F**	**M**	**F**	**TOTAL**
Parents	1ME	1OE	1MP	1MP	1OS	1MS	6
	2ME	2ME	2ME	2MS	2OD	2OS	6
Teachers	1OD	1MD	1MD	1MS	1OS	1MS	6
	2MD	2MS	2OS	2MD	2MD	2MS	6
Students	1YP	1YP	1YP	1YP	1YP	1YP	6
	2YP	2YP	2YP	2YP	2YP	2YP	6
TOTAL	6	6	6	6	6	6	36

As can be seen in Table (3.1), the social group is classified into three categories; namely, ESG for eastern social group, WSG for western social group and SSG for southern social group. It is followed by roles of participants: P for parents, T for teachers and S for students, and then followed by age gradations that used Y for younger, M for middle-aged and O for older speakers. The final social parameter is the level of education and this project used E for elementary level, P for primary, S for secondary and D for degree level of participants employed in this study. To interpret, in the upper left-hand corner of the table the cell 1ME denotes the 1st middle-aged male (M) speaker number 1, with elementary level of education (E) from eastern social group. In the same way, the same cell contains the 2nd middle-aged male speaker, with elementary level of education from eastern social group, and so on.

3.6   Data Collection and Analysis
3.6.1   The Recording Instrument

It is essentially important to choose the right recording equipment to acquire high quality of data. The recordings for this present study were made on the M-Audio Microtrack Handheld voice recorder. It has a rechargeable battery and a lapel clip T-shaped stereo electret microphone; a RØDE Reporter Dynamic Microphone was also used. It was reliable and very effective in

terms of voice quality. It was also portable and small and can be placed on a small tea-table without distracting the speakers.

Interviews were recorded in WAV format and saved onto laptop and other PCs via an SD memory card. All the recordings were archived as WAV files which gives an easy way of formatting, editing and organizing files as well. Likewise, as Johnson (2003) recommends, all of the interviews were recorded at 16 bits which gives a high quality of speech sound, though it creates a large size of files.

Finally, recorded files were stored on a password-protected external drive, PC and laptop to manage bulky, over-sized files as well as to avoid loss of them, for data coding, transcription and translation. The duration of the recordings ranged from 30 minutes to 120 minutes.

3.6.2   The Sociolinguistic Interview

The sociolinguistic interview is the most common approach and the principal tool used in collecting sociolinguistic data. It was first developed by Labov (1966, 1972a, 1973-77), and subsequently redevised and used by other variationist sociolinguists. The main advantage of collecting data through sociolinguistic interviews is that it allows the elicitation of large quantities of spontaneous speech-tokens in a short period of time, especially with limited speakers. Labov (1984) highlights that this interviewing method must target "to record with reasonable fidelity" within realistic time frame from numerous interlocutors (p. 32). The main aim of variationist surveys is to locate and analyse the usage of linguistic structure of variation within speakers of a particular variety with the purpose of discovering new linguistic information and/or of mapping social distribution of speech forms.

Many sociolinguistic researchers encounter difficulties in obtaining the most casual and naturally occurring speech style due to the "observer's paradox" (Labov 1972b: 113, 1984: 30). At some juncture, the speakers may naturally switch from casual style to formal style in the presence of an interviewer and their "systematic observation" (Labov 1972b: 113). Researchers

are required to turn informants' attention away from the presence of human observers by employing thought-provoking questions with casual style such as "danger of death," et cetera. (Labov 1973-77). The more the casual and less self-conscious linguistic style, which is known as the vernacular, the more systematic is the variation found (Labov 1972b). Many scholars have argued for a more complex understanding of what constitutes vernacular speech and noticed that the sociolinguistic interview is not always an appropriate method, yet as Becker (2013: 98) concludes in her survey, "The Sociolinguistic Interview continues to hold its place as the central methodological tool".

The Labovian sociolinguistic interview methodology was developed in conjunction with notions about "standard" language and "prestige" forms, which is common throughout the sociolinguistic literature. Given the large cultural and social contrasts between Western urban communities and Bhutan, such notions have not been assumed in the present study, though they have been considered as points for comparison. Instead, since it is clear that consonantal final nasals and rhotics were traditionally valued, the term "traditional" has been used, and in places the term "innovative" has been opposed to it – though given the study design, it cannot be concluded firmly that change is in progress.

The sociolinguistic question is less structured and more flexible than fixed and standard questionnaires for other surveys and participant observation techniques. The interviewer can easily initiate smooth and fluent conversation and generate questions according to the atmosphere and speakers' background knowledge to keep the conversation going on. Chambers and Trudgill have also emphasised that interviewers must develop relationships with a friendly manner, or "rapport", with new faces of interviewees (1998: 24). This increases the opportunity of obtaining naturally occurring speech for investigation; that is, the most favourable data for variationist research (Milroy & Gordon 2003). The interviewer (author) gained various experiences through meeting a number of interviewees with different social levels (superior,

middle and lower levels), geo-ethnic social groups (ESG, WSG and SSG) and viewed the interview as a social gathering or event (Labov 1984). He was mostly introduced by the principal of the school or a friend as a 'friend of a friend' (Milroy & Gordon 2003) and then welcomed as a known guest or interviewer by the interviewee.

For the present study, the questions attempted at covering appropriate social issues, individual or personal and demographic information that helped the participants to answer or narrate the relevant social issues with their level of language contact. The researcher endeavoured to conduct an interview with a casual style of speech in order to trigger the occurrence of more local accent features. The researcher also tried to create room for "speakers to talk for as long as possible on any topics" they have been asked to answer, based on prepared sociolinguistic interview modules (Piercy 2010: 123, Labov 1984). Although the research modules and materials were pre-prepared, they were delivered orally from memory, and could be altered, skipped and added whenever necessary rather than sticking with fully structured questions, as expressed by Milroy and Gordon (2003: 57).

The settings and locations for these sociolinguistic interviews varied according to the convenience of informants. For example, all teacher and student recordings took place in school areas such as principal's office, staff room, library, storeroom and conference rooms. They were all equipped with traditional and modern set-ups according to the level of remoteness and modernization. Some staff rooms and conference halls are well-equipped with modern sofas, chairs and tables, while some are still using traditional wooden-handmade chairs, tables and long thin wooden benches. Certain interviews were conducted at participants' flats, attics or houses if they work as housewives or work from home, and others were interviewed on school campus when they came to bring packed lunch for their children. Likewise, a few interviews were conducted in the DDC (my parent office); for instance, Sigay P, Taxi driver and Tenzin, D, Policewoman since they were on the move for their daily work and duty, accordingly. A single

interview conducted in participant's office was Mr. Damper. S. R. who works as a Chief in a government-owned forestry office with modern set-ups, a few cups of hot coffee and silent surroundings with dignity as per his pre-instructions to his subordinates in the office.

Finally, as noticed in the text, all speaker preferred their names to be identified – the compromise of using initials was adopted and agreed and will be maintained in the present study.

There were frequent interruptions in schools from bellringing during the change in periods and a bit of rustling noise outside the rooms during the break-time. Similarly, some interviews in participants' house and office were interrupted by phone/mobile calls, rain sounds from the roof and sound of footsteps while staff moved around in the office. However, these interruptions indirectly helped participants to divert their attention from the interview and, in turn, provided very casual and naturally occurring speech. The volume and quality of recordings were slightly poor at first, but significantly improved after practice. All recordings are found to be maintained up to standard for the investigation of language variation and change in Dzongkha in spite of a few difficulties that occurred due to unavoidable situations.

3.6.2.1   Casual Speech and Sociolinguistic Interviews

Based on Labov's (1973-77) original modules and (1984) conversational networks, the author redevised and structured the interviews into modules and other sets of sociolinguistic questionnaires (e.g., picture task, storytelling, minimal pairs and reading passages). Appropriate topics for the Bhutanese Dzongkha-speaking community were selected, relating to e.g. food, rituals and culture. Pilot interviews revealed that Bhutanese speakers often talk continuously without the need for prompting by frequent questions, and this was confirmed in the larger study. Hence, the present sociolinguistic modules were relatively less structured and more flexible than a usual questionnaire. This successfully led to a free-flowing conversation and allowed the researcher to develop a topic asking for participants' opinions. Such an interview maintained a

flexible approach to the interviewee in selecting relevant topics according to speaker's interest and eagerness to continue with the conversation (Milroy and Gordon 2003).

The sociolinguistic interview is also considered optimal for variationist study and a tool for obtaining more casual and natural speech (Hirano 2011: 83) by observing "how people talk when they are not systematically observed; yet we can only obtain this data by systematic observation" (Labov 1972b: 209). More detailed sociolinguistic modules can be found in **Appendix** (6).

Since it was a time-consuming interview, the author conducted recordings on two occasions for general speakers, recording casual speech in the first visit, and the rest in the second visit. At the interview, the author briefed informants on the interview process, recorded speech at a casual pace and thanked participants for the successful recording.

In addition, the author extracted all the lists of nasal finals, and rhotic finals, listed in the Dzongkha dictionary, to be used as a reference point in constructing elicitation tools (Lotsawa 1538, Rinzin 2009a). The details of Dzongkha words with final nasals and rhotics can be obtained from the author.

"In order to have adequate data for analysis" (Tai Ho 2004: 96), though a long interview is not necessary for sociolinguistic study, the aim of this survey was to record between sixty to one hundred and thirty or more minutes of conversation from each speaker, with the exception of primary students. The latter were asked to tell a few short stories instead of casual speech, since they were not capable of answering all those fully-fledged questions. Thus, the following are examples of other sociolinguistic methods employed to elicit qualitative data for this study.

3.6.2.2   Picture Task

In this research project, a picture identification task was employed to examine "the word-recognition performance of" primary students who are not capable of answering linguistic modules fully (Wilson & Antablin 1980: 57). In the main task, they were asked to look at the

pictures and representations of targeted words for both (N) and (R) which were recorded in a sequential arrangement. In order to proceed to utterance, they were required to name or describe the pictures in Dzongkha with a 'closed-set response' or 'open-set response' to the pictures (Wilson & Antablin 1980: 1). More details of picture tasks for both (N) and (R) can be seen in **Appendix** (7).

3.6.2.3   Minimal Pairs

Minimal pairs are pairs of words or phrases (in Dzongkha) which differ by a single phoneme or toneme, and which bear unique tones and meanings. In Dzongkha phonology, there are some exact minimal pairs where the only difference is in tone; and some near-minimal pairs where there is also a difference in word-initial consonant (Lotsawa 1538, Rinzin 2009a, 2009b, DDC 2013). In this analysis, Dzongkha has simply two tones – high and low – which constitute two separate phonemes with distinct meanings (Mazaudon & Michailovsky 1988, van Driem 1992, 1994, 1998; see sections 2.4, 2.5.4). In this study, some pre-arranged minimal pair wordlists were tested with all speakers (except a few illiterates) for both (N) and (R) variables to confirm tone and vowel contrast in Dzongkha speech. It was important to make sure for our speakers that tone did not fully determine the final segment. The focus was not on consonant segments; however, they are distinguished for the variables (N) and (R). This is not a claim about presence/absence of final nasals and rhotics; it denotes the contrast in tones and vowels with high and low tones. (More details of minimal pairs for both (N) and (R) can be seen in **Appendix** (8).

3.6.2.4   Storytelling

In addition to casual speech and other styles for data elicitation, a storytelling task was also employed for the primary school students as a substitution for casual speech interview modules. The storytelling task is considered to be a semi-casual form of speech (Wilkins 2004). In this respect, Bhutan retains an age-old culture of sharing stories among all walks of life as a

means of entertainment and cultural preservation which is being passed down through generations by way of an oral tradition. Every young, adult and elder Bhutanese has considerable knowledge of storytelling through sharing one's personal stories or re-telling stories that have appeared in literature or been foretold by older generations, as some general steps to story building.

The storytelling method was deliberately designed for primary children, and they were asked to tell one to three or more stories in two consecutive recordings. There are a number of different narrations such as personal stories, made-up stories, fairy tales, folk tales, epics, et cetera. Additionally, some stories had to be sourced from textbooks with simple story passages containing appropriate tokens. I asked them to first read the story at home and then a week later I recorded them re-telling it informally, which is categorised as casual speech for children in this study.

In a few cases, the researcher asked the primary school children to tell traditional stories they learned from their parents and teachers, whereas others were asked to narrate the story using pictures. The retellings of traditional and book stories are coded identically. However, the picture-task was initially coded separately. In the end, however, it was grouped together with the other narrative data. All in all, the primary students performed very well in storytelling tasks, thereby providing adequate tokens to examine stylistic variation in the Dzongkha speaking community of Thimphu.

3.6.2.5   Reading Short Passages

Primary school children, teachers and parents were examined using a short reading passage. Passages included words with final nasals and rhotics in order to examine pronunciation when the speaker was conscious of the articulation of the (N) and (R) endings in their most formal speech (Labov 1972b, Tai Ho 2004: 106). (More details of reading passages can be seen in **Appendix** (9).

3.6.2.6   **Language Ideology and Attitudes Towards Dzongkha**

In addition to sociolinguistic modules, some questions were designed to capture speakers' opinion, ideology and attitudes towards Dzongkha, as described by Chand (2009), Whiteside (2009), Choi (2003). It is generally believed that a language will develop when its users have positive attitudes toward it; it will become extinct when its users have negative attitudes toward it (Choi 2003).

However, there is not space in this thesis for a detailed examination on language ideology and attitudes in Thimphu, which did not elicit views about specific linguistic features in any case, but focused on language choice, domains and identity values of Bhutanese varieties overall. In order to capture the language ideology and attitude towards Dzongkha, a general qualitative question was used for both (N) and (R) variables in the present thesis. The example of full questionmaire can be seen in **Appendix** (10). Some key responses to these questions from Dzongkha-speakers can be seen in (2.4).

3.7   **The Brief Pilot Interview**

For the present study, I was able to record a brief pilot interview in 2013 at the beginning of the research in order to check the reliability of the study methods. It was conducted in London with one male from eastern Bhutan and one female from western Bhutan. They were pursuing their master's degrees in London.

I recorded some of the naturally occurring speech of the native and the non-native Dzongkha speaker in order to examine the variation between eastern and western Dzongkha. Moreover, the pilot interview is an indispensable assessment "to identify important variables" across a linguistic community (Milroy & Gordon: 141).

The researcher transcribed the tokens uttered by two speakers but did not carry out full analysis as it was just to give confidence to proceed with the main survey. For example, after listening to the interviews numerous times, the researcher transcribed the whole recording word

for word, and then highlighted the most remarkable features or tokens which are under investigation in this study. I also made a list of a number of parts of speech containing nasal and rhotic ending features that the speakers often used with different tones (H and L). Thus, this pilot interview gave a range of ideas about what we were looking for and which linguistic features to focus on.

3.8   Preparation of the data for Analysis
3.8.1   Data transcription

Recordings of thirty-six speakers were transcribed for the purpose of analysis. This study has recorded 2,097 minutes of speech from 36 participants for the final dataset. The orthographical system of Hirano (2011: 86) and standard phonetic conventions (Hepburn & Bolden 2013: 58, 68) were used for transcribing the audio data. Each transcript was saved into Microsoft Excel with underlying spellings and IPA symbols 'to facilitate faster token identification' (Piercy 2010: 128) with their surrounding environments (e.g., preceding segments and following segments). An example of a transcribed token can be seen in the following Table 3.2.

Table 3.2: Orthographical and phonological transcription for data transcription

Time Stamp	Underlying Spelling	Words (IPA)	Environment	English
00:00:15	མེ་ཆུང་བ་འདི	tʃʰuŋ	Mi tʃʰuŋ wadi	Small

3.8.2   Coding Method for Variants and Variables

Two distinct Dzongkha variants (N) and (R), including both linguistic and social variables from thirty-six speakers were coded and sorted in separate Excel spreadsheets. After coding and a thorough checking of tokens in each Excel spreadsheet, all the tokens from 36 participants were grouped together in one Excel spreadsheet and saved in *.csv* format for Rbrul analysis.

As Meyerhoff (2009: 4) suggests, quantitative tests normally require a minimum of 20 tokens "for every possible combination of social and linguistic factors" in order for it to produce reliable results. Accordingly, 101 tokens were coded per speaker for the (N) ending variable (with variants [ŋ], [n], [m] and [Ø]). For the (R) ending variable (with variants [r], [ɾ] and [Ø]), 61 tokens were coded per speaker because this variable occurs less frequently in Dzongkha speech. We coded equal numbers of tokens from each speaker.

The symbols and methods used for coding the transcripts for both (N) and (R) are illustrated in **Appendix** (11), and the coding protocols can be viewed in chapter 4 (N) and chapter 5 (R), respectively. For both (N) and (R), there was little difficulty identifying deleted cases by auditory impressionistic coding as they are quite salient in Dzongkha pronunciation.

3.8.3   Extracting Target Tokens for (N) and (R) Variables

All relevant linguistic variables or tokens for this study were extracted from spontaneous conversation and more formal styles. Every appropriate linguistic and social factor was coded distinctly and entered into the Excel sheet for statistical analysis, though nasal (N) and rhotic (R) variables were coded differently in some respects. There were 3,636 tokens of nasal variables and 2,196 tokens of rhotic variables, and 5,832 tokens in total.

Furthermore, some irrelevant tokens were excluded. For example, when analyzing the nasal finals in Dzongkha, words with the voiced palatal nasal /ɲ/ and voiced retroflex nasal /ɳ/ were not coded since they are just root letters and not included among the ten nasal endings (Mazaudon & Michailovsky 1988, Dorji 1990, van Driem 1992, DDC 1999, Sherpa *et al.* 2008, Rinzin 2009a, 2009b, 2010, Hansen 2012, Dorji 2012, Tshewang 2013).

Likewise, some of the (R) ending variants such as [ɹ] (approximant), [ʋ] (labiodental approximant), [ɻ] (retroflex approximant) and [ɽ] ending (retroflex flap) were discarded due to their rare occurrence in Dzongkha speech.

3.9   Description of Statistical Software

The software program Rbrul was used for quantitative analysis of the tokens of each variable extracted from the spontaneous speech recordings. It was devised and written by Johnson (2009) based on the variable rule concept (earlier implemented in the VarbRul and GoldVarb packages; Pintzuk n.d., Robinson *et al*. 2001) which was first introduced by Labov (1969) in his variationist study on contraction, deletion, and inherent variability of the African-American vernacular English copula (Johnson 2009: 359). VarbRul has been widely used by sociolinguistic researchers over several decades in order to "evaluate the effects of multiple factors on a binary linguistic 'choice'—presence or absence of an element" (Johnson 2009: 359). In this regard, [non]significance of results can be determined through observation of the value of factor weight (probability) and log-odds, and also the relative amount of variation accounted for by each explanatory variable can be ranked.

The present study opted for the new program Rbrul to analyse the data obtained from the recordings of Dzongkha speech. Rbrul provides step-up/step-down model runs which have the ability to perform multiple logistic regression by establishing "the relationship between a dependent variable and multiple independent variables" (Daleszynska 2011: 1). It also allows the researcher to carry out cross-tabulation between different categories and identify the most significant factor groups under examination with their 'p' values. Thus, this recently introduced Rbrul program is endowed with a number of particular advantages which were not present in VarbRul, as declared in Johnson (2009: 362-63), Clark (2010: 1), Daleszynska (2011: 1), Tamminga (2011: 1) summarizes:

❖ "Rbrul can handle continuous numeric predictors (for which it is at best dubious statistical practice to 'bin', or convert into factors),

❖ it allows for mixed effects modelling,

❖ it allows for modelling continuous variables,

❖ it is helpful in handling interactions, and

❖ Rbrul is also more forgiving with regard to 'knockouts', situations where the response is invariant – either 0% or 100% – in a subset of the data."

The step-by-step analyzing procedures are detailed in Daleszynska (2011), Tamminga (2011), Clark (2010) and Johnson (2009). Moreover, Rbrul presents results with specific numbers and ratios such as 'log-odds', 'factor weights', and 'uncentered input probability', as interpreted in chapter (4) and (5).

"Rbrul also reports some more general information about the model" with some special measures "to compare the overall fit of the model" (Daleszynska 2011: 10-11). For example, 'deviance', 'degrees of freedom', 'intercept', 'grand mean', and 'input probability' (Johnson 2009) are all measured.

3.10   The Linguistic Variables

Building on earlier description, this section briefly outlines the previously unstudied linguistic variables in Dzongkha speech which are the subject of this thesis: final nasal (N) and postvocalic rhotic (R). These linguistic variables are concisely presented in this section but treated in more detail in the subsequent chapters 4 and 5.

In the traditionally Dzongkha-speaking Western communities, (N) has two realisations: the presence or absence of a nasal final. In the underlying or written forms there exist /ŋ/, /n/ and /m/ realisations of the nasal final, but not in the surface and spoken form, where deletion is common. (Note: these nasals are phonemic in Dzongklha but whenever they are treated as variant forms below, they will be described phonetically as [ŋ], [n] and [m].) The nasal variants [ŋ], [n] and [m] are traditionally realised in the languages of the Eastern (ESG) and Southern (SSG) social groups who migrated to Thimphu. Similarly, the absent or deleted variant Ø is the urbanised form in the native language of the Western group (WSG)who were born and lived in the western part of Bhutan.

Likewise, the dependent variable (R) was identified as the presence or absence of final

rhotacization in Dzongkha words where there exists an alveolar trill /r/ in the underlying structure but not in the surface form. These rhotic forms, including the phonetic variant flap /ɾ/, are the traditional and conservative variants in the languages of the rural communities of the East and South. Correspondingly, the absent or deleted variant Ø is the modern and innovative form characterizing the native language of the Western group who were born and lived in the western part of Bhutan.

Chapter 4   The Realisation of Final Nasal (N) in Dzongkha

4.1   Overview

This chapter presents the results of the analysis of the linguistic variable (N), nasal codas in Dzongkha, correlated with linguistic and social factors. This variable has two variants in Dzongkha: Ø, the denasalized or *n*-deleted variant, which is the innovative variant; and the nasalized or *n*-retained variant, the traditional Dzongkha variant, which may be variously realised as [ŋ], [n] or [m]. (This working hypothesis is tested and confirmed in a pilot study and frequency of [de]nasalisation after five vowels, see §3.7, §4.4.1).

The first section (4.2) provides a brief description of Dzongkha nasal codas according to both traditional and modern Dzongkha grammarians, followed by comments on their place and manner of articulation. The next section explains the logic of the three- or four-stage model of denasalisation, including the most appropriate model for the [De]nasalisation process in Dzongkha (4.3). Part (4.4) describes an estimation of the frequency of [De]nasalisation in Dzongkha, followed by frequency of [De]nasalisation after five vowels and linguistic constraints on denasalisation.

Finally, section (4.5) offers the detailed coding protocol for Dzongkha nasal codas along with the quantitative results of the present study and interpretations of these findings (4.6), with observations of extralinguistic explanatory factors like age, gender and speakers' style.

4.2   A Brief Description of Nasal Codas in Dzongkha

4.2.1   Final Nasals in Dzongkha

Dzongkha nasal finals are known to be occlusive consonants and produced through a lowered velum which allows air to flow out through the nose with complete closure of the oral tract (Dorji 1990, DDC 1999, Dorji 2012, Tshewang 2013). Generally, there are three nasal final consonants in Dzongkha: bilabial nasal /m/, alveolar nasal /n/ and velar nasal /ŋ/, which are also distinguished among the ten final letters or ten suffixes in the traditional Dzongkha writing

system (Mazaudon & Michailovsky 1988, Dorji 1990, van Driem 1992, Sherpa *et al*. 2008, Rinzin 2010, Hansen 2012, Watters 2018).

In addition to the three nasals, there are three orals obstruents /p/, /k/ and /ʃ/ which are frequently realised at the end of a syllable, and two resonants /l/ and /r/ which are occasionally heard in spontaneous Dzongkha speech (van Driem 1992: 96). Dzongkha has normally three nasal final endings (/ŋ/), /n/ and /m/), as described by DDC (1999: 35-41), Dorji (2012: 102, 154, 191), Tshewang (2013: 38, 59).

4.2.2   Place and Manner of Articulation for Nasal Endings

Nasal consonants are produced with a lowered soft palate, allowing air to pass from the nasal cavity producing sounds such as /m/ and /ŋ/, which are considered to be nearly universal in human languages (Roca & Johnson 1999: 60-69). There are three nasal final consonants in Dzongkha:

1) bilabial nasal /m/ is the 16th of the traditional 30 consonants of Dzongkha (Table 2.1),

2) dental nasal /n/ is the 12th of the 30 consonants, and

3) velar nasal /ŋ/ is the 4th of the 30 consonants.

In classical prescriptive Dzongkha, consonant /m/ is bilabial, produced with both lips coming together, whilst /n/ is formed with the tongue tip contacting the alveolar ridge or gum just behind the teeth and /ŋ/ is articulated when the back of the tongue touches the soft palate (Sambhota, 7th century CE, Lotsawa 1538, Dorji 1990, DDC 1999, Dorji 2012, Naga 2012, Tshewang 2013, Watters 2018).

In the modern spoken approach, researchers such as Mazaudon & Michailovsky (1988: 177), van Driem (1992, 1998); Sherpa *et al*. (2008: 2), Downs (2011: 12) and Hansen (2012: 5) have labelled all the Dzongkha nasal finals as plosive: bilabial /m/, dental /n/ and velar /ŋ/.

In addition to the three nasal final consonants (/m/, /n/ and /ŋ/) Dzongkha has eight vowels (/i/, /u/, /ʉ/, /e/, /o/, /ø/, /ä/ and /a/) which are typically nasalised before final nasal consonants.

Mazaudon & Michailovsky report that nasalisation is "distinctive, but there is no opposition of length on nasalized vowels, which are realised as long" (1988: 118). Monosyllabic nouns may end in /n/ and /m/, which may be preceded only by high or mid vowels; before /ŋ/ only low vowels /ä/ and /a/ occur, which are always long or diphthongs. (Note that these long low vowels are realised as [ʌ] in the current dataset, see §2.5.2. All authors have either a single low vowel, or a pair (relatively central and relatively back) of low vowels. Moreover, the variable data examined are not restricted to monosyllabic nouns.

Finally, in the present dataset crosstabulation shows that velar nasals occur after all vowels, from 8% of the time after /e/ to 31% after /o/ and 16% after [ʌ]. Hence there is no special relationship between velar nasals and [ʌ] which might have skewed the analysis, and no interaction between preceding vowel and type of nasal variant.)

However, the palatal affricate nasal /ɲ/ is not categorized as a nasal final consonant in Dzongkha (Dorji 1990, DDC 1999, Rinzin 2009a, 2009b, Dorji 2012, Tshewang 2013), i.e. it is included as an initial sound in the traditional syllabary but does not occur in final position (see Tables 2.1 and 2.5). Thus, this present study examines tokens of three variants with nasals ending in /m/, /n/ and /ŋ/ vs. absent, or de-nasalized, or zero nasal final.

4.3   A Brief Historical Description of Final Nasals in Tibeto-Burman Languages

4.3.1   Some Studies on Nasal Endings in Mandarin

Given the lack of variation studies on Tibetan or Dzongkha, this section reviews considerations of historical change in Chinese – also a Tibeto-Burman language – followed by variationist work on denasalisation, including both contemporary Spanish and Chinese.

Various works on Chinese dialects, both historical and synchronic, have commented on the nasal deletion and denasalisation of nasal-final syllables, which in Middle Chinese could end in /-n/, /-m/ or /-ŋ/; modern reflexes across various dialects include these three plus final V and zero (Chen 1991: 141). In modern Chinese dialects of Mandarin there is disagreement as to

whether, and how frequently, loss of final nasals actually occurs: it is argued that a regular change from Vŋ to Vn (dentalization) takes place in Taiwanese Mandarin, but that Beijing Mandarin is variable in this, with a stronger tendency to velarization of /n/, and also includes Ṽn and Ṽ reflexes (Yang 2010:29).

For Chinese, Chen (1972, 1973) argued that historically Mandarin /Vŋ/ leads on to a partially articulated nasal represented (-N), before the preceding vowel is nasalized and then nasal deletion of the final consonant occurs. Chen also suggested that denasalisation proceeded from high vowels to low vowels.

Many authors have disputed Chen's account. Zee (1985) counters that not all cases of nasal vowels in modern Chinese dialects originate in velar final consonants, but that nasal deletion does occur in dialects such as Xiamen, Chaozhou, Jinan and Xian, and Yangzhou, leaving behind nasalized final vowels (Stage 2 of Barale's model, below); however, no nasal deletion is mentioned for Beijing Mandarin in this primarily historical review. In some dialects, the nasal final consonants have disappeared, and the final vowels are completely oralized (e.g. Suzhou, Zee 1985; this is Stage 3 or 4 of Barale's model), or both oral and nasal final vowels occur (Changshou dialect, according to Chao 1928, cited in Zee 1985). Zee notes that "the development to Ṽ in many cases is restricted to certain VN sequences and hence is also a conditioned change" (1985: 325). Hess further argues that denasalisation does not proceed as Chen claims, "in stages as a function of vowel height and nasal place of articulation", at least for the Wenling dialect (1990: 44). (Wenling also shows both final nasal vowels, and "denasalisation, resulting in an open oral syllable", *p.* 45.) Nevertheless, Liu (fc.) argues on the basis of experimental evidence that contemporary Beijing speech does show systematic simplification and denasalisation of both possible final nasals [n] and [ŋ], correlating strongly with tone and to a lesser extent with preceding vowel height. Below the hypothesis that

preceding vowels influence denasalization and nasal deletion will be investigated for Dzongkha, using a variationist approach.

Out of all these possibilities attested in Chinese, perhaps the best-studied Tibeto-Burman language, the main concern we have in Dzongkha is with what Barale calls Stage 2, i.e. nasal deletion, the input for which includes entirely nasalized preceding vowels in this study. Recall that the underlying nasal consonants in Dzongkha are the same /m/, /n/ and /ŋ/ as for the Chinese case; and that there is also variable denasalisation of final vowels after deletion (Barale's Stage 3). Below we will also consider nasal place of articulation, vowel height and backness, and tones, as many of the Chinese studies do.

However, ultimately for our purposes, the complexity of nasal shift and its origins are less relevant than the question of whether and under what conditions nasal deletion occurs synchronically.

4.3.1.1   The Logic of the Three-Step Model in Denasalisation

As Ferguson *et al*. (1975) and Barale (1982) describe, a natural series of processes and changes takes place in final nasal reduction in languages of the world, and Dzongkha is no exception. Although there are numerous studies of denasalisation in different dialects, Poplack's (1979) and Barale's (1982) variationist studies are of close pertinence to this study where nasal finals potentially undergo a three-step process – especially since we are not aware of any variationist studies on Tibetan languages (or, of course, Dzongkha).

In Poplack's study on denasalisation and deletion of /n/ in Spanish, she schematically outlined a three-stage process of "velarisation (n > ng), vocalisation (Vng > V) and deletion (V > Ø)" Poplack 1979, cited in Barale (1982: 10). The three-stage model of denasalisation in Spanish by Poplack (1979) is depicted in figure (4.1) below, beginning with change of point of articulation for the nasal consonant; following with vocalization and deletion of the nasal consonant; and culminating in loss of the nasalized vowel. Thus, Poplack (1979) argues that

velarization (Vn —> Vng) is needed in Spanish due to "the fact that in the following segment results, both the vowel and pause favour velarization", which "suggests /ng/ is the underlying form in the denasalisation process in Spanish" (*p.* 11). Likewise, "weak stress also favours /Vn/ —> /Vng/ which "points to the phenomenon of phonetic weakening as a part of velarization in P[uerto]R[ican] Spanish" *ibid*. p. 11). Moreover, according to the speech style results, more velarization occurs in informal and naturally spontaneous speech style than that of formal and conscious speech style (Poplack 1979: 11).

Figure 4.1: The three-stage model of denasalisation in Spanish (Poplack 1979), cited in Barale (1982: 10)
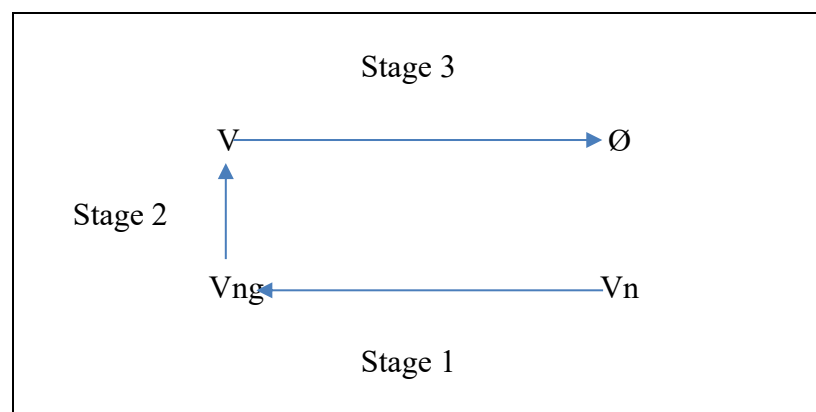
However, Barale's study of Beijing Mandarin VN syllables posits a different 3-stage process: 1) nasalisation of preceding vowels, 2) deletion of final nasal consonant, and 3) de-nasalisation (or oralisation) and deletion of vowel (Labov 2004: 13-14).

In Barale's (1982: 106) model, the process involved three steps:

1. Vn > Ṽn,

2. Ṽn > Ṽ, and

3. Ṽ > Ø

Figure 4.2: The three-step process of denasalisation in Mandarin (Barale 1982: 106)
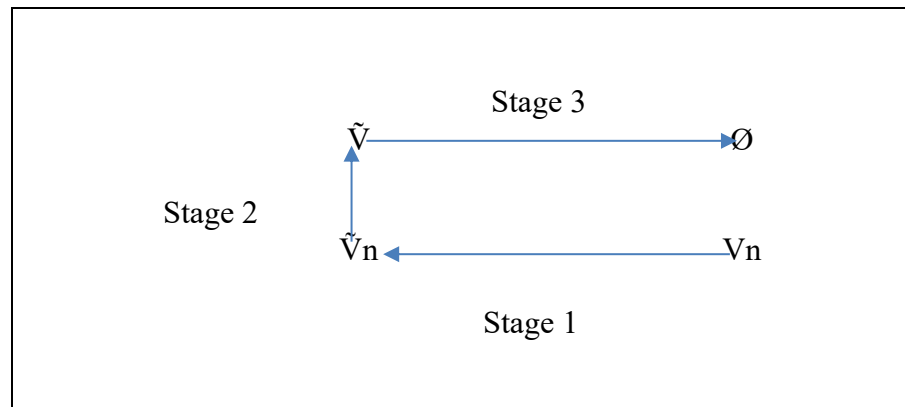
As Dzongkha is also a Tibeto-Burman language, it seemed logical to hypothesize a similar "relationship between the vowel nasalisation, loss of nasal consonant and denasalisation processes" in Dzongkha (Barale (1982: 106-07). There might be other possible ways of processing the three-stage model of [de]nasalisation; for example, "denasalisation might operate on /Ṽn/, and in doing so, bleed stage 2. The loss of the consonant might operate directly on /Vn/, thus bleeding stage 1" (Barale 1982: 107), and these will be considered. However, Barale's three-step model is a direct way to approach the quantitative analysis of nasal final reduction in Dzongkha.

4.3.1.2   The 4-Stage Model in [De]nasalisation

Barale (1982) ultimately proposed a new 4-Stage Model due to 'the four failures of the 3-Stage Model' for (n), except for (ng) which fits the 3-stage model reasonably well (for details, see Barale 1982: 139-48). It states:

This Stage 4 represents the shift of Vn—>V. There is no nasalisation or denasalisation involved because these tokens are being reanalysed as oral vowels. While these tokens presumably went through the 3 stages at some time in the past, their inclusion in the 3-Stage Model at this time masks the normal phonetic process.

The naturalness of the analysis was impeded by a subset of words which, Barale argued, had lost the underlying nasal and showed categorically oral vowels. Hence, she submitted a new

Stage 4 which directly deleted the /-n/ final consonant, rather than going through the steps of Stages 1, 2 and 3. The 4-Stage Model is illustrated below in Figure 4.3.

Figure 4.3: The 4-step process of nasalisation (Barale 1982: 147)
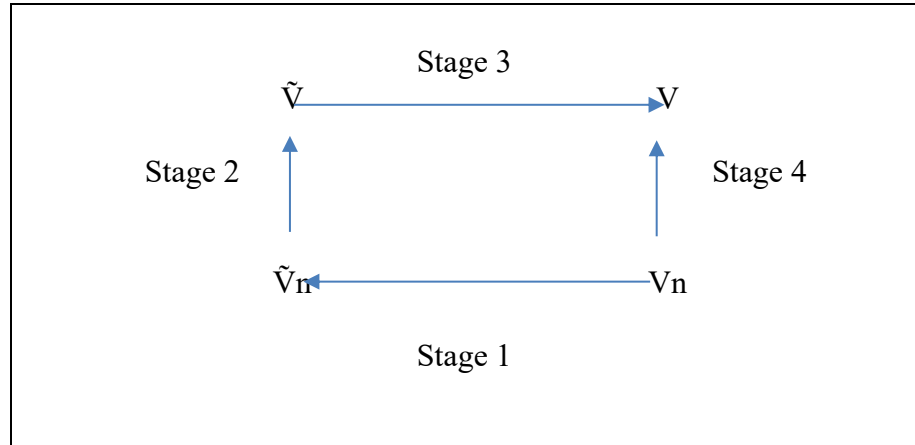
4.3.1.3   The Most Appropriate Model for the [De]nasalisation Process in Dzongkha

As explained above, the logic of the 3-Stage Model or 4-Stage Model of denasalisation specifies "the relationship between the vowel nasalisation, loss of nasal consonant and denasalisation processes" (Barale 1982: 106). There are also other possible relations among the 3 processes, as noted above. However, the 3-stage Model is the most traditional and simplest picture of processes occurring in many languages, including Chinese, Portuguese, French, et cetera (Barale 1982: 107).

At this juncture, as Barale (1982) suggests, we decided to treat each process separately, such that "each stage represents a different process" and gives us the best opportunity to "redefine the dependent variable for each stage" (*Ibid.* p. 107). For instance, it will turn out that stage 1, which considers the presence or absence of the vowel nasalisation antecedent to a final nasal consonant (e.g. Vn—> Ṽn), has largely already applied synchronically to Dzongkha – in fact there were no cases in my data of final nasals preceded by oral vowels (Vn). Thus, the primary focus will be on Stage 2, which investigates the presence or absence of the final nasal consonant (e.g. Ṽn—>Ṽ). At this moment, it is not necessary for the vowel to undergo a

denasalisation process because it "simply looks only at the attrition process for nasalized syllables" (*ibid.* 1982: 110).

Stage 3 is the final process, the denasalisation of nasalized vowels, which scans the presence or absence of nasalisation in a syllable containing /ŋ/ or /n/ or /m/ in the underlying form, but not on the surface (Barale 1982: 108-10). While it is not the primary focus of this investigation, it is interesting to consider the extent of denasalisation following nasal deletion. In Chapter 4.5.1.2, a pilot study of denasalisation according to preceding vowels investigates regional and social distribution.

4.4   An Estimation of the Frequency of [De]nasalisation in Dzongkha
4.4.1   Frequency of [De]nasalisation After Five Vowels

To investigate this, we have taken half of our sample—18 speakers from three regional groups, three professions and three age groups with both sexes—and looked at five vowels each, to give an estimate of the frequency of DE-nasalisation with popular words in the sample, as described below. Table 4.1, below, summarises the resulting patterns.

According to our data on final nasals, Sigay P, male, parent, western Dzongkha speaker, denasalised nasal codas after all four vowels; [ʌ][6] (རང་ /rang/ 'self'), [i] (མིང་ /ming/ 'name'), [e] (ཧེནམ་/henma/ 'once upon a time') and [o] (འོང་ /wong/ 'come'), but not after vowel [u] such as (སུམ་ ཅུ /sum-cu/, 'thirty'). It is due to situation and word environments. For example, Sachita Biswa, female, parent, southern Dzongkha speaker, pronounced some words with *n*-full form after vowel [u] (ཆུང་ཀུ /chungku/ 'small') as mentioned below.

Lhakpa, T., male, teacher, western Dzongkha speaker, pronounced nasal coda /ŋ/ after vowel [ʌ] like (དབང་འདུས་ /Wangdue/ 'name of the council'). He also denasalized after vowels [i] (ཨིན་ /in/ 'yes'), [u] (རུང་ /rung/ ''though'), [e] (དེམ་ཅིག /demcig/ 'around') and [o] (ཇོང་ /jong/ die').

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[6] /a/ is often phonetically realized as [ʌ]. All vowels in this section were realised as nasalised, as noted in the previous section, but for convenience I have not marked this in the IPA.

However, he also pronounced *n*-deleted forms after vowel /ʌ/ with common forms; for instance, (སྲང་ /tʰrã/ 'straight').

Namgyel, R., male, student, western Dzongkha speaker, nasalized /n/ (ཅིན་ /tʃin/ 'if') and /m/ (རྣམ་ /ŋʌm/ 'variaty') after vowel /i/ and /ʌ/, respectively. However, he denasalized nasal codas /n/ and /m/ after vowels [u] (བཅུ་གསུམ་ /cu-sum/ 'thirteen') and [o] (ཁོང་ /khong/ 'they'), and sometimes after vowels [i] and [ʌ]. He never used the forms preceded by vowel /e/ in this data set.

Phuntsho, W., male, parent, eastern Dzongkha speaker, uttered final nasals most of the time after vowels [i], (མིང་ /ming/ 'name'), [u] (སུམ་ཅུ་ /sum-cu/ 'thirty'), [ʌ] (དབང་འདུས་ /Wangdue/ 'person's name'), [o] (ཉོང་ /nyong/ 'experience'), except after vowel /e/ (དེ་ཅིག་ /dẽ -cig/ 'around').

Jigme, N., male, teacher, eastern Dzongkha speaker, denasalized nasal finals after vowels [i] (མིང་ /ming/ 'name'), [o], (མོང་སྒར་ /Mongar/ 'council's name'), [u] (ཆུང་བ་ /chungwa/ 'small') and [e] (ཧེན་མ་ /henma/ 'once upon a time') and pronounced final nasals after vowels [ʌ] (ང་རང་ /ngarang/ 'I'), and denasalized nasal coda after vowel [i] like (ཨིན་ /in/ 'yes').

Ugyen, D., male, student, eastern Dzongkha speaker, pronounced nasal codas after vowels [ʌ] (ཨོ་རྒྱན་ /Ugyen/ 'person's name'), [i] (མིང་ /ming/ 'name') and [o] (མཐོང་ /thong/ 'see') except denasalized after vowel [e] (ཧེན་མ་ /henma/ 'once upon a time'), and he never uttered nasal codas after vowel [u].

Damber, S. Rai, male, parent, southern Dzongkha speaker, used n-less speech after vowels [ʌ] (གནང་ /nang/ 'give'), [e] (ནེམ་ཅིག་ /nemcig/ 'this much') and /u/ (ཆུང་བ་ /chungwa/ 'small'), and pronounced nasal codas after vowels (i) (དྲིན་ /drin/ 'gratitude') and (o) (རྫོང་བདག་ /Dzongdag/ 'District Administrative Officer').

Jai, N. Sharma, male, teacher, southern Dzongkha speaker, tended to denasalize final nasals after vowels [ʌ] (ཡང་ /yang/ 'also'), [u] (བཟུམ་ /zum/ 'like'), [e] (ཧེན་མ་ /henma/ 'once upon a

time') and [o] (ཝོང་ /wong/ 'come'), and frequently used nasal codas after vowel [i] (མིང་ /ming/ 'name').

Arun, Rai, male, student, southern Dzongkha speaker, denasalized nasal codas after vowel [ʌ] (ང་རང་ /ngarangi/ 'I myself') and [u] (དུང་ /dung/ 'religious trumpet') most of the time, and he used *n*-deleted speech after vowel [o] (ཝོང་ /wong/ 'come') on some occasions. He also pronounced nasal codas after vowels [i], (མིང་ /ming/ 'name') and [e] (ཨ་ཞེམ་ /azhem/ "elder sister') frequently.

Tandin, D., female, parent, western Dzongkha speaker, used n-less speech after all vowels [ʌ] (རང་ /rang/ 'ourselves'), [i] (ཨིན་ /in/ 'yes'), [u] (རུང་ /rung/ 'though'), [o] (སོང་ /song/ 'go') and [e] (དེམ་ཅིག་/demcig/ 'around') most of the time. However, she used *n*-full speech after vowel [e] (གཉེན་ /nyen/ 'wedding').

Tashi, L., female, teacher, western Dzongkha speaker, favoured use of denasalized speech after vowels such as [ʌ] (གང་ /gang/ 'hillslope'), [i] (ཨིན་ /in/ 'yes'), [u] (རུང་ /rung/ 'even though') and [o] (དོན་ /don/ 'for'), except after vowel [e] (གཉེན་/nyen/ 'wedding') —she pronounced nasal coda /n/.

Kinley, Z., female, student, western Dzongkha speaker, repeatedly uttered n-deleted speech after vowels [ʌ] (ནང་ /nang/ 'inside'), [i] (ཨིན་ /in/ 'yes'), [u] (རུང་ /rung/ 'though'), [e] (ཨེང་ /eng/ 'oh!') and [o] (ཁོང་ /khong/ 'they'); however, she used nasal codas after vowels [e] (བདེན་ /den/ 'truth') and /o/ (ཤོམ་ /shom/ 'fit').

Singay, Z., female, parent, eastern Dzongkha speaker, pronounced nasal codas after all vowels such as [ʌ] (གང་ /gang/ 'hillslope'), [i] (ཤིང་ /shing/ 'tree'), [u] (བདུན་ /dun/ 'seven'), [e] (ཧེན་མ་ /henma/ 'once upon a time') and [o] (ཝོང་ /wong/ 'come), except that she denasalized some nasal finals after the vowel [i] (ཨིན་ /in/ 'yes').

Chimi, C., female, teacher, eastern Dzongkha speaker, attempted to use n-less speech after a number of vowels such as [ʌ] (ལང་ /lang/ 'enough'), [e] (མེན་ /men/ 'no'), [u] (གཅུང་ /cung/ 'younger brother') and [o] (སོང་ /song/ 'go'), surprisingly, she tends to use *n*-retained words after vowel [i] (མིང་ /ming/ 'name').

Sonam, Y., female, student, eastern Dzongkha speaker, did not use nasal codas after vowels like [i] (ཨིན་ /in/ 'yes'), [u] (དུང་ /dung/ 'trumpet'), [e] (ཧེན་མ་ /henma/ once upon a time') and [o] (ཁོང་ /khong/ 'they'), whereas she used n-full speech after vowels such as [ʌ] (གང་ /gang/ 'hillslope').

Sachita, Biswa, female, parent, southern Dzongkha speaker, surprisingly favoured the use of n-less forms after all vowels; for example, [ʌ] (ནང་ /nang/ 'in'), [i] (མིང་ /ming/ 'name'), [u] (གཅུང་ /cung/ 'younger brother'), [e/] (ཏེན་ /ten/ 'base') and [o] (སོང་ /song/ 'go'). However, she pronounced some words with *n*-full form after vowel [u] (ཆུང་ཀུ་ /chungku/ 'small'), that is, the word requires the nasal coda /ŋ/ when the following segment ཀུ་ /ku/ occurs·, as in ཕྱུག་ཀུ་ /tʃʰũ-ku/, with its initial velar. Otherwise it might be confused with other objects like baby animals (e.g. ནོར་ བྱི་ཕྱུག་ཀུ་ 'calf', བྱི་ལི་ཕྱུག་ཀུ་ 'kitten', ལུག་གི་ཕྱུག་ཀུ་ 'lamb', etc.) if one does not pronounce the nasal coda. Note that Mazaudon & Michailovsky have observed that written *-ŋ*, *-m* and *-n* are often "lost, leaving a long-nasalized vowel, but there are a number of exceptions, with no clear conditioning factor" (1988: 129).

Kalpana, Rai, female, teacher, southern Dzongkha speaker, also uttered denasalized forms after all vowels [ʌ] (དང་ /dang/ 'and'), [i] (ཨིན་ /in/ 'yes'), [u] (རུང་ /rung/ 'although'), [e] (ཏེམ་ ཙིག་ 'around') and [o] (ཝོང་ /wong/ 'come').

Subana, Biswa, female, student, southern Dzongkha speaker, also pronounced popular forms with n-deleted speech after all vowels [ʌ] (བཏང་ /tang/ 'sent'), [i] (མིང་ /ming/ 'name'), [u] (བཟུང་ /zung/ 'catch'), [e] (ཧེན་ /hen/ 'once upon a time') and [o] (ཝོང་ /wong/ 'come'). As above,

some words must be pronounced with nasal coda in order to avoid confusion over other meanings.

In summary, the detailed frequency of nasalisation and de-nasalisation in the sample of half the speakers (18 speakers) are, as demonstrated in the Table (4.1) below. This table retains the order of the speakers described above, which began with males from all three regions, and included one parent, one teacher and one student for each; and then followed with females, similarly organized.

Table 4.1: The frequency of nasalisation and denasalisation after 5 vowels uttered by 18 speakers in the dataset.

Speakers	Frequency of De-nasalization (D) & Nasalization (N) after 5 vowels along with region, sex and role								
	Λ	i	U	e	O	Region	Sex	Role	%
Sigay Phub	D	D	N	D	D	W	m	P	Wm: 1
Lhakpa Tshering	N	D	D	D	D	W	m	T	
Namgay Rinchen	D	D	N	n/a	D	W	m	S	
Phuntsho Wangdi	N	N	N	D	N	E	m	P	Em: 2.67
Jigme Norbu	N	D	D	D	D	E	m	T	
Ugyen Dorji	N	N	n/a	D	N	E	m	S	
Damber Singh Rai	D	N	D	D	N	S	m	P	Sm: 1.67
Jai Narayan Sharma	D	N	D	D	D	S	m	T	
Arun Rai	D	N	D	N	D	S	m	S	
Tandin Dema	D	D	D	N	D	W	f	P	Wf: 1.33
Tashi Lhamo	D	D	D	N	D	W	f	T	
Kinley Zangmo	D	D	D	N	N	W	f	S	
Singay Zangmo	N	D	N	N	N	E	f	P	Ef: 2
Chimi Choden	D	N	D	D	D	E	f	T	
Sonam Youden	N	D	D	D	D	E	f	S	
Sachita Biswa	D	D	N	D	D	S	f	P	Sf: 0.33
Kalpana Rai	D	D	D	D	D	S	f	T	
Subana Biswa	D	D	D	D	D	S	f	S	
	N = 6	N = 6	N = 5	N = 5	N = 5				

As presented in Table (4.1) above, of 88 final nasal forms (five per speaker, 15 speakers, two speakers' data lacked an environment), 59 were *n*-deleted forms, 27 were *n*-full forms and 2 were not applicable or neutral forms.

However, sociolinguistic patterns may become clearer if the data are rearranged in an implicational scale. Rickford (2002) describes the use of these display devices in sociolinguistics, and gives a number of cautions about the difficulty of ordering individual

speakers, quantifying the variation shown, etc. In arranging this implicational scale for Table 4.1, we have put the most conservative speakers at the top: i.e., those who retain nasal consonants in the widest number of environments. We have also ordered older speakers above younger, wherever they nasalize in the same number of environments, to reflect the fact that denasalisation appears to be a change in progress. The order of speakers arranged according to the implicational scale is illustrated in Table 4.2.

Table 4.2: The table of implicational scale in the frequency of [De]nasalisation

Speakers	Frequency of De-nasalization (D) & Nasalization (N) after 5 vowels along with region, sex and role							
	ʌ	i	U	e	O	Region	Sex	Role
Phuntsho Wangdi	N	N	N	D	N	E	m	P
Singay Zangmo	N	D	N	N	N	E	f	P
Ugyen Dorji	N	N	n/a	D	N	E	m	S
Damber Singh Rai	D	N	D	D	N	S	m	P
Arun Rai	D	N	D	N	D	S	m	S
Kinley Zangmo	D	D	D	N	N	W	f	S
Namgay Rinchen	D	D	N	n/a	D	W	m	S
Sigay Phub	D	D	N	D	D	W	m	P
Jigme Norbu	N	D	D	D	D	E	m	T
Jai Narayan Sharma	D	N	D	D	D	S	m	T
Tandin Dema	D	D	D	N	D	W	f	P
Tashi Lhamo	D	D	D	N	D	W	f	T
Chimi Choden	D	N	D	D	D	E	f	T
Sonam Youden	N	D	D	D	D	E	f	S
Lhakpa Tshering	N	D	D	D	D	W	m	T
Sachita Biswa	D	D	N	D	D	S	f	P
Kalpana Rai	D	D	D	D	D	S	f	T
Subana Biswa	D	D	D	D	D	S	f	S

Table (4.2) reveals that nasal retention is most common among eastern Dzongkha speaking communities, and among female and middle-aged or younger Dzongkha speakers. It is also striking that teachers almost uniformly show denasalisation in most environments. These groups prefer to perform *n*-deleted speech, although nasals occur historically in the underlying forms. Note that two female southern speakers have no nasals at all, one of them a teacher. Here the process seems to be complete.

Hence, while the investigation of underlying form is not the focus of this research, nasal retention appears most common among Dzongkha speakers in the eastern region.

Barale (1982) identified four social factor groups for (n) and (ng) and analysed in a variable rule run with the dependent linguistic factor groups; for example:

1) "sex: male and female;

2) Occupation: professional and worker;

3) Age: over 40 years of age and under 40 years of age, and

4) Style: conversation, fable-telling and reading" (1982: 159).

Barale "presented nasalisation as a reduction process" by analysing data using the 3 Stage and 4 Stage models and summarized the results into three conclusions regarding the social distribution of variables (1982: 169-70):

1) "(ng) is much more sensitive to social factors than (n),

2) Though nasalisation is a reduction process, it is a conservative reduction process, and Ṽn is a conservative form of speech,

3) Older professionals are more conservative than younger workers."

Similar to Barale's findings, it appears from the pilot analysis above that nasal retention is a conservative feature, occurring in the widest range of environments for eastern speakers. We hypothesize that their speech shows substrate effects of their native dialect, which in my view has considerable nasal retention (this is based on my own observations, as it is my traditional dialect too). It is also apparent that Teachers show denasalisation in many environments. They correspond to Barale's professionals, being highly educated and working in a context that prizes correct Dzongkha.

There is not a strong gender pattern in the Dzongkha data above. There is a slight tendency overall for males to retain nasal consonants in more environments than females (16 of 43, or 37%, for males; 11 of 45, or 24%, for females). However, differences are slight, and this

pattern only occurs for Eastern and Southern speakers; among Western speakers, females retain nasals in slightly more environments than males. This is not a clear enough result to attribute leadership of a change in progress according to speaker sex. Further sociolinguistic research is recommended in the near future.

4.4.2 Linguistic Constraints on [De]nasalization

The percentage distribution of the four different variants of (N) across the entire dataset is displayed in Table (4.3) below.

Table 4.3: Percentage distribution of nasal endings between its four linguistic variants

Row Labels	Count of Variant	Tokens (N)
Null-[Ø]	43%	1530
Velar-[ŋ]	18%	668
Bilabial-[m]	23%	834
Dental-[n]	17%	604
Grand Total	**100%**	**3636**

It can be seen in the Table (4.3) that every variant has an adequate number of tokens for multiple logistic regression analysis (Rbrul). Therefore, this study analysed the alternation between [Ø] (*n*-absent form), [m], [n] and [ŋ] (*n*-present variants) as the dependent variable vs. other independent factor groups in the analysis.

4.5 The Coding Protocol for Dzongkha Nasal Codas

Having established the pattern of variation with denasalisation appearing to be an innovation, we now perform quantitative analysis of nasal deletion for the entire sample. Coding of internal linguistic factors for the Dzongkha variable (N) followed the procedure outlined below. The same rule will apply for the study of (R) variable in chapter 5.

4.5.1   The Linguistic and Social Factor Groups

4.5.1.1   The Preceding and the Following Segments (Consonants)

In the first step, the preceding segments and following phonological environment are entered in individual segments. The segment preceding an underlying nasal is always a vowel, which will be referred to as Preceding-1. The two segments before the vowel are also considered – these are always consonants, and will be labelled Preceding-2 and, for the earliest in the stream of speech, Preceding-3. (There is not always a Preceding-3 consonant, however.) This scheme can be represented as follows:

(Prec-3 C) → Prec-2 C → Prec-1 V → Nasal → word-boundary

In the pool of data, as reflected in the coding sheet (**Appendix** 11), the list of all occurring preceding and following segments is given in Table 4.4. While not every segment can occur in all positions, every segment in the table can occur as either following segment after word boundary, or as one of the three preceding segments.

Table 4.4: The list of all occurring preceding and following segments.

IPA	Coding Symbol	Romanized Grapheme	Dzongkha
ʔ	a	A	ཨ
ɦ	A	'a	འ
b	b	B	བ
tʰ	B	Thr	ཐ
tʃ	c	Ca	ཅ
tʃʰ	C	Ch	ཆ
d	d	D	ད
ɖ	D	Dr	ྃ
g	g	G	ག
ŋ	G	Ng	ང

h	h	Ha	ཧ
lhʰ	H	Lh	ལྷ
k	k	Ka	ག
kʰ	K	Kh	ཁ
l̥	l	L	ལ
lʰ	L	La	ལྷ
m	m	M	མ
mʰ	M	Ma	མྷ
n	n	N	ན
ŋ	N	Na	ཉ
p	p	Pa	པ
ɸ	P	Ph	ཕ
q	Q	Ky	ཀྱ
r	r	Ra	ར
s	s	Sa	ས
ʃ	S	Sh	ཤ
t	t	T	ཏ
θ	T	Th	ཐ
w	w	W	ཝ
wʰ	W	Wa	དབ
j	y	Y	ཡ
jʰ	Y	Y	གཡ
z	z	Z	ཟ
dʒʰ	Z	J	ཇ

dzʰ	2	Dz	ཛ
ʒ	3	Zh	ཞ
ŋʰ	5	Ng	ང/ཾ/ྔ
ts	6	Ts	ཙ
ʈ	7	Tr	ཏ
tsʰ	8	Ts	ཚ
ɲ	9	Ny	ཉ

Then at the second stage, we now decided to re-code and categorise all pre-segments (3, 2 and 1) and following segment into one of the two categories 'obstruent (O)' and 'sonorant (S)' with respect to their manner of articulation. For example, all non-resonant stops, affricates/fricatives and sibilants are categorised as 'obstruent' sounds and all nasals, flaps, approximants, liquids, vowels, semivowels, laterals and trills are categorised as 'sonorant' sounds. The individual sounds are described here.

The obstruent sounds are as follows, ordered by voicing and manner:

- Voiceless glottal plosive /ʔ/,

- Voiceless velar plosive /k/,

- Voiceless bilabial plosive /p/,

- Voiceless bilabial plosive /ɸ/,

- Voiceless uvular plosive /q/,

- Voiceless dental plosive /t/,

- Voiceless retroflex plosive /ʈ/,

- Voiceless alveolar affricate /ts/,

- Voiceless palatal affricate /tʃ/,

- Voiceless alveolar fricative /s/,

- Voiceless palatal fricative /ʃ/,

- Voiceless pharyngeal approximant /h/,

- Voiced bilabial plosive /b/,

- Voiced retroflex plosive /ʈʰ/,

- Voiced dental plosive /d/,

- Voiced retroflex plosive /ɖ/,

- Voiced velar plosive /g/,

- Voiced palatal affricate /dʒʰ/,

- Voiced alveolar affricate /dzʰ/,

- Voiced glottal fricative /ɦ/,

- Voiced alveolar fricative /z/,

- Voiced palatal fricative /ʒ/,

- Aspirated velar plosive /kʰ/,

- Aspirated dental plosive /θ/,

- Aspirated palatal affricate /tʃʰ /, and

- Aspirated alveolar affricate /tsʰ/,

The sonorant sounds are presented in the same way:

- Voiceless alveolar lateral approximant /l̥/,

- Voiced velar nasal /ŋ/,

- Voiced bilabial nasal /m/,

- Voiced dental nasal /n/,

- Voiced alveolar trill /r/,

- Voiced palatal approximant /j/,

- Voiced palatal affricate /ɲ/.

- Aspirated velar nasal /ŋʰ/,

- ▪ Aspirated bilabial nasal /mʰ/,

- ▪ Aspirated dental nasal /nʰ/,

- ▪ Aspirated alveolar trill /rʰ/,

- ▪ Aspirated alveolar lateral approximant /lʰ/,

- ▪ Aspirated plosive approximant /wʰ/,

- ▪ Aspirated palatal approximant /jʰ/, and

- ▪ Bilabial plosive approximant /w/,

Thus, in this run, the preceding segments 3, 2, 1 and the following environment are grouped into obstruents and sonorants.

The five vowels (/ʌ/ɑ, i, u, e and o/) that are triggered in the 1st and immediate vowel preceding the final Nasal have also been grouped with sonorants since their behavious ir broadly similar. However, the vowels were first coded separately as immediately preceding -1 (vowels) in order to investigate the potential statistical significance of differences within the vowels (see §4.5.1.2, §4.6.3.1.1) in logistic regression analysis. The distribution of these vowels is given in §2.5.4.2, Table 2.6.

4.5.1.2   Immediately preceding-1 Segment (Vowels)

Immediately preceding-1 segments, which are all vowels, are first coded as individual sounds based on frequency of occurrence in the dataset (the number of tokens per sound). Then we re-coded and grouped them according to their manner of articulation. Five sets of vowel sounds were generated to find an appropriate set for investigating this variable.

Step 1 factor group includes the following 1st and immediately preceding vowels:

- o /i/ (phonetically realised as [i], e.g. [iŋ]),

- o /e/ (phonetically realised as [e], e.g. [ʒeŋ]),

- o /ʌ/ (phonetically realised as [ɑ], e.g. [tʌŋ]),

- o /ø/ (phonetically realised as [ø], e.g. [drøn]),

- o /o/ (phonetically realised as [o] e.g. [woŋ]),

- o /ʉ/ (phonetically realised as [ʉ], e.g. [gʉn]), and

- o /u/ (phonetically realised as [u], e.g. [zuŋ]).

This first analysis looked at all vowels according to historical classes, following Mazaudon & Michailovsky (1988) and van Driem (1992, 1998) but leaving out neutralized ones since "contrastive vowel length is neutralized" before velar nasal final [ŋ] (van Driem 1998: 63; see 2.5.2 for further details). Some vowels must be conflated with others for quantitative analysis (see §2.5.2 and Figure 2), however, since they have very few tokens in the data set. For example, /ʉ/ and /ø/ are re-grouped with /u/ and /o/ respectively, as they are similar in height and backness (though they remain separate phonemes).

Thus, in the 2nd step, we re-coded and conflated them into the five most common Dzongkha vowels (/ʌ/, /i/, /u/, /e/ and /o/). Then we included them within the sonorant category since they are similar to sonorant consonants.

The vowel sounds are re-grouped as follows:

1) Close front unrounded vowel /i/,

2) Close-mid front unrounded vowel /e/,

3) Open [mid]back unrounded vowel /ʌ/,

4) Close-mid back rounded vowel /o/, and

5) Close back rounded vowel /u/.

4.5.1.3   Lexical Tone

Lexical tone is coded impressionistically into two categories, a high-toned or low-toned syllable (see section 2.5.4). In general, as Mazaudon & Michailovsky (1988), van Driem (1992, 1998), Downs (2011) and Hansen (2012) all indicate, Dzongkha is a monosyllabic language with a two-tone system of high register and low register:

1.   High tone, and

2.   Low tone.

The same coding practice was followed for both the syllables containing nasal finals and following syllables.

4.5.1.4   Phrase Position

Phrase position is coded depending on whether the variable occurred in initial, or medial, or final position of the phrase.

For example,

➢ Initial position,

➢ Medial position, or

➢ Final position.

4.5.1.5   Grammatical Category

Tokens are classified and coded according to Dzongkha grammatical categories such as tense, number, gender, particle, etc. As a number of grammatical categories in Dzongkha have only rare occurrence with final nasals, we coded, re-coded and combined some categories with other groups. E.g. number suffixes are combined with nouns, tense particles are combined with verbs, etc. The ultimate set of grammatical categories contains five factor groups:

1)   Noun,

2)   Adjective,

3)   Adverb,

4)   Verb, and

5)   Preposition.

4.5.1.6   Social Explanatory Variables

As for the social explanatory factors, the speakers are classified and coded according to their geo-ethnic and social backgrounds:

➢ Style (interview, storytelling and reading passage),

➤ Sex (male [M] or female [F]),

➤ Role (parent [P], teacher [T] or student [S]),

➤ Education level (primary [P], secondary [S], higher secondary [H] or degree [D])

➤ Age (young [y], adult [a] or old [o]),

➤ Origin (east [E], west [W] or south [S]), and

➤ Mother tongue (Dzongkha [D], Lhotshampa [L] and Tshangla [T]).

Four models were created and examined using multiple logistic regression analysis (Rbrul version 3.5.0). Note that mixed-model or random-effects were tested, adding individual speakers and compared with fixed-effects models, but no extra factors were added as significant and speakers' identity itself did not return as significant in the first Rbrul run. According to the creator of Rbrul, "if individual speakers do not affect the response differently, then the grouping has no statistical importance and mixed models are not needed" (Johnson 2010: 10). Therefore, we subsequently excluded individual speakers from the factor groups, which gives us more confidence in our model approach. Thus, each model involves fifteen factor groups hereafter:

1)   Preceding segment-3 (Consonant),

2)   Preceding segment-2 (Consonant),

3)   Immediately preceding segment-1 (Vowel),

4)   Immediately following segment (Consonant),

5)   Lexical tone,

6)   Following tone,

7)   Phrase position,

8)   Grammatical category,

9)   Style,

10)   Speakers' role,

11)   Speakers' sex,

12)   Education level or Social Status (only one at a time since they are closely correlated in practice),

13)   Speakers' age,

14)   Speakers' origin, and

15)   Speakers' mother tongue.

4.6   Multiple Logistic Regression Analysis: Rbrul

4.6.1   Rbrul Modeling: The Four Models

It is usual to conduct several models or 'runs' of multiple regression analysis in variationist research, refining the modelling of coding categories to accommodate individual arrangements of (dependent and independent) variables, and also investigating interaction between them (Johnson 2009, Clark 2010, Daleszynska 2011, Tamminga 2011).

The salient feature, *n*-deleted (Ø) sound, was selected to be the 'application value' for these Rbrul analysis, i.e. proportions and factor weights are given in terms of the null variant.

Model I: For the (N) variable, the first model (Model I) of the multiple logistic regression analysis (Rbrul) investigated the use of all four (N) variants (/Ø/, /ŋ/, /m/ and /n/) along with eight internal linguistic factors and seven external social factor groups. Below, the frequency of each variant is shown in 4.4.1. The consonantal variants ([m], [n], [ŋ]) are then grouped together against zero [Ø], which is the dependent variant.

Of fifteen linguistic and social factor groups, Rbrul returned 'preceding-1' (vowel), 'grammatical category', 'following segment', 'lexical tone', 'phrase position', 'mother tongue', 'preceding-2' (consonant), 'education level' (social class), 'role' and 'age group' as statistically significant variables. On the other hand, Rbrul did not return 'following tone', 'phrase position', 'sex', 'origin' and 'mother tongue', i.e., they were found to be statistically insignificant in the first model.

Model II: Rbrul results sometimes clearly indicate when two explanatory factors should

not be present in the model at the same time. Owing to a mismatch between 'preceding-1' and 'grammatical class' at the beginning of the step-up and step-down[7] in the first Rbrul run, further analysis for these two predictors has been carried out firstly by discarding 'preceding -1' and retaining 'grammatical category'. The key reason for retaining 'grammatical category' and discarding 'preceding-1' in this particular model was because 'preceding-1' had a noticeably smaller effect (p-value of 2.09e-48) than 'grammatical class' (9.01e-75) in explaining variation. Additionally, the R^2 value was not applicable (N/A) in the first Rbrul model or indeed the second model (N/A), indicating that the models were not satisfactory.

(In reporting significance levels, while it is recognised that there is no practical difference between e.g. high degrees of significance such as the two cases in the last paragraph, we nevertheless report them as a means of ranking constraints.)

Furthermore, in the first two models, Rbrul indicated the presence of 'knock-out' tokens and/or few tokens from the oldest generation of the 'age' factor group. In other words, there were empty cells, leading to statistical results which were not applicable (N/A) for log-odds and factor weights, important elements of the model results. Accordingly, 'age' was less significant than all other explanatory factors in the pool of data.

Model III: Hence, in the third Rbrul run, 'age' was discarded and 'education level' was retained, in an effort to obtain the best model for explaining the variation. However, in model III education was the least valuable explanatory factor, and moreover produced unexpected and non-linear results, indicating it was still less than fully satisfactory as an explanation. (Recall that 'education level' and 'social status' are in practice highly correlated, hence none of the models included 'social status'.)

Model IV: In the fourth Rbrul run (model IV), 'educational level' was therefore

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[7] "*Step-up* – Rbrul adds predictors one at a time, starting with the one that has the greatest effect on the response and repeating the process until no more significant variables are addded.
Step-down – the program fits the full model and then removes those predictors which are not significant. If both 'step-up' and step-down' result in the same model – then the best model has been achieved and the two runs match" (Daleszynska 2011: 8-9).

discarded, while 'age' was also not present. Both of these factor groups regularly had the same problems with 'knock-out' and N/A for log-odds and factor weights in the dataset.

4.6.2   Evaluating the Four Models

The step-up and step-down analyses were found to be well ordered and matched in models (III) and (IV). This means that included factors are well-behaved and symmetrical, and such a result endorses the stability of the model. The R^2 values, which provide an overall estimate of how much variation has been explained, in fact were very similar in the last two Rbrul runs (0.367 for III and 0.364 for IV), where they had been unsatisfactory ("N/A") in Models I and II. Hence there is little difference between Models III and IV statistically.

Of all linguistic and social factor groups, the 'preceding-1' segment and 'grammatical category' were found to have the most explanatory value, while the 'educational level' and 'age' were found to have the least explanatory valueacross all multiple logistic regression analyses.

4.6.3   Findings and Interpretation

After examining these 4 models, according to a rule of thumb in Rbrul, the log-likelihood ratio test was applied to decide which of these models (Model I, II, III & IV) best explains the linguistic variation found in the (N) variable (Johnson 2009, 2010, Clark 2010, Daleszynska 2011, Tamminga 2011). In doing so, the chi-squared test was carried out for the four models, two at a time, and one model was compared with another using the log likelihood values and the differences in degree of freedom of each model.

The results showed that the differences between the 1st and 2nd, 1st and 3rd, and 1st and 4th models were not significant. On the other hand, the differences between the 2nd and 3rd, and the 2nd and 4th models were displayed as highly significant ($p < 0.0001$, Chi-square = 215.946, df = 2). It appears that the model with the highest 'degree of freedom' (i.e., the largest number of explanatory factor groups) is best in explaining the variation, namely model III. In addition,

Model III displayed the highest R^2 value for variance. Hence, the 3rd model was chosen to explain the linguistic variation found in Dzongkha final nasals.

Therefore, among all four analyses (Models I, II, III, IV), the 3rd model is preferred as the best in this multiple logistic regression (Rbrul) analysis. The results of the final Rbrul analysis for (N) variable are presented in Table (4.5) here, followed by the interpretation and discussion of the results. The table orders them, indicating the overall variance R^2 at the top and then presenting first those predictors which account for the most variation.[8]

Table 4.5: Model III: Final Rbrul results of the correlation between the use of nasal codas (N) and the significant independent variables among the community of Dzongkha speakers with various factor groups.

R^2 =0.367				
			Application value: Ø	
Factors	**% deletion**	**Log-odds**	**Factor Weight**	**Tokens**
Preceding-1 (Vowel)				
Open [mid]back [ʌ]	0.568	0.768	0.683	1645
Close mid-front [e]	0.326	0.129	0.532	178
Close-mid back [o]	0.362	0.060	0.515	672
Close-back [u]	0.279	-0.020	0.495	455
Close front [i]	0.245	-0.937	0.282	686
(p<0.0001)				
Grammatical Category				
Preposition	0.872	0.929	0.717	250
Verb	0.552	0.676	0.663	536
Adjective	0.454	-0.327	0.419	421
Adverb	0.408	-0.579	0.359	784
Noun	0.307	-0.699	0.332	1645
(p<0.0001)				
Following Segment (Consonant)				
Sonorant	0.587	0.479	0.618	1160
Obstruent	0.343	-0.479	0.382	2476
(p<0.0001)				

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[8] While it is recognised that values such as "*p*=8.94e-48" are very small numbers indeed, and the difference among such small numbers is not of great interest, they are nevertheless used to order the reporting of significant predictors, since the *p*-value is traditionally the measure employed for this purpose.

Lexical Tone				
Low	0.517	0.482	0.618	2368
High	0.241	-0.482	0.382	1268
(p<0.0001)				
Phrase Position				
Final	0.548	0.362	0.59	1134
Medial	0.450	0.112	0.528	1199
Initial	0.284	-0.474	0.384	1303
(p<0.0001)				
Mother Tongue				
Lhotshampa	0.475	0.290	0.572	1212
Dzongkha	0.455	0.190	0.547	1212
Tshangla	0.332	-0.479	0.382	1212
(p<0.0001)				
Preceding-2 (Consonant)				
Sonorant	0.562	0.198	0.549	1382
Obstruent	0.335	-0.198	0.451	2254
(p<0.0001)				
Education Level (Status)				
Elementary	0.356	0.167	0.542	505
Primary	0.457	0.074	0.518	1212
Degree	0.432	0.047	0.512	1313
Secondary	0.378	-0.287	0.429	606
(p<0.05)				

Intercept: -0.205   **Total Tokens: 3636**
                                                                       Grand Mean: 0.421

In the table above, the R^2 value (na umber between 0 and 1) denotes the proportion of variation the model explains. Log-odds are a measure of the effect size and a positive log-odds value (0+) indicates that the application value (here, nasal deletion) is favoured, whereas a negative log-odds value (-0) shows that the application value is disfavoured. A log-odds value of (0) expresses neutrality in the preference of the application. Likewise, "factor weight" simply "reports the same thing but within the range of 0 – 1.00" (Daleszynska 2011: 10). "Grand mean" represents the overall data proportion which underwent nasal deletion in the dataset (Johnson 2009, 2011, Daleszynska 2011: 10-11). As Rbrul reports a range of information about the model

such as 'factor weights', 'deviance', 'degree of freedoms', 'intercepts', 'uncentered input probability' etc., in the present analysis, we follow general practice and report all such information shown in Rbrul (Daleszynska 2011: 10-11).

Of fifteen internal and external explanatory environments, Rbrul returned preceding-1, grammatical category, following segment, lexical tone, phrase position, mother tongue, preceding-2 and educational level as significant. Preceding-1 was the most significant factor (p<0.001) and educational level was the least significant factor group (p<0.05) in this analysis. In turn, the following sections present the correlation between the dependent variable (N) and independent variables (linguistic and social predictors).

All the predicting variables in Model III above are statistically significant, though some show relatively weak effects. There is no indication of any interaction in the analysis (step models matched, and the ordering of explanatory variables was very similar across step runs)[9]. The question is raised whether the three different consonantal variants ([n], [m], [ŋ]) show different conditioning effects. However, the answer cannot be given satisfactorily: they are combined into a single non-application variant here since their distribution is not identical, and token numbers are too small for each individual form to be run separately. Some variables have been examined in detail using cross-tabulations to address this very point, e.g. Prec-2 and Prec-3 and Following Segments (in connection with sonority; see §4.6.3.1.6, §4.6.3.1.7 and **Appendix** 12).

The following cross-tabulations give a clearer picture of the relation between (N) variants and grammatical category, phrase position and lexical tone:

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[9] Model I did show such signs, and that was one reason subsequent analyses were required.

Table 4.6: Cross-tabulation of grammatical category against the (N) variables

Grammatical Category	Variants				Application value: Ø
	Null-Ø	**ŋ**	**m**	**n**	**Tokens (N)**
Preposition	87%	2%	5%	5%	
	218	*7*	*12*	*13*	*250*
Verb	55%	12%	13%	20%	
	296	*64*	*71*	*105*	*536*
Adjective	45%	14%	12%	29%	
	191	*59*	*51*	*120*	*421*
Adverb	41%	10%	28%	21%	
	320	*75*	*222*	*167*	*784*
Noun	31%	28%	29%	12%	
	505	*463*	*478*	*199*	*1645*
Total	**1530**	**668**	**834**	**604**	**3636**

Bearing the Rbrul result in mind, the cross-tabulation between grammatical category and (N) variants (Table 4.6) indicate that preposition (87%) and verb (55%) grammatical predictors are much more advanced factor groups in promoting the *n*-less variant. The figures in cross-tabulation are parallel to Rbrul results and can be seen in §4.6.3.1.2 and Table (4.5).

Table 4.7: Cross-tabulation of phrase position against the (N) variables

Phrase Position	Null-Ø	ŋ	m	n	Tokens (N)
	Variants			**Application value: Ø**	
Final	55%	12%	11%	22%	
	621	*133*	*123*	*257*	*1134*
Medial	45%	20 %	24%	11%	
	539	*242*	*282*	*136*	*1199*
Initial	28%	23%	33%	16%	
	370	*293*	*429*	*211*	*1303*
Total	**1530**	**668**	**834**	**604**	**3636**

The figures from cross-tabulation in Table (4.7) are in line with Rbrul results for phrase position (see §4.6.3.1.5 and Table 4.5) which revealed that the null variant is promoted in phrase final (55%) and medial (45%) positions, wheareas it is disfavoured when it occurred in initial position (28% of the time).

Table 4.8: Cross-tabulation of lexical tone against the (N) variables

Lexical Tone	Null-Ø	ŋ	m	n	Tokens (N)
	Variants			**Application value: Ø**	
Low	52%	15%	19%	14%	
	1225	*365*	*439*	*339*	*2368*
High	24%	24%	31%	21%	
	305	*303*	*395*	*265*	*1268*
Total	**1530**	**668**	**834**	**604**	**3636**

The zero variant is more likely to occur in low-tone syllables. The cross-tabulation figures in Table (4.8) is in line with the results of logistic regression (§4.6.3.1.4 and Table 4.5).

4.6.3.1.   Dzongkha Nasal Endings and Linguistic Variables

This section presents the correlation between Dzongkha nasal codas (N) and the significant linguistic variables: preceding-1 vowels, grammatical category, following segment, lexical tone, phrase position and preceding-2 consonants. Here, preceding-1 was the most significant linguistic factor, whereas preceding-2 was the least significant. However, the results have found preceding-2 to be statistically a significant factor in this study.

4.6.3.1.1   Nasal Endings and Immediately Preceding-1 (Vowel)

Analysing the linguistic behaviour of the Thimphu residents in their use of Dzongkha nasal endings, Rbrul runs with *n*-deleted feature as the application value returned 'preceding-1 segment' as the most significant explanatory predictor out of all the linguistic and social factors investigated. On the other hand, gender and age have not been found to be significant in any Rbrul runs. However, below we use cross-tabulations to examine the realisation of (N) in the speech of residents of both city and region in Thimphu correlated with age and gender, in order to investigate the patterning according to those variables. Likewise, cross-tabulations are also used to "observe unbalanced distribution of our data, to trace interactions, to show a relationship between variables and to show the average value of the response" (Daleszynska 2011: 3-4).

At this juncture, as explained earlier (4.3.1.3), this study specifically focuses on Stage 2 (of the 3- or 4-Stage Models) which examines whether speakers pronounce /ŋ/ or /n/ or /m/ "in the surface form, not in the deep structure" (Barale 1982: 108-9). For example, in Dzongkha "a common coda consonant is [ŋ], but this coda is often only pronounced in literary pronunciations" (Hansen 2012: 10-11), i.e. in the most formal reading speech. Most of the Dzongkha syllables and words were preceded by vowel /ʌ/ (often pronounced /ɑ/), such as དང་ /dʌŋ/ 'and', གངས་རི་ /gʌŋ-ri/ 'mountain', གླང་ /glʌʰŋ/ 'ox' et cetera. As Barale (1982: 109) witnessed in the speech of Beijing

Mandarin, "the dependent variable in this analysis is the presence or absence of the nasal coda…

where the vowel has not yet undergone the denasalisation process". A number of previous

descriptive studies indicated that the realisation of nasal endings is influenced by the preceding

sounds, both vowels and consonants. Accordingly, Rbrul returned preceding-1 phonological

environment as the most significant explanatory factor. The figures are displayed in Table (4.5)

above.

Furthermore, Watters also observed (using categorical, not variationist, terms) that the

velar nasal [ŋ] is articulated "in careful speech, but otherwise is realised primarily as nasalization

on the preceding vowel". The alveolar nasal [n] is also realised fundamentally "as nasalization

on the preceding vowel", as well as the bilabial nasal [m], which "is always realised as a nasal

stop, although the vowel which precedes it assimilates the effects of nasalization" (2018: 63). It

is argued that the nasalised vowel is compensatorily lengthened when the coda nasal is lost.

The speakers were found to highly use the innovative zero variant when it was preceded

by an open-mid back unrounded vowel [ʌ]. Likewise, the zero variant was fairly favoured after

close-mid front unrounded vowel [e] and after close-mid back rounded vowel [o]. However, it

was disfavoured when it was preceded by close back rounded vowel [u] and close front

unrounded vowel [i]. In other words, high preceding vowels disfavoured deletion.[10]

Again, it must be noted that one category provides a dominant share of the data: words

with preceding [ʌ] make up 45% of the data. Close inspection of cross-tabulations (see

Appendix 12) indicates that only the favouring effect of [ʌ] is heavily deleted in raw numbers

(57% of the time; all other environments are less than 36%). This effect is difficult to explain

synchronically or diachronically. Mazaudon & Michailovsky (1988) observe that where

underlying velar nasals occur historically in Tibetan, the Dzongkha vowel reflex "is often long",

but "where the old vowel was –*ng* before –*pa* or –*po*" suffixes (which is often the case in this

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[10]Low vowels are provided for in the coding guide, but [ɑ] and [ä] did not occur as they are rare.

study's data), tone contour is unpredictable (and deletion is common, impressionistically, again

in this study's data). However, the following tone has not been found to be a significant predictor

of nasal deletion, and the observations above do not lend themselves to any predictive hypothesis

– since the [ʌ] vowel is never long, and a mixed bag of tone contours for [ʌŋ] segments is

unlikely to produce a strong deletion effect.

Most of the *n*-deleted Dzongkha words were found to be preceded by mid or low vowels

[o], [e], or [ʌ]. For example, "དང་ /dʌː/, 'and' and རྫོངས་ /ʃõː/, 'valley'" (*ibid.p.* 10). The "final-*n* has

often been lost, leaving a long-nasalized vowel with falling contour, e.g. "གདན་ /dẽː/ 'carpet', ཕྱེན་

/pɕhẽː/ 'fart'" (Mazaudon & Michailovsky 1988: 129). It has also observed before that most of

the written -*ŋ*, -*m* and -*n* were found to be lost after vowels [ʌ], [e] and [o] (Mazaudon &

Michailovsky 1988, Hansen 2012).

Other scholars have thus argued that the *n*-deleted feature found in Dzongkha was

historically an innovation and was motivated primarily by universal tendencies of lengthening in

the vicinity of preceding sounds, mainly non-high vowels [ʌ], [e] and [o]. In other words, the

occurrence of such variation and change (if found) is thought to be an internal language change

conditioned primarily by linguistic constraints. The current finding suggests that such a pattern

of variation and change, in Labovian terms, might qualify as 'change from below'; that is, the

variation and change occurred in the community without speakers' conscious awareness (Labov

1994: 78-79, 300-301) – recall that the velar nasal stop occurred mostly in literary forms.

Changes from above the level of conscious awareness, by contrast, are motivated by borrowing

of prestige forms.

In the case at hand, the innovative and urbanised zero form is the only realisation that is

found in the speech of the earliest Bhutanese settlers in Wangdue, Thimphu, Paro, or Chapcha,

i.e. in the western districts (according to Rinchen 1972, Hasrat 1980, Tshewang 1995). In other

words, the *n*-deleted variant after non-high vowels is quite a marked and urbanised form in the

country as a whole (Mazaudon & Michailovsky 1988, van Driem, 1992, 1994, Downs 2011, Hansen 2012, Watters 2018). It seems that the variation occurring in Dzongkha speech is fundamentally a spreading of the historical deletion process, a replacement of the traditional *n*-retained form in mid and low vowels – but nasal endings still predominate after higher vowels such as [i] and [u].

It may also be relevant that "the umlauted vowels [ü], [ö] arose historically from dental codas and alveolar obstruents", i.e. following nasal sounds; however, they cannot be found in "minimal pairs for nasality, thus nasalized vowels and umlauted vowels arose in mutually exclusive environments and the umlauted vowels have avoided nasalisation in this way" (Hansen 2012: 11). In other words, the umlauted vowel environments neither develop nasalized vowels nor lose nasal stops. However, as these rarely occur in everyday speech (most of them being e.g. historical names) or in my data, and do not undergo nasal deletion, they have not been considered here (see further 2.5.2).

The remaining two groups that disfavour the zero variant are close back rounded vowel [u] and close front unrounded vowel [i]. The fact that these two explanatory environments promote the *n*-retained and traditional form is generally in line with the conditions under which *n*-full variants may occur in mostly eastern languages (e.g. Tshangla, Khengkha/Bumthangpa), and as specified by the traditional Dzongkha grammarians (Nado *et al*. 1971, Nado 1982, Dorji 1990, DDC 1999, Tshewang 2013). In total, the realisation of nasal endings is powerfully influenced by the position and height of preceding vowels.

4.6.3.1.2   Nasal Endings and Grammatical Category

Table (4.9) demonstrates the realisation of the zero variant in the speech of Thimphu city, as correlated with grammatical category.

Table 4.9: Rbrul results of the correlation between the use of n-deleted variant (Ø) and grammatical category in the speech of Thimphu residents ($R^2 = 0.367$; $p < 0.0001$).

Grammatical Category	% deletion	Log-odds	Factor Weight	Tokens
Preposition	0.872	0.929	0.717	250
Verb	0.552	0.676	0.663	536
Adjective	0.454	-0.327	0.419	421
Adverb	0.408	-0.579	0.359	784
Noun	0.307	-0.699	0.332	1645

Rbrul returned grammatical category as the second significant explanatory factor. Only two grammatical categories favoured the zero variant: prepositions and verbs. Nonetheless, the remaining linguistic categories – adjectives, adverbs and nouns, in that order – all disfavoured the occurrence of the nasal codas in the speech of Thimphu residents. Again, it is not entirely clear what motivates this strong division among grammatical categories. Nouns show a high frequency, however, making up 45% of all tokens – more than twice as many as the next most frequent category, 'adverbs' (784 tokens).

It is worth noting here that the categories above conflate a number of subcategories, in order to avoid a huge number of categories which mostly would have had few members. For example, 'adverbs' and interjections were combined; also, the category of 'adjectives' above is largely composed of adjectives and conjunctions in this study. We conflated conjunctions with adjectives since adjectives are infrequent in the data, and their post-nominal position is similar to that where conjunctions often occur. The conjunction (e.g. ᫱᫱ /dʌŋ/ 'and') is, not surprisingly, the most used conjunction in Dzongkha. Mazaudon & Michailovsky comment that the "final -ŋ has often been lost, leaving a short vowel" when the syllable occurs in a conjunction, and "the vowel is often long" elsewhere (1988: 129, 133). The sub-categories of grammatical categories in the first stage are shown in Table (4.10) below; recoding and conflation can be seen in **Appendix** (11).

Table 4.10: The super-categories (red in colour) and sub-categories (black in colour) of grammatical categories employed in the first stages.

Codes		[Sub]categories
a		adjective
	c	conjunction
d		adverb
	l	particle
	m	modal
n		Noun
	p	pronoun
r		preposition
	s	possession
	t	determiner
	u	number
v		Verb
	x	Auxiliary
	i	interjection

We might compare to variationist research on English suffix (-ing) showing a regular grammatical-category effect in which noun-like categories favour velar [-ŋ] while verb-like categories favour alveolar [-n] (Houston 198, Labov 1989, etc.). In that case the explanation involves a historical falling-together of two separate inflectional categories into one contemporary pattern. The present Dzongkha results do not show a straightforward verb-to-noun continuum, and we must leave it to further research to provide explanations.

In order to build a clearer picture of these findings, a cross-tabulation between preceding segment-1 (vowel) and gramatical category, following segment (consonant) and grammatical category, and lexical tone and grammarical category are demonstrated in Tables 4.11, 4.12 and 4.13:

Table 4.11: Cross-tabulation of preceding-1 (vowel) and grammatical category in the use of n-deletion.

P-1 (Vowel) / G-Category	e	i	o	u	ʌ	Total-N
Adjective	3%	28%	10%	16%	43%	
	13	116	46	67	179	**421**
Adverb	9%	8%	6%	23%	54%	
	69	67	44	178	426	**784**
Noun	5%	22%	19%	11%	43%	
	90	339	320	175	721	**1645**
Preposition	0%	1%	3%	5%	91%	
	0	2	8	12	228	**250**
Verb	2%	30%	47%	4%	17%	
	6	162	254	23	91	**536**
Total	**178**	**686**	**672**	**455**	**1645**	**3636**

Table 4.12: Cross-tabulation of following segment (consonant) and grammatical category in the use of n-deletion.

F-Segment / G-Category	Obstruent	Sonorant	Total-N
Adjective	70%	30%	
	295	126	**421**
Adverb	70%	30%	
	546	238	**784**
Noun	73%	27%	
	1202	443	**1645**
Preposition	57%	43%	
	142	108	**250**
Verb	54%	46%	
	291	245	**536**
Total	**2476**	**1160**	**3636**

Table 4.13: Cross-tabulation of lexical tone (High and Low) and grammatical category in the use of n-deletion.

Lex-Tone G-Category	H-Tone	L-Tone	Total-N
Adjective	**11%**	**89%**	
	47	374	**421**
Adverb	**34%**	**66%**	
	268	516	**784**
Noun	**43%**	**57%**	
	715	930	**1645**
Preposition	**5%**	**95%**	
	13	237	**250**
Verb	**42%**	**58%**	
	225	311	**536**
Total	**1268**	**2368**	**3636**

The figures in Tables 4.11, 4.12 and 4.13 demonatrate the overall differencs between preceding-1 and grammatical category, following segment and grammatical and lexical tone and grammatical category in the use of the n-deletion. The summary of the key findings is provided here:

➢ Preceding-1 (vowel): we checked the incidence of wedge vowel, as it is the most frequent. Deletion is rare before verbs (17%), very common before prepositions (91% of 250), and otherwise shows no big effects (between 42 and 54%).

➢ Following segment (consonant): proportions of Obstruent (favouring) range from 54% to 73%), with no great effects.

➢ Lexical tone (high and low): Low tone proportions (favouring) from a high group (prepositions 95%, adjectives 89%) to a low group (everything else: 56% to 66%).

➢ Prepositions show the smallest number of tokens and often show unusual effects.

4.6.3.1.3   Nasal Endings and Following Segment

In this section, the correlation between the innovative zero variant and following segment (sonorant and obstruent) is examined. The results are presented in Table (4.14) below, with the

range of possible following segments compressed into sonorants or obstruents, as discussed in

(4.5.1).

Table 4.14: Rbrul results of the correlation between nasal deleted variant (Ø) and following segment in the speech of Thimphu residents (R^2 =0.367; p<0.0001).

Following Segment	% deletion	Log-odds	Factor Weight	Tokens
Sonorant	0.587	0.479	0.618	1160
Obstruent	0.343	-0.479	0.382	2476

The following segment sound, which is always the beginning of the next word, is the

third significant factor. It can be seen that deletion (-Ø) is favoured when it is followed by a

sonorant, whereas the *n*-less variant is disfavoured before following obstruents.

In order to build a clearer picture of these findings, a cross-tabulation between following

segments (sonorants and obstruents) and all variants (Ø, ŋ, n and m) of the (N) dependent

variable are presented below, Table 4.15.

Table 4.15: Cross-tabulation of two following segments (S & O) against the (N) variables

		Variants			**Application value: Ø**
Following Segment	**Null-Ø**	**ŋ**	**m**	**n**	**Tokens (N)**
Sonorants	59%	12%	18%	11%	
	681	*139*	*209*	*131*	*1160*
Obstruents	34%	21%	25%	19%	
	849	*529*	*625*	*473*	*2476*
Total	**1530**	**668**	**834**	**604**	**3636**

This cross-tabulation clearly shows that sonorants favour *n*-deletion (59%), whilst

obstruents disfavour (34%). The detailed cross-tabulation of specific sonorant and obstruent

sounds for following segments, preceding-2 and preceding-3 consonants, and all (N) variants can

be seen in **Appendix** (12), where it is evident that generalizing specific phones to the classes of

sonorants or obstruents models fairly well for following segments and the immediately-preceding consonants (Preceding-2, reported below), but less well for the farther-away Preceding-3 group – which indeed was never statistically a significant predictor. Taken together with the strong effect of Preceding-1 vowels, this shows that the closer environments generally have stronger effects on nasal deletion.

Below we return again to the role of sonority in section (§4.6.3.1.7) on Preceding-2 Segment.

4.6.3.1.4　　Nasal Endings and Lexical Tone (High and Low)

The following Table (4.16) displays the realisation of Dzongkha nasal codas (N) correlated with lexical tones.

Table 4.16: Rbrul results of the correlation between nasal deleted variant (Ø) and lexical tone in the speech of Thimphu residents (R^2 =0.367; p<0.0001).

Lexical Tone (H & L)	% deletion	Log-odds	Factor Weight	Tokens
Low Tone	0.517	0.482	0.618	2368
High Tone	0.241	-0.482	0.382	1268

For lexical tone, the use of *n*-deleted variant is preferred with low-toned syllables. This agrees with observations in other descriptive works: "Dzongkha is a tonal language with two distinctive tones, a high and a low register tone" (van Driem 1992: 49-50) and this "two-tone system is found in all syllable types such as monosyllable and disyllable" (Mazaudon & Michailovsky 1988: 118-19). It was observed that "Dzongkha written final nasals have often been lost, leaving a long-nasalised vowel with low-falling counter, e.g. གདན་ den /dẽ:/ 'carpet'" (Mazaudon&Michailovsky 1988: 127). One of the salient and most debated features in Dzongkha is nasal codas (-n), "but this coda is often only pronounced in literary pronunciations" (Hansen 2012: 10) for liturgical purposes. In other words, they are deleted resulting in lengthened nasalised vowels with low tone. The same system applies to the analysis of (R)

variable in §5.6. (Style results bearing on this prediction for literary speech are reviewed in 4.6.5.)

Common nasal endings [ŋ], [n] and [m] in Dzongkha are often only found in the written system and often deleted in spoken speech, leaving a compensatory long nasalized vowel with low level or low-falling tone. "For example, དགོངས་ /ʈõŋʰ >ʈõːʰ/ 'kill', ཕྱེར་ /tʃẽnʰ > tʃẽːʰ/ 'fart', ཨ་ཞེམ་ /ʔʒẽm > ʔʒẽˑ/ 'elder sister'[11](Mazaudon & Michailovsky 1988: 129, Hansen 2012: 10). Thus, the Rbrul results indicate that the *n*-less variant is preferred in the speech of Dzongkha speakers in just such low-toned syllables. (See also discussion in 5.7.3.1.1)

4.6.3.1.5   Nasal Endings and Phrase Position

In this section, the correlation between phrase positions (initial, medial and final) and the Dzongkha *n*-deleted variant is examined. The multiple logistic regression (Rbrul) results are shown in Table (4.17) below.

Table 4.17: Rbrul results of the correlation between nasal deleted variant (Ø) and phrase position in the speech of Thimphu residents ($R^2 =0.367$; $p<0.0001$).

Phrase Position	% deletion	Log-odds	Factor Weight	Tokens
Final	0.548	0.362	0.59	1134
Medial	0.450	0.112	0.528	1199
Initial	0.284	-0.474	0.384	1303

Rbrul analysis returned this explanatory factor as significant. Here, nasal deletion was favoured in phrase-final position, followed by a slightly disfavouring value for phrase-medial and a clear disfavouring value for phrase-initial position.

This is in line with the observation of Hansen (2012): "often, [ŋ] is deleted from the coda – both word-medially and word-finally – leaving the preceding nucleus nasalized and compensatorily lengthened" (p. 10).Mazaudon& Michailovsky also observed in the dialect of

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[11] Bilabial "nasal coda, *-m*, has often been preserved", except in a word like ʔʒẽm, 'elder sister', where "the vowel remains short" or half-long and "the tone is generally level" (Mazaudon & Michailovsky 1988: 128).

Chapcha that the codas -ŋ and -n are deleted in order to get a long-nasalised vowel (1988: 129).

Accordingly, nasal endings are often lost phrase finally and medially.

4.6.3.1.6   Nasal Endings and Preceding-2 (Consonant)

          This section demonstrates the correlation between the *n*-deleted variant and immediately

preceding-2 phonological environment, i.e. preceding consonants separated by a vowel. The

Rbrul results are presented in the Table (4.18) below.

Table 4.18: Rbrul results of the correlation between nasal deleted variant (Ø) and preceding-2
segments in the speech of Thimphu residents (R^2 =0.367; p<0.0001).

Preceding-2 Segment	% deletion	Log-odds	Factor Weight	Tokens
Sonorant	0.562	0.198	0.549	1382
Obstruent	0.335	-0.198	0.451	2254

          Rbrul analysis returned this factor as the least significant among linguistic factors, though

it was statistically significant (p<0.001). The behaviour of this explanatory environment echoed

that of the following segment (4.6.3.1.3): sonorants favoured nasal deleted forms, whereas

obstruents favoured nasal retention. This echoes the effect found for sonority of preceding

segments by Santa Ana (1996) for the variable simplification of consonant clusters (TD). More

investigation will be carried out in future studies. Nonetheless, sonority has clear effects, as the

figure below indicates.

Figure 4.4: Effects of sonorous environments on nasal deletion, based on cross-tabulation of preceding-2 and following segment
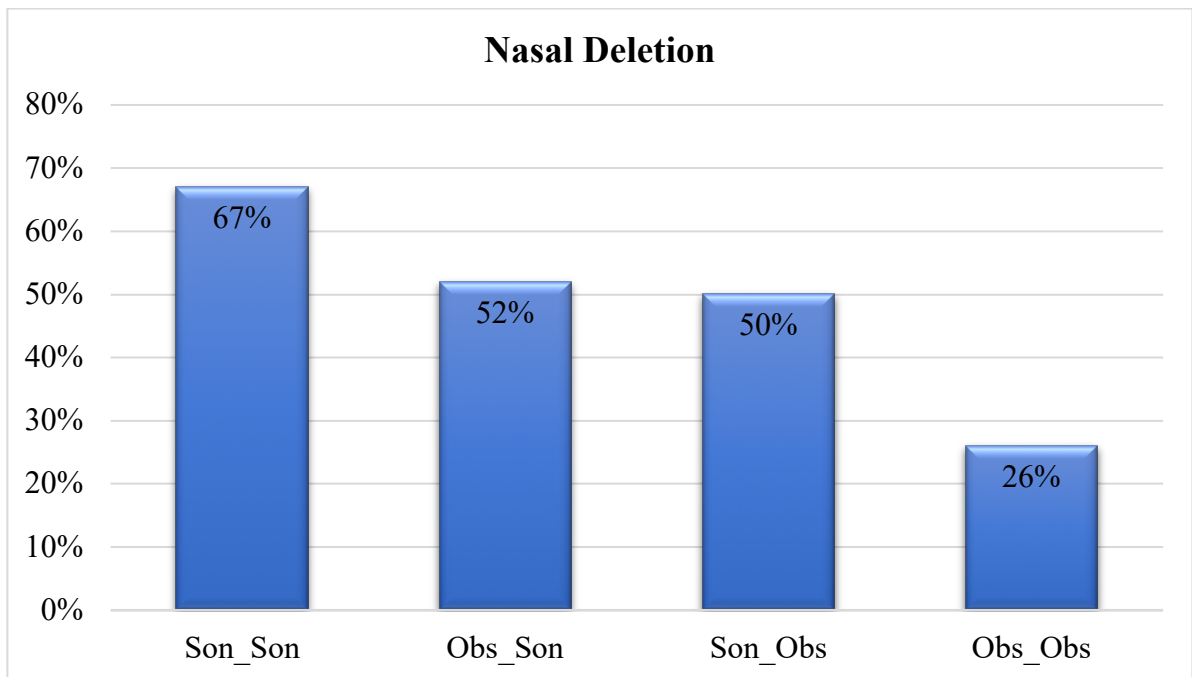
Sonorants are the most likely to promote nasal final deletion, and obstruents the least, with mixed environments producing intermediate results. The high frequency of syllable-final nasal deletion in Dzongkha is reflected in a common saying concerning the speech of Western Dzongkha-speakers: that སྨྱུག་ཏོག་མེད། /ŋʌ́-lop lu ʧæ guto med/ 'Westerners' tongue has no tip' since they do not pronounce nasal finals in their casual speech in Dzongkha. As was noted before (4.6.3.1.1), Dzongkha nasal finals have often been lost, leaving a lengthened nasalized vowel, e.g. /hʌŋ/ > /hʌ̃ː/ 'pillow' (Mazaudon & Michailovsky 1988: 129, Hansen 2012 10-11). Further support in the literature for this process of losing nasal endings and simplification in Dzongkha syllabic structure and spellings comes from DDC (2012), where cases are noted such as: ཚང་>ཚ, i.e. tsʌŋ > tsʌ 'thorn'. The nasal coda is lost and replaced with a simplified form, CVC to CV (Garrett & Johnson 2011: 42).

4.6.3.1.7   The role of sonority

Various efforts have been made to explain the deletion of final segments using generalizations that can be drawn from sonority and syllable structure, mostly referring to simplification of final clusters ending in alveolar stops (/t/, /d/) – little variationist literature exists for final nasals. For example, Santa Ana (1996) reports for Chicano English that the more sonorous the preceding environment, the more likely that final segments (alveolar /t/ and /d/ in his study) are lost; he also found that the following segment had the opposite effect: low sonority promotes deletion (1996:85). From this he tried to give a unified and general sonority-based and syllabicity-based explanation.

However, Bayley (1994) found a different effect for preceding segments in Tejano English, another Spanish-influenced variety of American English; and Patrick (1999: 144) also found an opposed pattern for preceding segments in Jamaican Creole, in terms of sonority. Moreover, there is not a single accepted sonority hierarchy. Reviewing various hierarchies of sonority with respect to Warrongo, an Australian Aboriginal language, Tsunoda (2008) finds that many models differ considerably in detail, again making it hard to find a straightforward general explanation. Tsunoda's hierarchy of sonority is displayed in the Figure (4.5) below.

Figure 4.5: Sonority hierarchy (Tsunoda 2008: 151)

<u>**vowels > semivowels > liquids > nasals > fricatives > stops**</u>

most sonorous   least sonorous
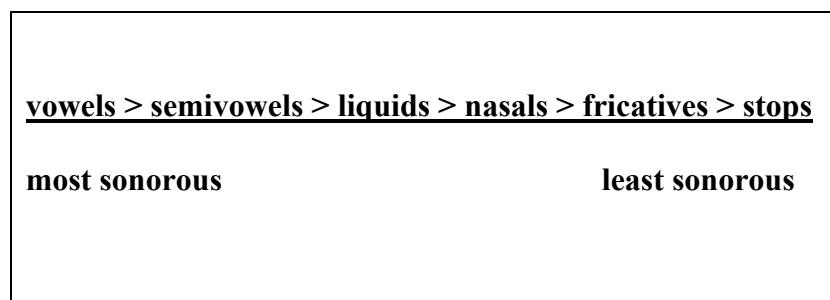
In other languages, increasing sonority of preceding coda generally increases deletion, while decreasing sonority of the following onset increases deletion (Salffner 2013: 85). In sum, more sonorous preceding environments lead to more deletion; less sonorous following

environments lead to more deletion (*ibid*. p. 76).[12] The former is confirmed for the Dzongkha data, but the latter is not.

Note that all the English studies above refer to final clusters ending in an alveolar stop, including /nt/ and /nd/; the Warrongo generalization refers to a language with no syllable-final clusters, where the "cluster" actually crosses a syllable boundary, e.g. /n#t/. This is also the case in Dzongkha.

In addition, there are interesting generalizations drawn from the accounts of denasalization and its variations in Korean as asserted by Yoshida (2008: 21). "Nasality weakening is correlated with strength of prosodic boundary and varies between speakers. Nasality weakening is also dialect dependent in its dependency on the segment duration adjustment related to prosody." Thus, there are a number of different factors which promote nasal deletion, according to both linguistic and extralinguistic factor groups. It is clear then, that sonority alone cannot account for the effect of the preceding and following environments on syllable-final nasal deletion, but that it has a significant effect, and that a more in-depth study is needed.

4.6.3.2   Nasal Endings and Social Variables

Of all the social variables examined, Rbrul returned only mother tongue and educational level as significant. This section presents the correlation between the zero variant (Ø) of nasal endings (N) and those social variables.

4.6.3.2.1   Nasal Endings and Mother Tongue

The speakers who natively live and remain in Thimphu and most recent arrivals in the city who now live alongside Dzongkha speakers, have been exposed to a modern system of education, daily corresponding and official meetings and government administration, including meetings of the National Assembly and National Council in Dzongkha. Similar to what Dorian

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[12] According to Kim (p.c. 19/07/2017), "this sounds like a case of "hypocorrection: a nasal consonant is less perceptually salient next to other sonorants, so listeners do not notice it as being particularly prominent and it can disappear over time."

(1982) observed in the speech community of East Sutherland, Scotland, Bhutanese speakers are, in fact, typically capable of communicating in more than one language, either actively as 'fully-fluent', or 'high-proficiency', or passively as 'low-proficiency semi-speakers', or with 'near-passive proficiency' (*p.* 25-33). They speak, read, write, and do administrative works and court proceedings in Dzongkha since Dzongkha is the only written language in Bhutan.

As described in §3.4.2.4, the speakers in this study are categorised into three groups according to their linguistic, social and spatial variables either inside or outside of Thimphu city: 1) Dzongkha spoken in the western part of Bhutan, 2) Lhotshampa spoken in the southern part of Bhutan, and 3) Tshangla spoken in the eastern part of Bhutan. Table (4.19) demonstrates the differences in the use of the deleted form of the (N) variable correlated with mother tongue.

Table 4.19: Rbrul results of the correlation between nasal deleted variant (Ø) and three major languages spoken across Thimphu residents (R^2 =0.367; p<0.0001).

Mother Tongue	% deletion	Log-odds	Factor Weight	Tokens
Lhotshampa	0.475	0.290	0.572	1212
Dzongkha	0.455	0.190	0.547	1212
Tshangla	0.332	-0.479	0.382	1212

According to the Rbrul results, speakers with a Lhotshampa background deleted final nasals marginally more than Western Dzongkha natives. Speakers with a Tshangla background strongly favoured the retention of nasal endings.

This was checked against cross-tabulations, which also found that the southerners or native Lhotshampa speakers and westerners of native Dzongkha were the groups most prone to the null variant, as in Table (4.20).

Table 4.20: Cross-tabulation of three geo-ethnic groups and frequency of realisation in use of four nasal (N) variants (Ø, m, n & ŋ)

		Variants			Application value: Ø
Ethnicity	**Null-Ø**	**ŋ**	**m**	**n**	**Total (N)**
Southern	48%	16%	22%	14%	
	576	*194*	*270*	*172*	*1212*
Western	46%	14%	21%	19%	
	552	*173*	*260*	*227*	*1212*
Eastern	33%	25 %	25%	17%	
	402	*301*	*304*	*205*	*1212*
Total	**1530**	**668**	**834**	**604**	**3636**

This finding echoes the principal investigator's observation during the interview. The southern and western groups showed correspondingly low rates of velar and bilabial nasals, which exactly corresponds to the belief that lingers within the Bhutanese Dzongkha speaking community currently. The main contrast between three geo-ethnic group is in the realization of dental nasal [n]. In sum, the results showed that Lhotshampa and Dzongkha groups contributed to the favouring of nasal deleted variant more than the Tshangla group.

Second, this finding was in line with the observations of Mazaudon & Michailovsky (1988) and Hansen (2012) cited above (4.6.3.1.5); note specifically "the dialect of Chapcha" (Mazaudon & Michailovsky 1988: 129) which is adjacent to the southern part of Bhutan.

Finally, the Rbrul result showed a tendency for speakers who have high levels of contact with people from other linguistic backgrounds to favour *n*-less speech, whereas speakers who have low levels of contact with outsiders tend to disfavour the urbanised variant. For example, Lhotshampa speakers have frequent contact with people from a Dzongkha speaking background as westerners frequently travel to southern cities (Phuntsholing, Samtse or Sarpang-Gelephug)

for their cosmopolitan business. This situation allows southern bilinguals to interact with native Dzongkha speakers in the marketplace. On the contrary, Tshangla speakers have low levels of contact with outsiders or Dzongkha speakers and maintain tight social relations within the Tshangla speaking community. They frequently visit Samdrupjongkhar for commercial purposes. Basically, their situation parallels that of the Mandarin-speaking businessmen in Zhang (2005) who rely on local linguistic resources; whereas Lhotshampa speakers more closely resemble the Beijing 'yuppies', who borrow linguistic features or discourse markers from either local or global sources (Zhang 2005). However, the lack of style data for adults in the present study means that further research is required to explore this.

Rbrul returned mother tongue as one of the two significant social factors out of seven in every run from Model (I) until the last run Model (IV). As can be seen above, the *n*-less variant is positively associated with western and southern Dzongkha speakers, while the *n*-full form is positively treated as a social identity marker among Eastern Dzongkha speakers. Thus, as Su (2012) has described, eastern Dzongkha is "regionally and socially diversified and stratified" (p. 798) and Tshangla speakers are the most conservative group with respect to retaining nasals in Dzongkha.

In brief, these results reflect the ethnicity constraint, wherein southern and western Dzongkha speakers were much ahead of eastern Dzongkha speakers in using the urban and innovative *n*-less variant.

4.6.3.2.2   Nasal Endings and Education Level (Class of Participants).

Table (4.21) illustrates the variances in use of the nasal endings (-N) based on speakers' level of education. Recall from (3.4.2.3) that it is closely associated with social status in the system of Bhutanese hierarchical social structure (National Library 1999, RGoB 2008, BCSR 2012, 2018).

Table 4.21: Rbrul results of the correlation between nasal deleted variant (Ø) and educational level or social status in the speech of Thimphu residents ($R^2 = 0.367$; $p<0.05$).

Class of Participants	% deletion	Log-odds	Factor Weight	Tokens
Elementary	0.356	0.167	0.542	505
Primary	0.457	0.074	0.518	1212
Degree	0.432	0.047	0.512	1313
Secondary	0.378	-0.287	0.429	606

As can be seen in Table (4.21), Rbrul returned educational level as the least significant variable. Speakers who stopped after elementary level (year 5) favoured the incoming variant, followed by those with only primary level (year 10) and those who attained degree level. Speakers who completed school at secondary level (year 12) retained the most nasal endings. Consequently, the findings suggested (as explained in 3.4.2.3) that school teachers and parents who completed secondary level (S) and are equivalent to Professional and Management Category in the civil service structure are ahead of their occupational counterparts in implementing the traditional variant (N): elementary level equivalent to Operational Category, primary level incorporated in Operational Category, and degree level equivalent to Executive and Specialist Category in civil service structure. Viewed another way, they are behind these counterparts in the use of the innovative form. This appears to be a non-linear pattern, but it can be explained as below.

The influence of speakers' education level has a strong effect on patterns of linguistic variation and is considered a "proxy variable" associated with social class. In other words, education principally works on behalf of other variables in influencing the use of linguistic variables, rather than itself being a primary influencing force on speakers' linguistic behaviour (Al-Wer 2002: 15). As Trudgill (1986) and Chambers (1995) defined, it allows speakers to get opportunities of contact with speakers of the target feature, to create social space and to build relationships between individuals, groups, organisations and societies—not only nationwide but also abroad and at international western universities. As in Eckert's (1989) study about Jocks and

Burnouts (1989), Labov's (1996) and Trudgill's (2000) observations on education level, education is one of the key sources of income differentiation, a fundamental measure to demarcate social strata, and an elemental way to build social networks within and outside the country, thus, it has more effect on language use and variation.

The level of education directly corresponds to the occupation and position categories in the civil service (BCSR 2012, 2018) and corresponds to the use of standard forms in speech (Eckert 1989, Al-Wer 2002). Thus, the majority of academically professional levels, except secondary level, are motivated to use the new variant across different levels of education and social classes.

Horesh (2014) observed in his study on the influence of language contact between Palestinian Arabic speakers and Modern Hebrew speakers in Jaffa on the phonology of Arabic that blue-collar workers preferred lenition more than white-collar workers due to their daily contact with Hebrew speakers. It is logical and understandable that the majority of professional personnel under the umbrella of degree level (D), along with elementary and primary levels, were prone to use incoming variant since they have more dealings with Dzongkha works and daily contact with Dzongkha speakers due to the nature of their works.

As a matter of fact, working environment is one of the key factors in motivating high contact to accommodate linguistically to those speakers and staff who are obliged by the country's law to speak and work in Dzongkha (Royal Government of Bhutan 2008). In other words, executive, specialist and office clerks are normally more involved in official works, meetings, seminars and trainings, and travel more frequently than their counterparts with secondary education, who typically become teachers. There is also a strong association between people from the eastern region, and the teaching profession, so that there is a saying in Bhutan, རྫོང་ཁ་སྐྱེ་མི་ཤར་ཕྱོགས་ལས་སློབ་མི་ཁྱད་ལོབ། /dʒoŋ-khʌ tønmi ʃʌr-tʃop lhʌb-mi ŋʌ-lob/ "Western native Dzongkha speakers study Dzongkha from Eastern (Tshangla) speakers".

Thus, E, P and D levels are likely to score higher in using the zero form than S level due to their extensive exposure to the target null variant and ample opportunities to practise this form in their speech, not only with their co-workers but also with other officials or friends in and around their working area and beyond.

4.6.4   Cross-Tabulation of Age, Gender and Nasal Deletion

As mentioned earlier in §4.6.3.1 and §4.6.3.2, in order to build a clearer picture of those findings and to examine the correlation and distribution (Tagliamonte 2006, Johnson 2009, Daleszynska 2011), between the dependent and independent variables, the cross-tabulation of the use of *n*-deleted variant with age and gender is displayed below, Table (4.22).

Table 4.22: Cross-tabulation of age and gender in the use of nasal deletion (Ø)

	Speakers' Sex		**Application value: Ø**
Speakers' Age	**Female**	**Male**	**Total (N)**
Young	46%	45%	457
Adult	41%	38%	398
Old	50%	40%	426
Total	436	405	421
Tokens	1818	1818	3636

Table (4.22) indicated that the overall difference between males and females in use of the nasal deleted speech is relatively small in younger and middle-aged groups. As can be seen in the figures above, female speakers from the young group (06-18) implement the innovative form marginally more often (46%) than their young male counterparts (45%). Similarly, in the middle-aged group (19-50), female speakers are slightly ahead (42%) of male speakers (38%) in using the *n*-less variant.   However, there is a considerable difference between female and male speakers in the oldest age group. For example, in the older-aged group (51-80), female speakers

used the incoming variant (50%) of the time, considerably more than their male counterparts at (40%).

When we examine the level of frequency between speakers of the same gender, in the female group, the results suggested that the oldest age group used the urbanised variant most frequently (50%), and the middle-aged group least frequently (42%). Likewise, in the male group, the young use the new variant the most at 45%; once again the middle-aged speakers use it least often. This recalls common sociolinguistic patterns of age-grading, in which adults of working age often speak the most conservatively.

Nonetheless, we can see that older women implement the innovative variant the most, whereas younger male speakers use it the most. Such results can be explained considering the nature of contact that older speakers experienced is different from that of the younger speakers, according to their genders. Both of them have been exposed to the innovative variant from several sources—although for different reasons.

For instance, according to Bhutanese age-old tradition, most of the adult female speakers were stay-at-home mothers, teachers[13], or retired teachers, or have their own part-time work in the local community where they get exposure to the zero variant through interaction with local people. These participants had at least one or more family members in government jobs, schools, or working in well-known companies (and NGOs) in and outside Thimphu, with whom they were in regular contact that gave them another source exposure to the target feature. Especially, older female speakers socialise with the local community through popular social meetings or events. For example, at schools (parent meetings, school concerts, cleaning campaigns, etc.), in houses (baby showers, annual rituals) and at common places (local festivals and ceremonies), they meet to enjoy themselves and talk about different topics related to the local community

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[13] Most of the female speakers in Bhutan are in the teaching profession.

using Dzongkha as a common language. As a result, such gatherings reinforce the use of the new deleted variant among older female speakers across the city.

On the other hand, young male participants are exposed to target the variant via their interaction with people at work, school, in the street, local shops and gathering places such as stadiums, local pubs, temples, cinema halls, etc. These kinds of meetings happen frequently and increase the level of exposure of young male speakers to the new variant. Furthermore, some young males spend a number of years in different schools in which they fully learn and become exposed to the target variant. Moreover, boys can be considered moderately more mobile (outside of their local area) than girls, due to a traditional taboo in Bhutanese society.

Overall findings indicate that female speakers of all ages use somewhat more innovative variants than their male counterparts. In this regard, gender often provides clues about the pattern of variation and the trajectory of language change. The present analysis is also expressly in line with previous works in variationist studies which often point out that female speakers are inclined to use incoming forms more frequently than males (Trudgill 1974, Macaulay 1977, Labov 1990, 2001, Su 2012).

It has also been argued as a generalization that female speakers tend to favour 'supra-local' linguistic forms, whereas male speakers favour to use localized variants, as suggested by Milroy *et al*. (1994) in their study of glottalization in Tyneside, Cotter & Horesh (2015) in their study of social integration and dialect divergence in coastal Palestine, and Al-Qahtani (2015) in her sociolinguistic study of the Tihami Qahtani dialect in Asir, Southern Arabia.

In addition, Labov (2001) proposed a collective suggestion known as 'principles' regarding the generalization of sex-differentiated patterns in language use and variation:

I.   "**The Curvilinear principle**: Stable sociolinguistic variables combine a flat age distribution for adults with a monotonic social class stratification; changes in

progress combine a monotonic distribution in adult age groups with a curvilinear pattern in the socioeconomic hierarchy" (p.460).

II.   **"The linguistic uniformity of women:** For stable sociolinguistic variables, women show a lower rate of stigmatized variants and a higher rate of prestige variants than men" (p.266).

III.   **"Principle of Uniform Evaluation:** In linguistic change from above, women adopt prestige forms at a higher rate than men" (p.274).

IV.   **"Women lead in Change from Below:** "In linguistic change from below, women use higher frequencies of innovative forms than men do" (p.292).

With respect to principles III and IV, female speakers actually create the pattern of linguistic variation by typically leading changes, both from above and below. In sum, the cross-tabulation in Table (4.15) showed that female speakers are in advance of their male counterparts in the use of the innovative variant in Dzongkha across Thimphu. If this proves a change in progress (and further research is needed to confirm this), then it has been led by older females; the middle-aged group for both sexes shows a depressed rate of usage, but among the young speakers, both males and females appear to be following the change, with a slight lead for the girls.

This does not entirely match predictions according to the Labovian model, for two reasons. First, the change would appear to be from below, since there is no borrowing from an external speech community such as usually characterizes change from above. However, the pattern we see of adult middle-aged speakers using less of the innovative variant is one that is generally found with stable vernacular forms subject to age-grading. This needs further exploration in future research. Second, in change from below it is more usual to see a monotonic distribution across age groups, with each generation pushing the change further. However, the pattern we see differs from that, with the oldest females using the innovative forms the most,

although children appear to be following. Again, further research will be required to explore in detail why this apparent change in progress from below displays an unexpected profile for age and gender.

4.6.5   Style: Nasals in Text Reading and Casual Speech

Recall from 3.6.3 the methods used to elicit the appropriate speech styles, including: sociolinguistic interview modules, reading passages, storytelling, picture task, and minimal pairs.

With reference to interview data, it is expected to produce a mixture of casual and careful style speech (Labov 1973-77, 1984), and to be capable of eliciting data with "regional accents and homelier vocabulary" (Chambers and Trudgill 1998: 24). The interview in the present study was semi-structured and prepared by the author according to norms for sociolinguistic interviews (Labov 1984, Schilling 2013), but it was not a question and answer format, or a set of written questionnaires with a choice of answers. Hence, the interview was conducted according to the knowledge and social backgrounds of particular speakers for this specific sociolinguistic study. For children, it was brief and consisted mostly of demographic data.

For reading (more formal style), it is a rule of thumb that a Dzongkha reader must pronounce all letters in words when reading by spelling out with each final segment, or nasal finals. All three nasal codas (/m/, /n/ and /ŋ/) are included in the ten classic Dzongkha final consonants or ten 'suffixes' (Sambhota 7th century CE, Lotsawa 1538, Dorji 1990, van Driem 1992, DDC 1999, Dorji 2012, Tshewang 2013). This could be the key explanation for why reading style tended to favour use of the *n*-retained variant – the results for children's read speech resemble the predictions in the literature. Nonetheless, recall that all relatively formal styles (reading, picture task, minimal pair) were combined in this study.

The data collection of reading passage style was in fact not systematic and are not comparable, since there is only interview data for adults with a tiny bit of reading data. For children, there is very little interview data' they have more story and picture task data, and they

did not produce reading passage data. Although there are thirty-six speakers (12-teacher, 12-parents and 12-children), reading passage data was collected from nine speakers (3 teachers, 2 parents and 4 children). In retrospect, the Dzongkha reading task was far too difficult, and did not produce enough data for a robust comparison across age groups, or even within a single group.

Different styles employed for the investigation of (N) may be ranked on a dimension of attention paid to speech, starting with interviews (the most casual style), storytelling—story 1, 2 and 3 (semi-casual style), picture tasks and minimal pairs (semi-formal style), and concluding with reading passage (most formal style).

However, this picture is slightly misleading, due to the different types of data that were collected from distinct age-groups – that is, data for both older and adult groups was monostylistic, overwhelmingly composed of interview speech. For many of these speakers, reading Dzonghkha proved simply too difficult. Young children, on the other hand, could not be expected to fully participate in lengthy interviews, and indeed only gave brief responses; reading Dzongkha was also too difficult for them, and indeed is a major educational problem in Bhutan. (Recall that the oldest children were only 12; higher grades do generally have better reading abilities in Dzongkha.) Thus, a range of other instruments were employed to collect semi-casual speech from children. The comparison between formal and informal speech is thus not strictly comparable between the children, on the one hand, and the older speakers, on the other. This may well have led to the result in which style was not a statistically significant factor in any of the Rbrul models. In retrospect, more comparable styles should have been elicited across the age range, and this is planned for future research.

Hence, in order to build a clearer picture of correlation between the innovative variant and the range of styles, we are obliged to run Rbrul separately for the style factor group. Note that Style was actually removed from modelling after Model I (in which it proved non-

significant), and similarly Age was removed from analysis after Model II for the same reason –

so that there has not been interaction between these predictors in the subsequent models. In the

present run, Style is the only explanatory factor – there were no other linguistic or social factors

– so the significance of the result is not relevant. It is included here only for the sake of

completeness, and not as a robust and comparable measure of style variation across all speakers.

The results are displayed in Table (4.23) below.

Table 4.23: Selected Rbrul results of the correlation between nasal deleted variant (Ø) and data eliciting styles (story, interview and reading) in the speech of Thimphu residents.

Class of Participants	% deletion	Log-odds	Factor Weight	Tokens
Story	0.476	0.323	0.58	937
Interview	0.405	0.033	0.508	2607
Reading	0.315	-0.357	0.412	92

According to the Rbrul run results above, the *n*-less variant is strongly favoured by

storytelling (data from children only), neutral in interviews, while it is disfavoured by reading

(very incomplete data). This does suggest that, at least for the youngest age group, the *n*-less

form is a vernacular variant.

Cross-tabulation between age and style by (N) variants for all speakers gives the

complete picture.

Table 4.24: Cross-tabulation between age and style by (N) variants for all speakers

OLD					
		Variants			**Application value: Ø**
Style	**Null-Ø**	**ŋ**	**m**	**n**	**Total**
	0%	0%	0%	0%	
Story	*0*	*0*	*0*	*0*	*0*
	43%	22%	22%	13%	
Interview	*172*	*90*	*88*	*54*	*404*
	0%	0%	0%	0%	

Reading	*0*	*0*	*0*	*0*	*0*
Total	**172**	**90**	**88**	**54**	**404**

ADULT

	Variants			Application value: Ø	
Style	**Null-Ø**	**ŋ**	**m**	**n**	**Total**
	0%	0%	0%	0%	
Story	*0*	*0*	*0*	*0*	*0*
	40%	20%	23%	17%	
Interview	*804*	*401*	*462*	*353*	*2020*
	0%	0%	0%	0%	
Reading	*0*	*0*	*0*	*0*	*0*
Total	**804**	**401**	**462**	**353**	**2020**

YOUNG

	Variants			Application value: Ø	
Style	**Null-Ø**	**ŋ**	**m**	**n**	**Total**
	48%	11%	25%	16%	
Story	*446*	*104*	*234*	*153*	*937*
	43%	19%	20%	19%	
Interview	*79*	*34*	*36*	*34*	*183*
	32%	42%	15%	11%	
Reading	*29*	*39*	*14*	*10*	*92*
Total	**554**	**177**	**284**	**197**	**1212**

ALL AGE GROUPS (Total)

	Variants			Application value: Ø	
Style	**Null-Ø**	**ŋ**	**m**	**n**	**Total**
	48%	11%	25%	16%	
Story	*446*	*104*	*234*	*153*	*937*

	40%	20%	22%	17%	
Interview	*1055*	*525*	*586*	*441*	*2607*
	32%	42%	15%	11%	
Reading	*29*	*39*	*14*	*10*	*92*
	42%	18%	23%	17%	
Total	**1530**	**668**	**834**	**604**	**3636**

It can be noticed that children have highest deletion in story (semi-casual style) rather than interview. However, for both adult groups only interview data (and a very small amount of Reading Passage data) was collected; while storytelling data were collected only from children. It is less surprising that children find interviews relatively formal but treat storytelling as casual speech – indeed, personal narratives in adult speech are often among the most informal sociolinguistic data (Labov 2013). The results are, as summarised here:

➢ Old and Adult speakers have similar rates of *n*-less variant in their interview speech;

➢ Children show the most deletion overall, and the least use of the velar variant, which increases with formality;

➢ Though numbers are small, use of the velar form correlates with age (i.e., older speakers use it more than younger);

➢ In Interview speech, children fairly closely resemble the Old (but use fewer dentals) and the Adult speakers (but use slightly more deletion);

➢ Children's storytelling was found to be the style which most favoured the *n*-less form in this study (hence we have referred to it several times as the "innovative" variety).

However, it is uncertain whether the loss of nasal coda [n] in the Dzongkha speech is a change in progress, or just stable variation with an age-grading profile (Chambers 1995). One reason is that a single sociolinguistic survey cannot confirm change in progress (*ibid.*), and another reason is that the style differences by age, seen here, are small, poorly distributed, and

not confirmed as statistically significant. Moreover, it is quite a contrast to sociolinguistic expectations according to the language ideology for Dzongkha in Bhutanese society, since as a native member of the speech community I expected greater deletion from the oldest speakers.

4.7   Summary of the Results

This chapter presented the analysis of the realisation of the nasal finals (N) in Dzongkha. The variable (N) has four variants: the *n*-deleted and innovative variant, the *n*-retained and traditional variants: velar nasal [ŋ], dental nasal [n] and bilabial nasal [m]. The findings are summarised below.

The results showed that the (N) variable has considerable variation within Dzongkha speakers across Thimphu in apparent time. The statistical results showed significant correlation between the use of the incoming *n*-less variant and linguistic and social factors under study: Preceding-1 segment (vowels), grammatical category, following segment, phrase position, preceding-2 segment, mother tongue and education level of participants.

Linguistically speaking, the deleted variant was preferred after open-mid back unrounded vowel [ʌ], close-mid front unrounded vowel [e] and close-mid back rounded vowel [o]. On the contrary, it was disfavoured when preceded by close back rounded vowel [u] and close front unrounded vowel [i]. On the subject of grammatical category, preposition is the most favoured environment for the *n*-deleted variant, followed by verbs, while other categories like adjectives, adverbs and nouns favour *n*-retention, correspondingly. For the following segment, we can see that deletion is favoured before a sonorant, while it is disfavoured before an obstruent. When the variable occurred in a low-toned syllable, deletion is favoured, whilst high-toned syllables disfavour it. In final and medial position, deletion is favoured, while it is disfavoured in the initial position. As for preceding-2 environment, deletion is favoured when preceded by a sonorant, whereas it is disfavoured after an obstruent.

As for the social variables, speakers with Lhotshampa and Dzongkha backgrounds were ahead of their Tshangla counterparts in implementing the new variant. Likewise, participants with elementary, primary and degree levels in education favoured the incoming variant; however, people with only secondary level favoured the traditional variant the most. Age, gender and use of innovative variant showed similar patterns to those reported in some sociolinguistic studies where women have been found to use the innovative variant more than men, despite the fact that younger male speakers were found to slightly favour the incoming variant. Rbrul did not return age or gender as significant factors.

Chapter 5   The Realisation of Postvocalic (R) in Dzongkha

5.1   Overview

This chapter considers Dzongkha language variation with respect to rhoticity, that is, the pronunciation of postvocalic (r) in word-final positions in a syllable, as in རྒྱ་གར་ *rGya-gar* /dʒʌ-gʌr/ 'India'. The presence or absence of a postvocalic [r] in the syllable coda, called ར་བློ་ཅན་ *ra-Blo-can* /rʌ-loɪ-tʃʌn/ 'rhotic', is considered to be a very salient feature of Dzongkha social and regional variation. This chapter examines word-final postvocalic rhotics (r) as a feature of sociolinguistic behaviour in apparent time for a group of Bhutanese Dzongkha speakers across the capital city of Bhutan, Thimphu.

The first section gives an overview of Dzongkha rhoticity, both its articulation and the phonotactics of syllable form (5.2). The second section explains the motivation and significance of the rhotic study in Dzongkha (5.3) with a brief description of postvocalic /r/ in other related literature (5.4). The next sections explain the present rhotic situation in Thimphu, including linguistic and social constraints on /r/ (5.5), followed by the details of sample and coding protocol (5.6).

The final sections present the key findings obtained from statistical analysis using Rbrul for linguistic and social factors (5.7), and interpretations of the Dzongkha rhotic deletion form – once again this form will turn out to be the innovative variant.

5.2   A Brief Description of Rhoticity in Dzongkha

5.2.1   Final Rhotics in Dzongkha

Dzongkha rhotic consonants, or 'R-like' sounds, refer to the unique set of phones by which Dzongkha speakers pronounce the rhotic consonant /r/, and by which the most distinctive varieties of Dzongkha can be categorized (Dorji 2012, Tshewang 2013). Different analyses of the consonant inventory were presented in 2.5.1 for initial consonants. To date, van Driem (1992: 99, 1994: 39) asserts a lone 'post-consonantal glide' /r/, or postvocalic consonant /r/,

which occurs 'only in literary pronunciations', or pronunciations of reading by spelling out. Nonetheless, since the speakers sampled do in fact pronounce consonantal forms of /r/, the present study investigates sociolinguistic variants of the (r) variable found in Bhutanese Dzongkha-speakers' everyday speech. The reported (r) variants below include alveolar trill ([r], coded 'T'), alveolar flap ([ɾ], coded 'F') and R-absence/de-rhotacization (coded 'Ø').

Other postvocalic rhotic variants which occur occasionally in the data include approximant [ɹ] (coded 'A'), uvular trill [ʀ] (coded 'U'), labiodental approximant [ʋ] (coded 'W'), retroflex approximant [ɻ] (coded 'X'), and retroflex flap [ɽ] (coded 'L'). All these variant forms are conflated with trill in the analysis to follow, since these are very rare tokens in Bhutanese Dzongkha. Ultimately, the present research has conflated flaps, trills and the rest of the /r/ variants and examine the alternation between "Ø" [non-rhotic, null or de-rhotacized] and "T" [rhotic, present or rhotacized] as the dependent variable. Note that most recent analyses (van Driem 1992, Sherpa 2008, Hansen 2012) analyse Dzongkha as possessing a single rhotic phoneme (although variation according to tone was also noted).

At present, the author has no recent historical evidence of a loss or acquisition of /r/ in the Dzongkha phoneme inventory, since such sociolinguistic investigation has not been carried out in any Dzongkha speaking community. However, the historical literature noted below gives good reason to believe that older forms of speech and writing contained postvocalic rhotics; but contemporary descriptions like Mazaudon & Michailovsky (1988:37), van Driem (1992, 1994), Hansen (2012:11) and Watters (2018: 64) agree that it is largely lost in modern speech. Hence, this study mainly examines the degree to which sections of the Dzongkha speaking community in Thimphu are rhotic or not, based on their different social backgrounds, since there are numerous words historically pronounced with coda /r/ in Dzongkha (Lotsawa 1538, Dorji 1990, DDC 1999, Rinzin 2009a, 2009b, Tshewang 2013).

5.2.2   (R) Position in Speech Production

As Sambhota (7th century CE), Dorji (1990), DDC (1999) and Tshewang (2013) describe, the Dzongkha speech sound 'R' is the 25th of 30 consonants in the traditional writing system of Dzongkha, as represented in the syllabary (Table 2.1). It is the only sound which is formed with the tip of the tongue, near the front teeth and the alveolar ridge. Like English rhotics, or "*r*-like" sounds (Roca & Johnson 1999: 74-75, Smith 2008-2016), Dzongkha consonant /r/is produced from the tip of the tongue nearly touching the insides and bottom of the upper teeth. It has been categorised variously as an apical continuant (van Driem 1992), a liquid (Mazaudon & Michailovsky 1988), an alveolar rhotic (Hansen 2012) and a semivowel (Jaschke 1883), including dental and voiceless variants (see 2.5.1).

In this context, the shape of the rhotic and position of the tongue are linked with the linguistic context and speaker's social characteristics, influencing whether it is realised as a post-alveolar continuant, alveolar flap, retroflex continuant, or uvular trill, or alveolar trill. However, the Dzongkha /r/ trills are rolled and not pronounced as either the more familiar Italian or the French one (Vernetto & Norbu 2003: 5).

5.3   Motivations and Significance of the (R) Study

The primary aim of this study is to investigate the variation (including change in progress if possible) in articulation of Dzongkha syllable coda /r/. In other words, no speakers in the Thimphu study had either "rhotic accents, in which postvocalic /r/ is categorically pronounced, [or] non-rhotic accents, in which syllable coda /r/ is categorically deleted. The terms *r-full* and *r-less* are often used with the same meaning as *rhotic* and *non-rhotic*" (Wells 1982: 75-76, cited in Elliott 2000: 9). All were variable. This survey is conducted mainly to understand how structural patterns of the (R) variable, linguistic ideologies and linguistic practices of Dzongkha speakers across Thimphu mutually allow them to constitute an urban speech community – a group of speakers for whom both norms of production, and norms of evaluation, are shared. This is the

motivation for preferring quantitative modelling of the postvocalic (r) variable.

In general, investigation on Dzongkha contributes to the growing range of quantitative variationist methodology in studies of Asian languages, as well as bilingual communities like in Thimphu.

In particular, quantitatively investigating (r) deletion that correlated with both linguistic and social factors in the Dzongkha language context can be a useful step towards ultimately understanding local Thimphu speakers' affiliation "with various competing internationally prestigious varieties like American and British English with RP accents". "[T]hese two strongest outside social influences on" (Chand 2009: 198) Bhutan are inevitably influential due to the domination of English as an international language (van Driem 1994, Wangdi 2015).

The specific reason for the selection of this variable is linked to the possibility of measuring linguistic variation in apparent time which is influenced by linguistic, social and spatial factors in the use of innovative features in Dzongkha. Following Chand's (2009) investigation of postvocalic (r) in Indian English, this apparent time survey may reflect variation in Dzongkha related to linguistic and social variables, potentially including age-grading. Therefore, the choice of this salient variable (r) and its informants' characteristics have both been influenced by the goal of investigating potential patterns of variation in Dzongkha within the inhabitants of the greater Thimphu urban area.

5.4 A Brief Description of Postvocalic (R) in Other Related Literatures

5.4.1 Studies on Final Rhotics in English Varieties

It is worth noting that rhotic sounds vary widely across languages and do not easily form a natural class in articulatory or acoustic terms (Van Hout and van de Velde 2001). The sociolinguistic investigation into rhotic variation in Dzongkha remains an untouched area until now, so it proved useful to refer to other relevant rhotic surveys in other languages like Scottish

English, for instance, to help in identification and selection of variant forms, and of linguistic constraints, as well as sociolinguistic patterns according to prestige, style and speaker variables.

For example, Lawson *et al.* (2011), a socio-articulatory study of variation of postvocalic /r/ in CVr (e.g. *car*) words, examined a syllable-type which also occurs in Dzongkha and found "sociolinguistic stratification at the articulatory level", despite "the complex and unpredictable relationship that exists between the sounds of speech and the vocal tract configurations that generate them" (2011: 256). Dzongkha too has a wide range of articulatorily complex rhotic variants, and in the present study it has been necessary to conflate them as noted above, but we nevertheless investigated stratification across the auditory rhotic continuum.

In a study of derhoticisation in Scottish English, Stuart-Smith *et al.* (2014) examined "fine-grained variation in Scottish English coda /r/", which has undergone a "socially constrained, long-term process of derhoticisation" (p. 1). They note that derhoticisation over time has led to a "sociophonetic continuum in the realisation of postvocalic /r/" (*ibid*. P. 2), and it may be that the wealth of forms found in Dzongkha is also associated with such change over an earlier time period. Notably, both Dzongkha and Scottish English include apical trills and taps, as well as post-alveolar approximants which in both cases are seen as borrowings, and in both varieties derhoticization occurs about half the time or more, while Stuart-Smith's work (*ibid*., Stuart-Smith 2007) reports distinct class-stratification for rhotics.

Chand (2009) seeks to explain the presence or absence of a pronounced syllable coda /r/ in the speech of "Indian English spoken in New Delhi, through apparent time examination of three generations of IE speakers" (p. 196-97). Her dissertation fundamentally attempts to define the relationship between rhoticity and social identity in a dialect of Indian English (IE) that "offers a lens from which to understand the present and future status of IE rhoticity and its relationship to urban Delhi sociolinguistic identities" (Chand 2019: 197). According to Chand (2009), for postvocalic /r/ deletion social factors prove to be the key explanatory variables in

predicting rhoticity across the IE speaking linguistic community in Delhi. For example, "Female, working age, transient, self-identified Delhiites are the least rhotic, overall, while the most rhotic group is male, retired, Hindi Belt permanent Delhiites" (*ibid.* p.237). Similarly, "postvocalic /r/ deletion is varyingly related to both prestigious and stigmatized forms, in different contexts" (Chand 2009: 196), and "the prestige form can be understood as non-rhotic" in Indian English (*ibid.* p. 238).

Elliott (2000) conducted a study on presence and absence of syllable-final /r/ in the speech of over two hundred actors and actresses of American film from the mid-1930s to the late 1970s. The study used diachronic methods to examine rhotic changes over the period of time which are consistent with "sociolinguistic factors for variation in order to define the shape of change and explain the nature of variation in social context" (Elliott 2000: 01). In the five-decade period, the results showed that "a steady decrease in the rate of r-less pronunciations was found in the speech of both individual subjects and the group as a whole" (*ibid.* p.1, 136).

Elliott indicates that the speech of the actors and actresses shifts from the r-deleted speech of southern British or New England speech to the r-full speech characteristic of the Midwestern and Western USA. The patterns of variation also differ from male to female speakers, as female speech is associated with the prestige form to a greater extent than male speech. However, the performed speeches of actors and actresses are more artificial than naturally occurring speech, though most of them are parallel to the formal speech of other speakers studied by a number of sociolinguists. Hence, most of the shifting of articulation styles used by actors are expressed according to the situation-based emotions and "rational attitude[s] towards other characters in the drama" (Elliott 2000: 1).

This brief review has identified a number of issues and patterns relevant to the study of postvocalic rhoticity in Dzongkha.

5.5   Constraints on the (R) Variable

5.5.1   Linguistic Constraints on (R)

As Mazaudon & Michailovsky (1988), van Driem (1992) and Hansen (2012) explained in their descriptive studies, the native Dzongkha in the western part of Bhutan is characteristically non-rhotic. They described that the word-final liquid *(-r)* is often deleted, leaving a lengthened (often nasalized) vowel, though curiously each study found this behaviour in a single informant. For example, ནོར་ nor /nor/ 'cattle' is the literary pronunciation and dropped the word-final (r), pronounced as [nõː]. Further detailed interpretation is seen in (§5.7.3.1).

5.5.1.1   (R) in Trill and Flap Alternation

In Dzongkha the rhotic consonant *r* has been labelled a liquid (Mazaudon & Michailovsky (1988), a voiced apical continuant (Driem 1992), and a voiced alveolar rhotic (Hansen 2012). In the present data (Table 5.1), *r*-deletion or (Ø) is the most frequent, followed by alveolar trills in second place and flaps in third. At this point, there were three possible variants of the dependent variable: *r*-deletion [ø], alveolar trill [r-T] and flap [ɾ-F].

However, as can be seen in the table, the percentage distribution of these three (r) variants across the entire dataset shows that the majority of speakers favoured the use of (T) over (F). Due to the noticeable frequency difference between flaps and alveolar trills, and the uneven distribution of flaps, we finally conflated flap with trill (alveolar) and analysed consonants vs. null variants.

Table 5.1: Percentage distribution of (R) between its three linguistic variants

Variants	Count of Variant (%)	Tokens (N)
Null-/Ø/	61%	1332
Flap	8%	183
Trill	31%	681
Grand Total	**100.%**	**2196**

5.5.2   Social Constraints on (R)

Dzongkha rhoticity is a strong and controversial variable to explore in the Thimphu community because of its consistent links to social features and its involvement in larger effects of geographical location and social groups. Following Labov (1972b), the present study looked into the external factors hypothesised to significantly affect the rate of /r/ deletion, correlating the dependent variable with sex, ethnicity, education and social status, geo-ethnic background, socio-economic status, education, occupation and class of participants.

5.6   The Coding Practice for Dzongkha Rhotics

First, each token realisation was coded as null or zero variant (Ø), trilled [r], flapped [ɾ], approximant [ɹ], labiodental approximant [ʋ], retroflex approximant [ɻ] and retroflex flap [ɽ] based on impressionistic aural analysis. Then variants were grouped into three variants according to their frequency of occurrence, namely zero variant (Ø), trilled [r] and flapped [ɾ]. Finally, we conflated the flap (F) with trill (T) for this particular multiple logistic regression analysis, due to inadequate numbers of flap tokens (see §3.8.3).

The linguistic and social variables have been specifically coded depending on the conditioning environments, as detailed in §3.8.2 and §3.8.3 and § 4.5.1. The same rules apply for the current coding practice of word-final postvocalic (r) as in §4.5.1.1 (i.e., the preceding -2, -3 and the following segments – all consonants), §4.5.1.2 (immediately preceding-1 segment – always vowels), §4.5.1.3 (lexical tone), §4.5.1.4 (phrase position), §4.5.1.5 (grammatical category), §4.5.1.6 (social variables). Hence, eight linguistic factor groups and seven social factor groups were coded.

As for the (N) variable (§4.6.1), four different models were created and examined using Rbrul to find the significant factor groups that influence the use of the word-final postvocalic (r) in Dzongkha speech. In the first model, we added individual speakers to the analysis as a random intercept or random-effects (or mixed-effects) model, but we subsequently removed individual

speakers from the pool of social factor groups as it was not a statistically significant predictor. As Johnson (2009, 2010: 10) explains, if "the individual speakers did not affect the response differently, then the grouping has no statistical importance and mixed models are not needed". Ultimately, each model involves up to fifteen factor groups hereafter:

1) Preceding segment-3 (Consonant),

2) Preceding segment-2 (Consonant),

3) Immediately preceding segment-1 (Vowel),

4) Immediately following segment (Consonant),

5) Lexical tone,

6) Following tone,

7) Phrase position,

8) Grammatical category,

9) Style,

10) Speakers' role,

11) Speakers' sex,

12) Education level or Social Status (only one at a time since they are closely correlated in practice),

13) Speakers' age,

14) Speakers' origin, and

15) Speakers' mother tongue.

5.7　　　　Multiple Logistic Regression Analysis: Rbrul

5.7.1　　　Rbrul Modelling: The Four Models

As explained in (4.6.1), the common rule of thumb is that several Rbrul analyses are needed in order to find the best model of variation (Johnson 2009, 2010; Clark 2010, Daleszynska 2011, Tamminga 2011).

The 'application value' that was chosen for this model of (r) study is the incoming *r-*deleted form, or non-rhotic variant, i.e. proportions and log-odds values are given in terms of the zero variant.

Model I: In the first model, we included all the factor groups and posed two (R) variants: *null-Ø* and *alveolar-(r)*. Due to the combining of (R) variants (§5.6), each individual variant has now an adequate number of tokens for the multiple logistic regression analysis.

Rbrul returned style, lexical tone, grammatical category, mother tongue, speakers' age, phrase position, preceding-1 (vowels) and following segment (consonants) as statistically significant factor groups. Nonetheless, Rbrul did not return preceding-2 and preceding-3 (consonants), following tone, speakers' role, speakers' sex, educational level (social class)'and speakers' origin, i.e., they were not found to be statistically significant.

Model II: The results for step-up and step-down analyses in the first model showed a mismatch between two predictors: 'origin' and 'mother tongue'. There might be an interaction between origin and mother tongue since both belong to the same geo-ethnic factor group, i.e. speakers from certain regions are more likely to have certain mother tongues. In the second model origin was discarded and mother tongue was retained. At this juncture, Rbrul did not find any significant difference between model I and II, except for displaying a match between step-up and step-down analyses after discarding origin and retaining mother tongue.

Model III: In order to check interaction between mother tongue and origin, we decided to run a third model with the same factors, except this time discarding mother tongue and retaining origin. Confirming the view above, Model III results matched the figures for model II exactly (for p-values, log-odds, R^2 and factor weights) except that they were attributed now to origin.

Model IV: Therefore, the fourth model emulated Model II in discarding origin and retaining mother tongue – the thinking being that mother tongue is more directly related to choices in speech than origin. However, it also discarded following segment because it was the

least valuable explanatory factor (p=0.0251) in all the first three models, and moreover produced unexpected and non-linear results, indicating it was still less than fully satisfactory as an explanation.

Model V: Finally, it turns out that since the Style data are once again not well distributed across age groups (see 4.6.5), we will examine a fifth model which is nearly identical to the best of I-IV, but which removes Style as an explanatory element. The reasoning is that though style data are poorly distributed, age data are not; but again, a close look at the effects of style will be taken, for the sake of completeness, as with (n). It was not possible to conduct an analysis on a single type of style data (e.g. Interview speech, the largest source, and one for which all speakers produced some tokens), because no single style was well distributed across age groups.

Below, the five models are compared.

5.7.2   Evaluating the Five Models

The step-up and step-down analyses and figures were well ordered and matched in models (II), (III) and (IV) except for R^2 values[14] and degrees of freedom[15] (df): models (I), (II), and (III) retained the same R^2 values (0.497) and df (19), while model IV marginally decreased R^2 to 0.495 and df to 18, correspondingly. This means that factors included in the first three models are well-behaved and symmetrical, a result which endorses the stability of the model.

In the first four Rbrul models, style and lexical tone were found to be the most statistically significant factor groups, while preceding-1 and following segments were found to be the least significant predictors. However, in Model V, while lexical tone remains a strong predictor, once style is removed there are other changes in ordering, to be discussed below. Model V will be the main focus of explanation.

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[14]The R^2 values provide an overall estimate of how much variation has been explained (Johnson 2009, Daleszynska 2011).

[15] "The degrees of freedom (df) is the number of parameters in the model, a measure of model complexity. The more factors we add the higher the df" (Johnson 2009, Daleszynska 2011: 11).

5.7.3   Findings and Interpretation

As usual, the log-likelihood ratio test was applied to find the best model that explains the most linguistic variation (Johnson 2009, 2010, Clark 2010, Daleszynska 2011, Tamminga 2011). The chi-squared test was carried out for the five models, two at a time, and one model was compared with another using the log likelihood values and the differences in degree of freedom of each model.

The results have found that pairwise comparisons between the 1st and 2nd, 1st and 3rd, 1st and 4th and 1st and 5th models were not significant. This indicates that there is no great advantage achieved over Model I by removing non-significant explanatory factors in the subsequent models. However, there is no advantage to including them either, as generally a simpler model is to be preferred.

Likewise, the difference between the 2nd and 3rd models was not significant: there was no difference in log-likelihood, df and R^2 values. This is due to the fact that geographical origin and mother tongue (the only contrast between these models) do essentially the same job in explaining variation.

On the other hand, when we drew a comparison between the 2nd and 4th models and 2nd and 5th models, the result displayed for the latter one is somewhat more significant (p < 0.0001, Chi-square= 328.95, df= 2) than the former (p < 0.001[16], Chi-square= 5.016, df= 1). In this case, despite the fact that Model II has higher degree of freedom, we have selected Model V since there is interaction between style and age, as well as poor data distribution. These explanatory factors (style and age) do not really explain a lot of variation – rather, they are interacting with each other. At this juncture, the fifth model (with R^2= 0.357) was finally chosen to be the best

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[16] As in 4.6.3, it is recognised that values such as "*p*=8.94e-48" are very small numbers indeed and might all be represented as e.g. "*p*= 0.001", since the difference among such small numbers is not of great interest. However, they are nevertheless used to order the reporting of significant predictors, since the *p*-value is traditionally the measure employed for this purpose; hence we give the numbers in the form above so readers can see this ordering.

explanation of the linguistic variation found in Dzongkha word-final postvocalic (r). The result

for age was also found to be linear, with higher log likelihood, in Model V, as discussed below.

Accordingly, of five models, the 5th model is selected as the best in this multiple logistic

regression (Rbrul) analysis. The figures followed by interpretation of the final Rbrul results for

(R) variable are displayed in Table (5.2) below.

Table 5.2: Model V: Final Rbrul results of the correlation between the deletion of word-final (r) and the significant independent variables among the community of Dzongkha speakers with various factor groups.

		R² =0.357		
				Application value: Ø
Factors	**% deletion**	**Log-odds**	**Factor Weight**	**Tokens**
Lexical Tone				
Low	0.766	0.842	0.699	1442
High	0.301	-0.842	0.301	754
(p<0.0001)				
Grammatical Category				
Preposition	0.910	1.749	0.852	134
Verb	0.774	0.267	0.566	381
Adverb	0.768	0.133	0.533	714
Noun	0.393	-0.751	0.321	797
Adjective	0.318	-1.398	0.198	170
(p<0.001)				
Preceding-1 (Vowel)				
Close front [i]	0.818	1.389	0.801	11
Close mid-front [e]	0.780	0.434	0.607	255
Close-back [u]	0.590	-0.275	0.432	100
Open [mid]back [ʌ]	0.629	-0.668	0.339	1506
Close-mid back [o]	0.364	-0.880	0.293	324
(p<0.0001)				
Mother Tongue				
Dzongkha	0.656	0.383	0.595	732
Tshangla	0.590	-0.182	0.455	732
Lhotshampa	0.574	-0.201	0.45	732
(p<0.0001)				

Phrase Position				
Medial	0.617	0.299	0.574	303
Initial	0.574	0.012	0.503	1177
Final	0.655	-0.310	0.423	716
(p<0.05)				
Following Segment (Consonant)				
Obstruent	0.602	0.161	0.54	1435
Sonorant	0.615	-0.161	0.46	761
(p<0.05)				
Speakers' Age				
Old	0.615	0.313	0.578	244
Adult	0.606	-0.128	0.468	1220
Young	0.605	-0.185	0.454	732
(p<0.05)				
Intercept: 1.137			**Total Tokens: 2196**	
			Grand Mean: 0.607	

A positive log-odds value denotes that the application value zero is preferred, while negative log-odds values indicate (r) tends to be retained. Likewise, the factor weight "reports the same thing but within the range of 0 – 1.00" (Daleszynska 2011: 10). The grand mean shows the overall data proportion in the dataset (Johnson 2009, Daleszynska 2011). Likewise, if the dependent variable is binary (as here), theintercept reports "the log odds of the dependent variable if x= 0" (Daleszynska 2011: 11).

Rbrun returned lexical tone as the most significant factor, while speakers' age was the least significant factor for this word-final (r) study. In order, the following sections explain the correlation between the (R) variable and its internal and external explanatory factors. Note, however, that similar problems with uneven distribution of style data across age groups will mean that style results are difficult to interpret. Thus, this explanation of results begins with the most important linguistic predictors.

5.7.3.1   Dzongkha Postvocalic (r) and Linguistic Variables

This section presents the correlation between Dzongkha word-final postvocalic (R) and the meaningful linguistic predictors: lexical tone, grammatical category, preceding-1 (vowel), phrase position and following segment.

5.7.3.1.1   Postvocalic (r) and Lexical Tone

According to the orthographical system of Dzongkha, it has commonly "two distinctive tones: a high register and a low register tone" (van Driem 1992: 49). Dzongkha tones can be distinctively heard and easily recognised on syllables with nasals, liquid or glide onsets, with the exception of word-final (r) and onsetless syllables. Extra care was therefore taken in auditory coding of these tone data for (r). However, other linguists argue that it is easily predictable based on other initial consonants in Dzongkha; for example, consonant initials with voiced and devoiced articulations predict low tone syllables, while consonant initials with underlying voiceless and aspirated articulations "completely predict" high tone syllables (Hansen 2012:6; see also van Driem 1992), and the coding process found this to be generally true. As will be seen, however, the relationship between final /r/ and tone is not "completely predict[able]" but rather variable. Indeed, Hansen finds empirically that "Tone isn't completely predictable from the voicing of the onset since, phonetically speaking" devoiced and underlying voiceless initial consonants "sound the same", and "Therefore, voicing is not distinctive in Dzongkha, but tone is" (2012: 20-1). More examples can be seen in §3.6.2.3 and **Appendix** (8).

Tone in this study was categorised into two groups, namely, high and low tones. In this section, the correlation between deletion of postvocalic (r) in the speech of Thimphu residents, and lexical tone, high or low, is observed. The figures are presented in Table (5.3) below.

Table 5.3: Rbrul results of the correlation between the use of r-deleted variant (Ø) and lexical tone in the speech of Thimphu residents (R^2 =0.357; p<0.0001).

Lexical Tone	% deletion	Log-odds	Factor Weight	Tokens
Low	0.766	0.842	0.699	1442
High	0.301	-0.842	0.301	754

Rbrul confirmed that lexical tone is the most statistically significant among the linguistic factors. In this environment, (r) deletion is favoured when the variable occurs in low tone syllables, at a rate of (77%) and disfavoured when it is occurred in high tone syllable, at a rate of (30%).

Previous descriptive studies also showed that low lexical tone has the greatest effect on the realisation of the rhotic deletion. The majority of Dzongkha speakers (mostly westerners) do not regularly pronounce word-final postvocalic (r) in their spontaneous speech, producing instead a lengthened nasalised vowel with low falling tone (Mazaudon & Michailovsky 1988: 127, van Driem 1992: 49-52, Hansen 2012: 11).

In addition, it was observed from Mazaudon & Michailovsky's informants that the coda (-r) is often lost, though in their limited data, "with compensatory lengthening. The tone is falling", which is meant to be 'high falling', 'low', or 'low falling'. In other languages, all these tone and tone contours fall under low tone (Mazaudon & Michailovsky 1988: 127). For example, "[norɬ] is the literary pronunciation" while the Dzongkha speakers "normally dropped the (r)—giving [nõːɬ]" in their daily spontaneous speech (Hansen 2012: 11).

As hypothesised, /r/ is preserved in written form (as the underlying form) but deleted from the coda—word-finally at surface level (recall Barale's stage 2) with low tone syllables, "leaving the preceding nucleus nasalised and compensatorily lengthened" (Hansen 2012: 10). This is consistent with the general finding below that Dzongkha speakers frequently delete (r) in speech even though literary pronunciations emphasize the consonant – the prestige that might be associated with literary and liturgical forms does not carry over into everyday speech.

5.7.3.1.2   Postvocalic (r) and Grammatical Category

Table (5.4) demonstrates the correlation between the deletion of postvocalic (r) in grammatical categories such as preposition, adverb, verb, noun and adjective.

Table 5.4: Rbrul results of the correlation between the use of n-deleted variant (Ø) and grammatical category in the speech of Thimphu residents (R^2 =0.357; p<0.0001).

Grammatical Category	% deletion	Log-odds	Factor Weight	Tokens
Preposition	0.910	1.749	0.852	134
Verb	0.774	0.267	0.566	381
Adverb	0.768	0.133	0.533	714
Noun	0.393	-0.751	0.321	797
Adjective	0.318	-1.398	0.198	170

In this environment, prepositions are the most favouring for *r*-lessness, followed by verbs and adverbs, which also favour non-rhotic accent, though at a low rate; while nouns and most of all adjectives significantly favoured the rhotic variant.

As explained in §4.6.3.1.2, we conflated a number of subcategories into grammatical classes due to inadequate token numbers and to avoid a huge number of categories in the dataset. For instance, determiners, numbers and interjections are conflated with adverbs based on the frequency of tokens and the morpho-syntactic system of Dzongkha grammar. Similarly, conjunctions were conflated with adjectives as both are post-nominal; and pronouns with nouns. There were no tokens of modals, particles or auxiliaries ending in /-r/. Hence, the majority of words and syllables are basically composed of adverbs, verbs or prepositions in Dzongkha speech and they tend to delete word-final (r), while nouns – the single largest category – favour rhotic finals.

Such findings echo previous studies of Dzongkha grammar. Mazaudon & Michailovsky (1988) observed: "the final liquid [-r] is lost, with compensatory lengthening" (p. 127). Van Driem claims categorically that "final (-r) occurs in colloquial spoken Dzongkha only in literary pronunciations" (1992: 99). He describes that this sort of pronunciation "reflects the profound extent to which the modern culture of Bhutan is influenced by the country's rich and ancient

tradition" (*ibid.* p. 99). Van Driem elaborates, saying that the "name or the title of the well-known history of Bhutan འབྲུག་དཀར་པོ་ Druk-Karpo /ɖuk-kʌr-po/ 'white Dragon' generally gets the literary pronunciation as Dru Karpo" (1992: 99). Certain proper nouns or formal names of governmental institutions like "འཆར་གཞི་ *Char-Zhi* /tʃʌɫr-ʒi/ 'plan' tends to retain final -r" (van Driem 1992: 99). Thus, this suggests the reason why nouns (and their closely-following environment in the post-nominal position, adjectives) tend to retain a rhotic pronunciation in the present study. The findings confirm that the Dzongkha written final liquid (-r) is normally deleted in colloquial spoken Dzongkha in a number of grammatical categories like proposition, adverb and verbs, though earlier accounts do not reflect everyday variation in detail.

5.7.3.1.3   Postvocalic (r) and Preceding-1 (Vowel)

As briefly explained in § 3.8.3, and detailed in § 4.5.1.2, the 1st and immediate vowel preceding the final rhotics is coded and regrouped (see coding sheet for (R) in **Appendix** 11) into five different sets of vowel sounds: as close front unrounded vowel [i], close-mid front unrounded vowel [e], open [mid]back unrounded vowel [ʌ], close-mid back rounded vowel [o], and close back rounded vowel [u]. This section presents the realisation of word-final *r*-less (Ø) variants correlated with the immediately preceding vowel sounds. The figures are displayed in Table (5.5) below.

Table 5.5: Rbrul results of the correlation between the use of r-deleted variant (Ø) and preceding-1 (vowel) in the speech of Thimphu residents (R^2 =0.357; p<0.0001).

Preceding-1 (Vowel)	% deletion	Log-odds	Factor Weight	Tokens
Close front [i]	0.818	1.389	0.801	11
Close mid-front [e]	0.780	0.434	0.607	255
Close-back [u]	0.590	-0.275	0.432	100
Open [mid]back [ʌ]	0.629	-0.668	0.339	1506
Close [mid] back [o]	0.364	-0.880	0.293	324

Table (5.5) hints that preceding-1 phonological environment was returned by Rbrul as a statistically significant explanatory factor. Front vowels – the immediately preceding segments

[i] and [e] – highly favoured deletion, whereas a close back rounded vowel [u] or a close central unrounded vowel [ʉ], an open-mid back unrounded vowel [ʌ] or the lower alternant [ɑ], and a close-mid back rounded vowel [o] or a close-mid front rounded vowel [ø], all favoured rhotic retention[17]. According to the p-value, this predictor does not explain much of the variation, though the results are considered to be significant.

The difference in the preference for null variant between vowels [i] and [e] (at 82% and 78%), and the three back vowels [u], [ʌ] and [o] (between 36% and 63%) is relatively large. In other words, front vowels favour deletion, while back vowels preferring retention in the present sociolinguistic study. Nevertheless, further study for preceding-1 segment (vowels) is worth examining further in the future for vowels' height, length and stress characteristics.

It is worth mentioning that the number of tokens is quite high for the open-mid back unrounded vowel [ʌ] (1506 tokens) – over two-thirds of all tokens – compared with the number of tokens where the variable follows close-front unrounded vowel [i] (only 11 tokens). This unusual distribution of vowels is simply a fact of the language that cannot be altered by statistical analysis.

Some modern linguists like Mazaudon & Michailovsky (1988), Hansen (2012) and Watters (2018) believe that compensatory lengthening also makes up part of the process of derhotacization, particularly in the vicinity of high front vowels [i] and [e] (e.g. བཙིར tsir [tɕiː] 'compress', གསེར ser [seː] 'gold', etc.), which is reflected in the above findings. In sum, the realisation of postvocalic rhotics is powerfully influenced by the position and frontness of preceding vowels.

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[17] Low vowels were provided for in the coding guide, but [ɑ] and [ä] did not occur as they are rare.

5.7.3.1.4   **Postvocalic (r) and Phrase Position**

Phrase position in this study is categorised into three places depending on whether the variable occurred in initial, or medial, or final position. Table (5.6) displays the realisation of the final (r) deletion in the speech of Thimphu residents correlated with phrase position.

Table 5.6: Rbrul results of the correlation between r-deleted variant (Ø) and phrase position in the speech of Thimphu residents (R^2 =0.357; p<0.0001).

Phrase Position	% deletion	Log-odds	Factor Weight	Tokens
Medial	0.617	0.299	0.574	303
Initial	0.574	0.012	0.503	1177
Final	0.655	-0.310	0.423	716

Rbrul returned this as a statistically significant factor group, though the effect is obviously a small one. In phrase-initial and medial positions, rhotic deletion is preferred, while elsewhere, rhotic retention is favoured.

Some previous qualitative or descriptive studies also indicated that the realisation of zero variant is somewhat favoured by phrase-medial and phrase-initial position, rather than phrase-finally. For example, van Driem observed that proper names occurring in phrase-medial position may be derhotacised: "ཀརྨ་ Karma is pronounced as Kãma in colloquial speech" (1992: 99). It confirms that many proper and well-known names, appearing in medial and initial phrase position, are pronounced without final (-r) in colloquial spoken Dzongkha, while they are retained in traditional reading pronunciations (van Driem 1992, 1994).

Likewise, Hansen observed that her consultant normally drops postvocalic (r) in the medial or initial of the compounded phrase—"as in ནོར་ཤ་ [ᴸnorᴴʃʌ] 'beef'—in which case the [r] is always dropped and pronounced as [nõːʃʌ] to get a lengthened nasalised vowel" (2012: 11). This observation tends to support the present findings in colloquial spoken Dzongkha.

5.7.3.1.5   Postvocalic (r) and Following Segment (Consonant)

As mentioned earlier in §4.5.1.1, for following phonological environment, similar to the preceding sounds, first, we coded the sounds as individual sounds. They then were grouped depending on place of articulation, and due to the differences in the number of tokens per sound, as: obstruents and sonorants. Table (5.7) below presents the realisation of rhotic deletion Ø in the speech of Thimphu residents correlated with following phonological environment: obstruents and sonorants.

Table 5.7: Rbrul results of the correlation between the use of r-deleted variant (Ø) and following segment (consonant) in the speech of Thimphu residents (R^2 =0.357; p<0.05).

Following Segment	% deletion	Log-odds	Factor Weight	Tokens
Obstruent	0.602	0.161	0.54	1435
Sonorant	0.615	-0.161	0.46	761

Among the linguistic factors, this is the least significant factor. In Table (5.7) rhotic deletion is only favoured before an obstruent sound and disfavoured before a sonorant sound. Nonetheless, the p-value is small (though significant), and the effect is weak.

Furthermore, cross-tabulation was carried out between following segments in order to get a clear picture of these findings, as displayed in Table (5.8) below.

Table 5.8: Cross-tabulation of following segments against the (R) variable

	Variants		Application value: Ø
Following Segment	**Null-Ø**	**Trill-T**	**Tokens-N**
Obstruents	**62%**	**40%**	
	884	*571*	**1435**
Sonorants	**59%**	**39%**	
	448	*293*	**761**
Total	**1332**	**864**	**2196**

Obstruents were the most preferred predictors (62%) for *r*-deletion; on the other hand, sonorants were the least fancied environments (59%). (The rounded percentages do not appear to add to 100%, but in unrounded form they do.) A detailed cross-tabulation of specific sonorant and obstruent sounds for following segments, preceding-3, preceding-2, against individual variants of (R) was conducted and can be observed in **Appendix** (13). In brief, some of the effects for individual segments are weak but others tend to confirm the use of the super-categories "sonorant" and "obstruent"; however, the latter is a less coherent category in terms of its effects on rhoticity, perhaps explaining the low value of following segment as an explanatory category. In fact, of the constraints in which sonority was a factor, only the following segment proved statistically significant. Further study is needed in the near future. Nonetheless, sonorants have clear effects on syllable-final rhotic retention, as the figure below denotes.

Figure 5.1: Effects of obstruent environments on rhotic deletion, based on cross-tabulation of (R) variable and following segment.
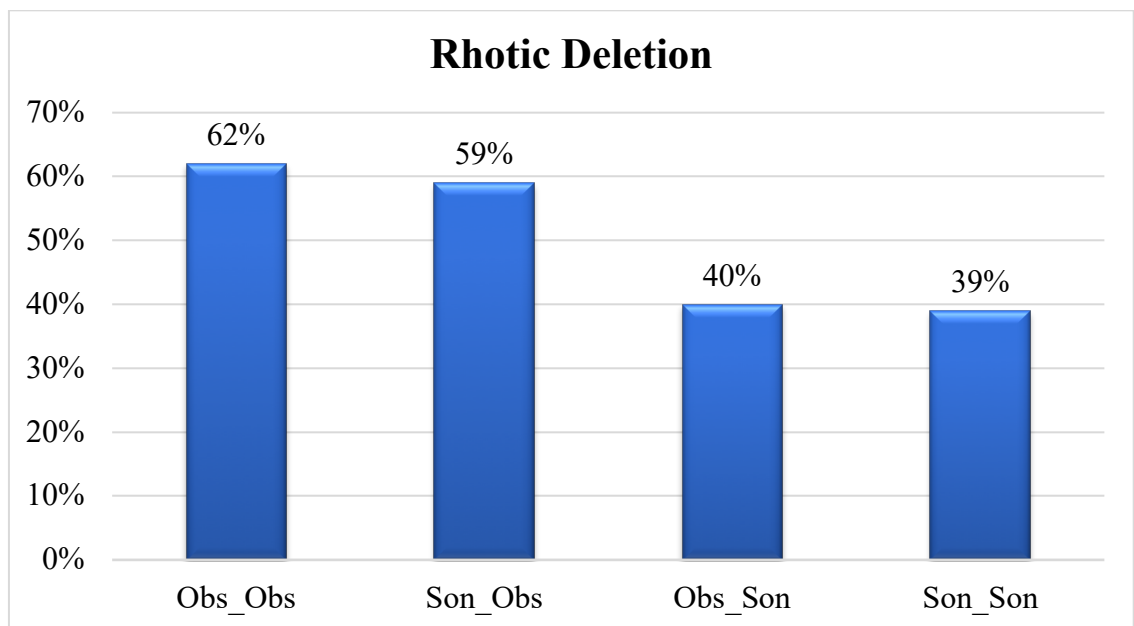
Generally speaking, it is not unusual to delete postvocalic (r) in Dzongkha. It has often been lost in the speech of Western Dzongkha speakers (Mazaudon & Michailovsky 1988, van Driem 1992, Hansen 2012, Watters 2018). Other common reasons for derhotacization may include that speakers are "simply trying to imitate and adopt the incoming form" (Garrett &

Johnson 2011: 42), or that simplification of consonant clusters follows a pattern of reduction and modification of the syllabic structure, e.g. CVC to CV (DDC 2012, Poplack 1979).

This result, where following obstruents favour deletion of (r), mirrors generalizations from (TD)-deletion in Chicano English (Santa Ana 1996), where decreasing sonority of the following onset increases deletion of _non_-sonorant segments. The Dzongkha rhotics are relatively _not_ very sonorant – in Dzongkha, they consist of flaps and trills, both of which are arguably more similar to e.g. voiced stops and fricatives than to the rhotic approximants that figure in many other languages (the latter are relatively more sonorous and vowel-like). In other languages, deletion is more likely to occur when the sonority of the following segment is weakened and overshadowed by obstruent sounds. Likewise, (R) is more difficult to pronounce in the obstruent context and thus prone to reduction and eventual deletion. It is worth noting that rhotic sounds vary widely across languages and do not easily form a natural class in articulatory or acoustic terms (Van Hout & Van de Velde 2001). (Note that this result is the mirror image of the effect for nasal finals, which we saw in Chapter 4 were often deleted in high-sonority surroundings, because the nasals are highly sonorant themselves.)

Furthermore, Patrick's (1999) study of (TD)-deletion in Urban Jamaican Creole may also lend support to Dzongkha postvocalic (R) deletion. He also found in the Veeton data that less sonorous initial segments of following words favour (TD)-deletion (Patrick 1999: 145; like /r/, final /-t/ and /-d/ are also relatively not sonorant). Guy (1991, cited in Patrick 1999) notes this constraint is on "syllabification, not simply on deletion per se" as well as word "insertion processes" (p. 151). For example, "word-final stops may be resyllabified as the initial segment of the following segment, provided they meet possible-onset constraints" (Patrick 1999: 145).

However, the relatively simple syllable structure of Dzongkha does not lend itself to resyllabification.[18]

The realization of rhotics may vary across different Dzongkha-speakers (whose native and ancestral languages differ, as noted earlier) as "/r/ is involved in so many patterns of variation even within one language" (Van Hout & Van de Velde 2001: 1). Wiese (2001: 12) also asserts that "r-sounds seem to vary greatly and, in several dimensions," and finds it difficult to establish unity and common usage in phonetics and linguistics about 'r', its sound and class. Likewise, /r/ always shows "chameleonic behaviour" and is "not a fixed point on the sonority scale" which is considered to be "a universal constraint" (van Oostendorp (2001: 113). Therefore, it would be a sensible consideration for further investigation in the future using a larger database covering all regions in Bhutan to explore socio-geographical variation of (r) in Dzongkha.

5.7.3.2   Postvocalic (r) and Social Variables

This section presents the correlation between the zero variant (Ø) of rhotic endings (R) and those social explanatory factors. Of all the social variables examined, Rbrul returned speaker style as the most significant factor, followed by mother tongue and speakers' age. However due to the complications mentioned above, style is examined last.

5.7.3.2.1   Postvocalic (r) and Mother Tongue

As explained in § 4.6.3.2.1 for (N), some Dzongkha speakers have lived in Thimphu (inside and outside of the Thimphu urban district) since they were born. The other recent arrivals in the city also lived alongside Dzongkha speakers and were exposed to a modern system of education, daily corresponding and holding other official meetings, including the National Assembly and National Council in Dzongkha. Thus, all speakers across Thimphu are capable of communicating in more than one language, either as 'fully-fluent' or 'high-proficiency'

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[18] Resyllabification with final /r/ does not normally occur in Dzongkha, because the rhotic is never part of a final cluster – it is always preceded by a vowel. It would not combine with a following consonant to resyllabify, and even with a following vowel that process would be unlikely.

speakers, or passively as 'low-proficiency semi-speakers', or with 'near-passive proficiency', as observed by Dorian (1982) for the speech community of East Sutherland, Scotland.

As specified in §3.5, the language of speakers in this study is classified into three categories depending on their native backgrounds: 1) Dzongkha spoken in the western part of Bhutan, 2) Lhotshampa spoken in the southern part of Bhutan, and 3) Tshangla spoken in the eastern part of Bhutan; however, the question is, whether Thimphu is ultimately considered to be a single urban speech community. Table (5.9) presents the distributions of the *r*-less variant across speakers with three different mother tongues.

Table 5.9: Rbrul results of the correlation between the use of r-deleted variant (Ø) and mother tongue across Thimphu residents ($R^2 =0.357$; $p<0.0001$).

Mother Tongue	% deletion	Log-odds	Factor Weight	Tokens
Dzongkha	0.656	0.383	0.595	732
Tshangla	0.590	-0.182	0.455	732
Lhotshampa	0.574	-0.201	0.45	732

As for mother tongue, it is returned as statistically significant, though it has a much smaller effect than style. As expected, the native tongue of western Dzongkha speakers is ahead in implementing the non-rhotic sound, the new urban variant (66%); while Tshangla (59%) and Lhotshampa (57%) natives show slightly more rhoticity in their spontaneous speech.

In order to confirm the behaviour of the Dzongkha native which favours the zero form, and the Lhotshampa and Tshangla which favour (r) retention, the cross-tabulation of the distribution of rhotic deletion across three mother tongues or ethnic origins is demonstrated in Table (5.10) below.

Table 5.10: Cross-tabulation of the realisation [r] variants by mother tongue or different ethnic groups.

	Variants		Application value: Ø
Mother Tongue/Origin	**Null-Ø**	**Trill-T**	**Total-N**
	66%	**34%**	
Dzongkha /West	*480*	*252*	**732**
	59%	**41%**	
Tshangla /East	*432*	*300*	**732**
	57%	**43%**	
Lhotshampa /South	*420*	*312*	**732**
Total	**1332**	**864**	**2196**

The result of cross-tabulation is parallel to the findings of the multiple logistic regression: the Dzongkha groups show correspondingly higher rates (66%) of non-rhotic speech, whereas Tshangla (59%) and Lhotshampa (57%) groups show somewhat lower rates in the use of innovative variants. However, the difference between the Eastern and Southern ethnic groups is certainly too small to be posited as the result of an ethnolect, and indeed the contrast between them and Western Dzongkha natives is also quite small – not enough to reject the hypothesis that they constitute a single urban speech community. Studies since Labov 1966 have found small regular differences between ethnic groups who clearly belong in the same speech community – on the other hand, differences in production have also been correlated with differences in style and other dimensions to identify ethnic divisions (e.g. African American vowel variables in NYC, Labov 1966). This problem is pursued below (§6.3).

This finding harmonizes with the observations of a number of contemporary linguists. For example, Mazaudon & Michailovsky (1988) found that the written Dzongkha "final liquid (-r) is often lost in the speech of their consultant who was from Chapcha," a western Dzongkhag [district or county] (p. 127). Hansen (2012) witnessed that normally her consultant from

Wangdue, a western Dzongkhag, "dropped the [r]—leaving a lengthened vowel" (p. 11), and Watters (2018) specifically observed that "coda [r] is much less frequent than other codas and is found deleted in the casual speech" of his informant who was from Thimphu, a western Dzongkhag (p. 64).

Conclusively, the Rbrul findings indicate that the speakers who have high native levels of proficiency in Dzongkha contribute to the favouring of the *r*-less variant, whereas speakers who have lower levels of proficiency and contact with native Dzongkha speakers tend to slightly disfavour the incoming variant. As displayed in figures above, Tshangla and Lhotshampa speakers are the most conservative groups with respect to retaining rhotics in Dzongkha.

At this juncture, in order to capture the clearer picture of the linguistic behaviour among different ethnic groups with different mother tongues regarding the use of the [r] variants, a further analytical step was performed. A cross-tabulation between mother tongues and age groups is presented in Table (5.11) below:

Table 5.11: Cross-tabulation of the deletion of [r] by mother tongue and age group

	Mother Tongue			Application value: Ø
Age	**Dzongkha**	**Lhotshampa**	**Tshangla**	**Total-N**
	62%	**61%**	**69%**	
Old	*61*	*122*	*61*	**244**
	67%	**60%**	**55%**	
Adult	*427*	*366*	*427*	**1,220**
	66%	**52%**	**64%**	
Young	*244*	*244*	*244*	**732**
Total	**732**	**732**	**732**	**2196**

Across all three age and mother tongue groups, adult and young Dzongkha speakers from the west favour the incoming urban variant, and so do elderly Tshangla speakers from the

east. The lowest rates are shown by young Lhotshampa speakers, although middle-aged Tshangla adults also disfavour rhotics. It is difficult to see a clear pattern of change, although it is suggested by the Western Dzongkha speakers, and it is possible that Lhotshampa speakers are moving in the opposite direction. The contrasts in rhoticity between the three age and mother tongue groups are small. Further study is required to establish whether there is change in progress, and it cannot be affirmed that all three mother tongue groups are moving in the same direction of [r]-deletion across Thimphu city. Such an investigation requires a deeper analysis of the social structure and interaction within the community in order to get the clearest understanding of various interethnic contact situations and the significance of rhoticity as an ethnic marker.

5.7.3.2.2   Postvocalic (r) and Speakers' Age

As described in §3.4.2.1, age is proven to be one of the important sociolinguistic factors. Variation in linguistic usage by age is realised as either historical change through time, or age grading (Eckert 1997: 160), which occurs in the speech of individuals as studied through the apparent-time approach or the real-time approach (Milroy & Gordon 2003: 35-6). This section aims to investigate the distribution of the non-rhotic variant for three different age groups: younger (5-18), adult (19-50) and older generations (51-80). First, we consider the different expectations for each age group, based on the author's understanding of recent social change.

Older speakers who were born in the 1940s and 1950s mainly relied on the traditional economy, barter system, and basic traditional education available in a small number of schools. The first school in Bhutan was opened prior to the 1950s with very few boys and even fewer girls (Rinchen 1972, Hasrat 1080, Nado 1986, Tshewang 1995). The community was also largely limited in mobility due to the lack of transport facilities, thus experiencing low exposure to other socio-cultural norms. The social networks were tight-knit, and this may have reinforced older

speakers in maintaining their native vernacular pattern of Dzongkha pronunciations; that is, a non-rhotic accent for Westerners from the Thimphu region, increasingly displayed among the young. On the other hand, older speakers from Tshangla and Lhotsampa backgrounds, especially outside Thimphu, would have been expected to show more rhoticity and less deletion. This is not quite the picture found below/above, which we return to.

Adult or middle-aged generation speakers born between the 1960s and 1970s, on the other hand, grew up in a new era of modernisation which was considerably different, especially with new motorable roads and transformation of the country's economy. More social and physical mobility increased the opportunity for contact with speakers of different languages, especially when given the opportunity to travel by public transport like buses, taxes and flights (the lone Druk Air bus then). This paved the way for higher education, in and outside the country, and new job opportunities became available, conducted in the mixture of languages and dialects spoken nationally and locally. The number of schools, colleges, universities, institutions of education and training centres increased in the country. During that period, most Dzongkha teachers were drawn from the eastern part of Bhutan by default, as the saying goes, 'westerners learn their Dzongkha from easterners' (noted in §4.6.3.2.1). Also, involvement in formal speech within the workplace might tend to conservative norms. Thus, a pattern resembling typical age-grading might be expected, with lower rates of incoming forms.

Finally, let us consider the youngest generation of speakers, who were born in the 2000s, and have encountered the modern phase of development in the city. They experience a noticeably diverse situation, specifically as a result of the discovery of modern technology like television and other social media and abruptly boosted dependence on them. The economy has been transformed, and education has become accessible to the entire population who live in the city, thereby increasing the opportunity for contact with speakers of different dialects like Tshangla, Lhotshampa, Khengkha, and mamy more. Some have travelled abroad for further

studies and exposure to new living styles and different languages and dialects around the globe. During this era, there has been a huge increase in great modern opportunities in schools, universities and new technologies which significantly affected their lifestyle. These systems may lead to linguistic variation and possibly change in progress in their speech. The youngest speakers may also, on the other hand, be more exposed to traditional features (including rhoticity) under the influence of their Dzongkha and other subject teachers who typically originate from the eastern part of Bhutan, as indicated in (§4.6.3.2.2, §6.1.8).

Adult or younger generations are also the direct product of a traditional Chöké syllabus that required students to pronounce and memorise every letter by spelling out loudly (as mentioned in §1.10 on the language policy and curriculum in Bhutan; recall that most older speakers would not have had this education). To sum up, all these can be seen as a reflection of the developments and socio-economic changes in the country.

The results of rhotic deletion by age are shown in Table (5.12) below.

Table 5.12: Rbrul results of the correlation between the use of r-deleted variant (Ø) and speakers'age across Thimphu residents (R2 =0.357; p<0.05).

Speakers' Age	% deletion	Log-odds	Factor Weight	Tokens
Old	0.615	0.313	0.578	244
Adult	0.606	-0.128	0.468	1220
Young	0.605	-0.185	0.454	732

Age is ranked last both among the social and combined factor groups (both internal and external factors), though it is statistically significant. In this analysis of the whole dataset, Rbrul confirmed that age is one of the two significant social predictors. Table (5.12) suggests that the innovative or non-rhotic variant is preferred by the old group according to their positive log-odds scores. The Rbrul result also confirmed that the middle-aged or adult group and youngest speakers generally favoured traditional or rhotic variants as indicated by their negative log-odds

scores, which are close together. It is worth mentioning that the difference between old, adult and young speakers in the use of the (r)-deleted variant is nevertheless fairly small.

If *r*-deletion is an incoming urban form, the younger groups should show higher deletion. However, Table 5.12 shows slightly more deletion by the oldest speakers (recalling that there are few of them, see 3.5), and no real difference among younger groups. Note that this pattern is linear but does not clearly suggest change in progress. A closer examination is called for. In Table 5.13, a comparison is made between the old, middle-aged and young speakers across all three ethnic groups.

Table 5.13: Cross-tabulation of the use of [r] variants by age and social groups

Social Groups	Variants		Application Value: Ø
West	**Null-Ø**	**Rhotics-R**	**Total-N**
Old	54%	46%	61
Adult	67%	33%	427
Young	66%	34%	244
South			
Old	62%	36%	122
Adult	60%	41%	366
Young	52%	48%	244
East			
Old	69%	31%	61
Adult	55%	45%	427
Young	64%	37%	244
Total	**1332**	**864**	**2196**

These data make it clear that Western Dzongkha native speakers do indeed show an increasing trend of deletion among both groups of younger speakers compared to the old. However, the reverse pattern is found among Southern Lhotsampa natives: if there is a change in progress in Thimphu, they do not appear from these data to be participating in it. The results for Eastern Tshangla natives are mixed: like the Southern group, older speakers show the highest

rate of deletion, but a non-linear U-shaped pattern can be seen wherein middle-aged speakers show the lowest rate. (When broken down into the three main variants – zero, flap and trill – the pattern is the same, hence only combined results of zero vs. flap/trill are given here.)

However, the linear age-grading pattern often found for stable variables in Western speech communities generally has the prestige form favoured by middle-aged speakers in the workplace. In one sense the current results show that, since rhotics are favoured in literary and reading contexts, rather like diglossic H forms. However, in another sense, the current results are the opposite of that: [r]-retention is not a preferred form in modern oral Dzongkha, since all speaker groups (by sex, age and origin) use it less than half of the time. This distinction recalls Haeri's analysis of Cairo Arabic, in which male adult speech tended to show higher usage of forms from Classical Arabic, while female adult speech showed more use of urban spoken forms – Haeri (1987, 1991) argued that the latter forms, which are used in the public domain and associated with modernity and progress, are the correct comparison to Western prestige accents. In the present case, we are not focusing on contrast by sex or gender, but by generation.

So as to understand a more detailed picture of this sociolinguistic behaviour, Table (5.14) cross-tabulates the [r]-deleted variant with gender and age for the whole sample:

Table 5.14: Cross-tabulation of the use of [r] variants by gender and age groups

	Gender		**Application value: Ø**
Age	**Female**	**Male**	**Total**
	69%	**59%**	
Old	*61*	*183*	**244**
	63%	**57%**	
Adult	*671*	*549*	**1220**
	61%	**60%**	
Young	*366*	*366*	**732**
Total	**1098**	**1098**	**2196**

As can be seen from Table (5.14), it is found that older female speakers are the leaders in implementing the incoming urban innovative variant, whilst younger generations delete less often. Among males the deletion rate is always lower, showing the greatest contrast among older speakers; however, middle-aged males are the most conservative, while boys show a rate nearly identical to girls. In other words, there is no gender contrast among the young age group.

The small number of older speakers is not well enough distributed by age and origin to allow more detailed comparisons, so Adult and Young speakers are compared by sex and origin in Figures (5.2) and (5.3), which present crosstabulations of rhotic deletion by gender and origin, contrasting the two age groups.

Figure 5.2: Cross-tabulation of the use of r-deletion by gender, origin and age group
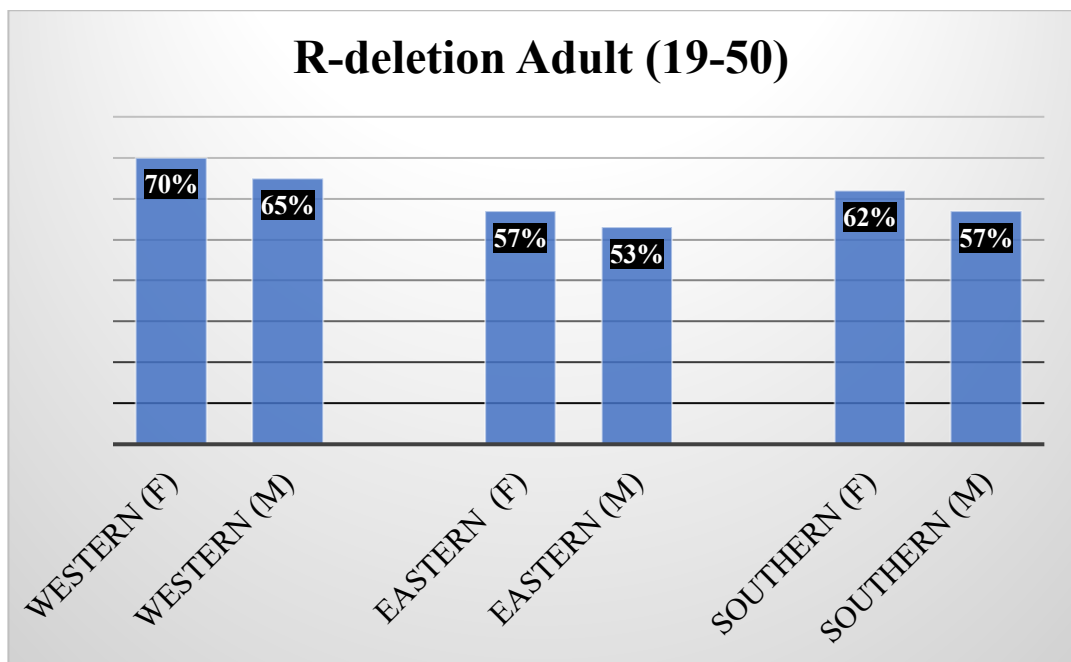
Figure 5.3: Cross-tabulation of the use of r-deletion by gender, origin and age group
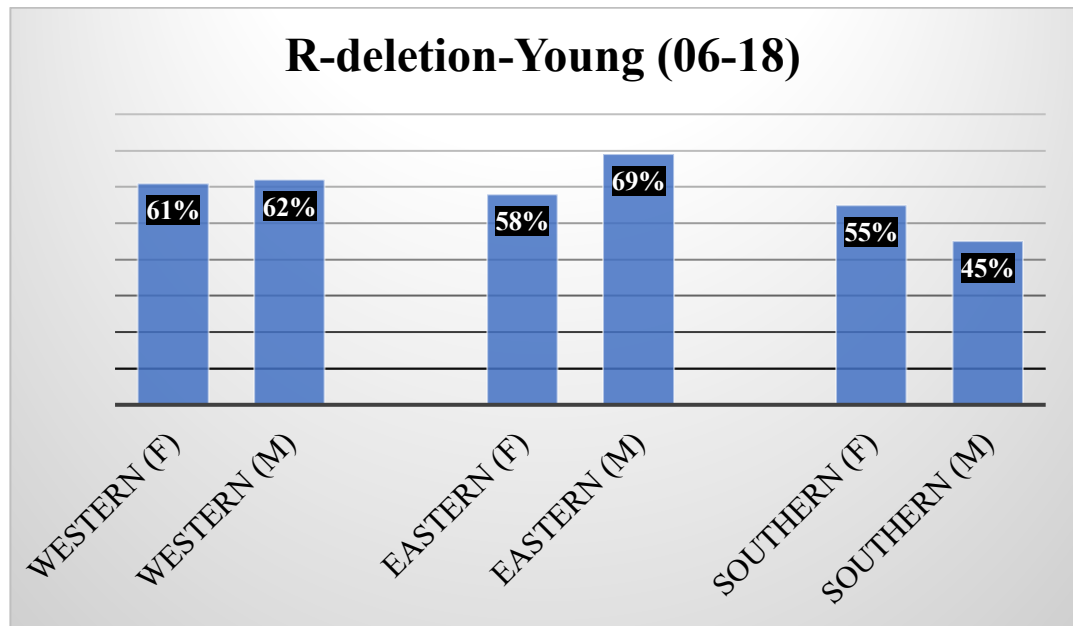
Adult females lead in all origin groups, and amongst young Southern (Lhotsampa) speakers. This again resembles Haeri's findings for Cairo, in that female adult speech shows more use of urban spoken forms, i.e. rhotic deletion. Amongst young Eastern (Tshangla) speakers, however, it is the males that lead. Adult deletion rates are always slightly higher than the young, except for this group of young Eastern males. This diverging pattern will require future research, as the explanation is not clear at present; further exploration of language attitudes to rhoticity is also required for all groups, to discover whether rhotics are regularly associated with modernity and progress, and whether rhoticity is undergoing change.

5.7.4   Cross-Tabulation of Gender and Rhotic Deletion

By itself, gender did not have a statistically significant effect on rhotic variation across the whole sample. This is not surprising, given the small contrasts we have just seen, and the contrary behaviour of young Eastern males. The cross-tabulation of the rhotic variants (Ø, F and T) with gender is presented in Table (5.15) below. The cross-tabulation of gender and educational level against rhotics can also be seen in **Appendix** (14).

Table 5.15: Cross-tabulation of gender against rhotic variants by the whole community speakers

		Variants		**Application value: Ø**
Speakers' Sex	**Null-Ø**	**Flap-F**	**Trill-T**	**Total-N**
Female	63%	4%	34%	1098
Male	59%	13%	28%	1098
Total Tokens	1332	183	681	2196

The cross-tabulation above shows that overall difference between males and females in use of the rhotic variants is moderate across the whole community. Female speakers have shown a greater frequency of the *r*-less variant at 63% than males (59%), who use the flap [ɾ] more often (13% of the time). Females also have slightly higher frequency of the trill [r] at 34%.

These findings resemble a pattern observed by a number of sociolinguists, for example, Trudgill (1972, 1974), Labov (1990, 2001), Llamas (2001), Macaulay (1977, 2009), Su (2012). The generalization is that females use more of prestigious variants, both for stable sociolinguistic variables and for changes from above (Labov 2001). In the present study females, both at city and regional level do use more of the non-rhotic form, but the difference is not great in absolute terms, nor is it statistically significant. In broad view, both female and male Dzongkha speakers appear to preserve the non-rhotic speech of Thimphu, as a whole. (The contrasting pattern among young Eastern Tshangla speakers is noted above, and it is worth recalling too that occupation and education did not significantly stratify rhoticity in this sample.[19])

Hence, it can be hypothesized for future studies that women are either the leaders of linguistic change in progress; or that they are somewhat in advance in their use of the innovative form, as a stable variable.

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[19] Cross-tabulation by gender and level of education showed that females regularly used very slightly more deletion than men in each level of education; however the overall range of variation as small (59% to 68% for females, 56% to 61% for males), and only in the Secondary education level was there a sizable gap (68% for females to 56% for males.) See table X in Appendix Y

5.7.5   Postvocalic (r) and Speaker Style

For postvocalic (r) in this analysis, style is incorporated with social variables due to its link to traditions of honorific speech in Dzongkha (Tshewang & Gyaltshen 2009, Rinzin 2010). As detailed in §3.6.3, style is coded depending on whether the variable (R) occurred in an interview style, storytelling, or reading passage (the most formal style collected). Recall that due to poor data distribution across age groups, style was removed as an explanatory factor from the final Rbrul Model V (5.7.1, 5.7.3). Table (5.16) below displays the differences in the use of the *r*-deleted variant Ø of the (R) variable, using figures from Rbrul model II with the zero variant as the application value.

Table 5.16: The selected Rbrul results of the correlation between the use of r-deleted variant (Ø) and style across all Thimphu residents.

Style	% deletion	Log-odds	Factor Weight	Tokens
Story	0.928	0.853	0.701	276
Interview	0.781	0.699	0.668	1031
Reading	0.305	-1.552	0.175	889

In this model, the main social factor influencing this (r) variable was style. The table above shows that the semi-informal style storytelling significantly favoured the use of the non-rhotic and innovative variant, followed by interview speech. However, the most formal style, reading, significantly favoured the rhotic and traditional variant. This strong contrast in percentage terms (only 30% deletion in reading, vs. jointly 81% in informal styles) underlines the claim made several times above that /r/-retention is not typical of vernacular urban speech and is only typical of the most formal, reading-based styles. (This is true regardless of the subsequent statistical modelling choices.)

Such findings also confirm the observations made by Mazaudon & Michailovsky (1988), van Driem (1992) Hansen (2012) and Watters (2018) that word-final rhotics in Dzongkha are often deleted in naturally occurring speech.   For example, Mazaudon &

Michailovsky found that the "final liquids *(-r)* is lost in the spontaneous speech of a native of

Chapcha[20] district" (1988: 127).

Hansen observed the drooping of "coda [r]" in the speech of her consultants[21]; for

example, ཟོར་ *nor* [nor] > [nõː] (2012: 11). The consultant simply dropped the (r)– giving [nõː] in

her naturally occurring speech with informal style. Likewise, van Driem (1992: 96) also affirmed

that "final /r/ is just occasionally heard but is limited to literary pronunciation" (e.g., སྒར་>སྒཱ་ *gar*

/gʌr/>/gʌː/ 'camp', ཇར་>ཇ་ *jar* /dʒʌr/>/dʒʌː/ 'summer'). Watters also asserts that "coda /r/ is found

primarily in careful speech" and "deleted with compensatory lengthening" (e.g., པར་ *par* /pʌr/ >

/pʌː] 'picture' གུར་ *gur* /gur/ > /guː/ 'tent' (2018: 64).

Thus, previous descriptive studies unanimously agreed that the rhotic articulation is the

literary pronunciation which is normally restricted to liturgical purposes. (Of course, they did not

examine sociolinguistically-stratified samples, so their conclusions were phrased in categorical

terms rather than variable terms.)

It is a traditional rule of thumb that a reader must pronounce all letters in words with a

loud voice when reading by spelling out each final segment, including rhotic finals. The

postvocalic (r) is also included in the ten classic Dzongkha final consonants (Sambhota 7th

century CE, Lotsawa 1538, Dorji 1990, van Driem 1992, DDC 1999, Dorji 2012, Tshewang

2013). As in the (N) variable, this must be the main reason for why reading style tended to

favour use of the rhotic (-r) variant.

In this particular study, story speech was only produced by children and there was too

little reading speech from Old and Adult speakers to model in multiple regression (few of these

groups, except the Teachers, could read). Thus, the cross-tabulation between age and style by (R)

variants for all speakers was conducted for the purpose of obtaining a clearer picture, as can be

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[20] Chapcha is located in the buffer zone between the southern and western regions of Bhutan.
[21] A female native Dzongkha speaker from Thimphu, western Bhutan and a recording of a male native speaker from Wangduephodrang, western Bhutan.

witnessed from the Table (5.17) below. The figures in Table 5.17 present the distribution by

realisation as zero (Ø), flap or trill (T) across styles.

Table 5.17: Cross-tabulation between age and styles by (R) variants for all speakers

OLD				
		Variants		**Application value: Ø**
Style	**Null-Ø**	**Flap**	**Trill**	**Total**
	0%	0%	0%	0%
Story	0	0	0	0
	76%	6%	18%	
Interview	123	9	29	161
	33%	14%	53%	
Reading	27	12	44	83
Total	**150**	**21**	**73**	**244**
ADULT				
		Variants		**Application value: Ø**
Style	**Null- Ø**	**Flap**	**Trill**	**Total**
	0%	0%	0%	
Story	0	0	0	0
	78%	7%	15%	
Interview	660	60	124	844
	21%	14%	65%	
Reading	79	51	246	376
Total	**739**	**111**	**370**	**1220**
YOUNG				
		Variants		**Application value: Ø**
Style	**Null-Ø**	**Flap**	**Trill**	**Total**
	93%	1%	6%	
Story	*256*	*3*	*17*	*276*
	85%	0%	15%	
Interview	*22*	*0*	*4*	*26*

Style	Null-Ø	Flap	Trill	Total
	38%	11%	50%	
Reading	*165*	*48*	*217*	*430*
Total	**443**	**51**	**238**	**732**

ALL AGE GROUPS (Total)

		Variants		**Application value: Ø**
Style	**Null-Ø**	**Flap**	**Trill**	**Total**
	93%	1%	6%	
Story	*256*	*3*	*17*	*276*
	78%	07%	15%	
Interview	*805*	*69*	*157*	*1031*
	31%	12%	57%	
Reading	*271*	*111*	*507*	*889*
	61%	8%	31%	
Total	**1332**	**183**	**681**	**2196**

Although considered categorical in Dzongkha standard pronunciation, word-final *r*-retention is clearly variable within the Dzongkha speaking community in Thimphu. A large majority of tokens were realised as zero variants in storytelling (93%), followed by interview (78%), whereas many fewer numbers of tokens were deleted in reading style (with 69% being realised as flaps or trills). Indeed, it is clear that storytelling and conversational interview promote the application of the innovative null form while reading style does not.

To summarize the results:

➢ Old and Adult speakers have only Interview and reading speech, no story data; while children have additional story-telling data, but very little interview data;

➢ Children show the most deletion and the least use of flap and trill variants overall; and

➢ This effect is slightly stronger in story style (which has the most data); in Interview, they fairly closely resemble the old (but use fewer flap and trill variants) and the adults (but use slightly more deletion).

It may be worth noting that children however do use flaps and trills in reading style at a rate not much below the sample norm, so there is no reason to think they are no longer acquiring these forms.

5.8   Summary of the Results

In this chapter, the realisation of the rhotic variable (R) in Dzongkha has been presented. The variable (R) has two variants: a null form (Ø) and a rhotic form (combining flaps and trills). The (R) variable shows considerable variation, and possibly change in progress (though this requires further analysis) led by older female speakers. The statistical results showed significant correlation between the use of the incoming variant and linguistic and social variables under study: lexical tone, grammatical category, phrase position, preceding-1 vowels, following segments, mother tongue and speakers' age.

Linguistically speaking, non-rhotic speech is preferred when it occurs in low tone syllables. Three grammatical categories favour the use of *r*-deletion: prepositions, adverbs and verbs, while nouns and adjectives favour r-retention. In phrase-initial position, *r*-less forms are favoured, whereas in medial and final positions, *r*-ful forms are favoured. The immediately-preceding-1 front vowels [i] and [e] favour deletion, whereas [u], [o] and [ʌ] favour rhotic retention. Obstruents in the following environment promote the null variant, while it is disfavoured before sonorants.

With respect to the social factors, style, mother tongue and speakers' age suggest similar patterns to those reported in the literature: older female speakers use the incoming variant more than the other groups, with middle-aged males being most conservative, and one group of young Eastern males showing high usage. In future research, women may be hypothesised to slightly favour the innovative variant, though gender plays a minimal role in determining the realisation of the non-rhotic variant across all Thimphu residents in the present study. There is significant variation by region of origin and mother tongue: adult and young Western Dzongkha

speakers favour the incoming urban variant, and so do elderly Eastern Tshangla speakers; but young Lhotshampa speakers, and middle-aged Tshangla adults, show the greatest retention of the traditional rhotic pronunciation.

Finally, style data confirm that deletion is preferred in vernacular Thimphu speech, with significant retention only occurring in formal reading styles.

Chapter 6   Conclusion

The present study investigates the variation and potential change in progress in the use of two of the most debated, salient and traditional features found in Dzongkha across Thimphu, the capital city of Bhutan. Since so little research has been done on Dzongkha, and sociolinguistic considerations have not been primary in existing literature, the main contribution of this thesis is to establish a descriptive base for sociolinguistic variation in spoken Dzongkha in the capital city of Thimphu. The implications for appropriate use of Dzongkha in the education system are considered briefly below and represent perhaps the most important area of application of the current research findings.

This present study fundamentally followed the methods of quantitative sociolinguistics within the framework of variationist theory. The participants are classified into three age groups (young, adult and old), corresponding to three roles (parent, teacher and student), four educational levels, two genders (male and female), and three different regional origins (WSG, ESG and SSG) with different linguistic backgrounds (respectively: Dzongkha, Tshangla and Lhotshampa). As hypothesised, place of origin and associated mother tongue are vital constraints on variation.

The linguistic variables under examination in chapter four (the realisation of nasal codas in Dzongkha) and chapter five (the realisation of postvocalic rhotics in Dzongkha) are investigated in correlation with potential internal (linguistic) constraints: preceding-2, -3 and following segments (all consonants), preceding-1 (all vowels), lexical tone, following tone, phrase position and grammatical category), in addition to the external constraints just noted. The data were elicited through sociolinguistic interviews and other types of data (see §3.6.2) with 36 informants living across Thimphu.

The effects of such linguistic and social variables are displayed in the amount of variation found, and linguistic innovation somewhat corresponds to these factors. The Rbrul

software was used for the quantitative analysis of the present study. A number of findings confirm that the use of linguistic variables has been influenced by the set of internal and external factor groups investigated.

6.1   The Realisation of Nasal Final (N) in Dzongkha

The linguistic variable, nasal ending (-N), is historically the traditional form, as suggested by the data acquired from eastern Dzongkha speakers, the middle-aged generation and the least mobile informants. It is fundamentally associated with the underlying spelling of Dzongkha in its written form. In the investigations, the four nasal endings (innovative deleted variant Ø, velar nasal [ŋ], alveolar nasal [n] and bilabial nasal [m]) are examined in relation to six phonological predictors as potential internal constraints: immediately-preceding vowels, grammatical category, following segments (all consonants), lexical tone, phrase position and preceding consonants (before the immediately-preceding vowel). Besides linguistic factors, mother tongue and level of education also contribute to the linguistic variation and potential change in progress found in Dzongkha. The main findings of the study on the (N) variable are summarised as follows (see Table 4.5 in section 4.6.3 for details of quantitative findings).

Traditionally, the nasal consonantal codas such as [ŋ], [n] and [m] are found mostly in literary pronunciations and have often been deleted from the coda in the naturally occurring speech of Bhutanese Dzongkha speakers across Thimphu. However, nasal codas [n] and [m] are, in fact, often present in the speech of Dzongkha informants – especially those of Lhotsampa and Tshangla backgrounds – but the velar nasal coda [ŋ] is only pronounced in literary pronunciations and not normally present in the dialect of western Dzongkha informants (Mazaudon & Michailovsky 1988: 128-29, Downs 2011: 16-17, Hansen 2012: 10-11). Variation involves deletion or retention of nasal endings in a range of linguistic environments.

The results of the Rbrul run indicated that the preceding-1 (vowel), grammatical category, following segment (consonant), lexical tone, phrase position and preceding-2

consonant are the six internal constraints that significantly affect this variable. As stated in §4.3.1.3, we primarily focus on Barale's (1982) Stage 2, examining the presence or absence of the nasal coda consonant (Ṽn—>Ṽ) with multiple logistic regression analysis *vis-à-vis* cross-tabulation in Rbrul (Johnson 2009, Clark 2010, Daleszynska 2011, Tamminga 2011).

6.1.1   Nasal Final (N) Correlated with Preceding-1 (Vowel)

The preceding-1 segment was returned as the most significant factor group. In this environment (C<u>V</u>N), nasal deletion is favoured after open-mid back unrounded vowel [ʌ] or the lower alternant [ɑ], close-mid front unrounded vowel [e] and close-mid back rounded vowel [o]. In these phonological environments, which make up more than two-thirds of the tokens, speakers prefer the use of the incoming zero variant. Nevertheless, when nasal codas are preceded by a close back rounded vowel [u] or close front unrounded vowel [i], application denasalisation is disfavoured and occurs only 28% and 25% of the time, respectively (see Table (4.5) of §4.6.3). This finding apparently confirms that the non-high preceding vowels promote the deletion process, which is fundamentally in line with the situation observed by other linguists that non-high immediately preceding vowels trigger deletion in Dzongkha (Mazaudon & Michailovsky 1988, Downs 2011, Hansen 2012, Watters 2018). Such evidence of variation influenced by preceding phonological environment (vowel) may indicate another scenario in paving the way of change in progress towards the loss of the traditional accent in casual Dzongkha speech. However, given the nature of the present sample, further investigation is required to determine definitively whether there is ongoing change towards nasal deletion, and who the leaders of change are. In sum, the deleted nasal variant found in Dzongkha is historically an innovation and is considerably constrained by universal tendencies of lengthening in the vicinity of preceding sounds, mainly mid vowels ([ʌ], [e] and [o]).

6.1.2   Nasal Final (N) Correlated with Grammatical Category

Rbrul returned grammatical category as the second linguistic significant factor accounting for variation. In this environment, the analysis of grammatical category shows that prepositions and verbs favour nasal deletion, whereas adjectives, adverbs and nouns favour nasal retention in the speech of Thimphu residents. The detailed figures can be seen in Table (4.6) of chapter four. At this stage of research on Dzongkha, it is not clear what historical processes may have contributed to the significance of this explanatory factor, and further research will be required.[22] However, the result does not appear to be due to interaction between grammatical and phonological factors.

6.1.3   Nasal Final (N) Correlated with Following Segment (Consonant)

In the vicinity of sonorant and obstruent sounds occurring as following phonological segments (CVN#<u>C</u>), the sonorant sounds promote nasal deletion in the speech of Bhutanese Dzongkha speakers. In other words, it is broadly associated with the manner of articulation, and deletion is often preferred when followed by a sonorant sound. However, when the nasal variable occurs before an obstruent, deletion is disfavoured. This effect modelled fairly well for the nearby segments, but not for the further-away Preceding-3 group. Considering the strong effects of Preceding-1 vowels, and Preceding-2 and following consonants, it appears that the closer the phonetic segment is within the environment, the stronger its effects on nasal deletion.

6.1.4   Nasal Final (N) Correlated with Lexical Tone

In the linguistic environment of high and low tones, when the variable occurs in low tone syllables, nasal deletion is preferred, whilst a high tone syllable favours nasal retention [-n]. For the participants used in this study, the pitch contour of monosyllabic words is low or falling for all syllables; the nasal-final consonant is lost and replaced in the coda with lengthened low-falling tone. Such findings have been reported in other qualitatively descriptive studies in

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[22] Note that this is also true of linguistic variables such as final consonant-cluster simplification (-t, -d deletion) in English, which have been much more widely studied.

Dzongkha as a development process of attrition. For instance, Mazaudon & Michailovsky (1988), Downs (2011), Hansen (2012) and Watters (2018) all affirm that Dzongkha written final nasals are often not present in casual speech of their Dzongkha informants, leaving a compensatory lengthened vowel with low-falling contour. Like the following-segment predictor, though this is a relatively weak phonological constraint in the model, nevertheless deletion occurs roughly 25% more often in the favouring environment.

6.1.5   Nasal Final (N) Correlated with Phrase Position

In the environment of variable position, phrase-final and -medial position somewhat contribute to the deletion of final nasals in Dzongkha. This finding principally agrees with the observations of other studies: the most common nasal coda in Dzongkha is [ŋ], but it has often been deleted from the coda – both phrase-medially and phrase-finally – substituting a long-nasalised vowel (Hansen 2012). The deletion process often produces compensatory length, which is in line with the conditions observed in the studies cited above. For example, the codas [-ŋ] and [-n] are found to be deleted in the dialect of Chapcha, resulting in compensatory lengthening with a nasalised vowel (Mazaudon & Michailovsky 1988: 129).

6.1.6   Nasal Final (N) Correlated with Preceding-2 (Consonant)

The behaviour of second immediately preceding-2 segment (always consonants: CVN) echoes that of the following segment in the vicinity of nasal coda realisation in Dzongkha. In this situation, sonorants of the second immediately preceding segment tend to promote nasal deletion, whilst obstruents have more tendency to contribute to the favouring of the traditional variant, nasal retention. Such conditions involve a number of language-specific linguistic factors in the process, such as the characteristics of western Dzongkha (§4.6.3.1.6.) and simplification in Dzongkha syllable structure (DDC 2012). Generalisations according to the role of sonority in other languages and consonantal variables —such as /t/, /d/ deletion in Chicano English (Santa Ana 1996) and Jamaican Creole (Patrick 1999), and sonority hierarchies in the Australian

Aboriginal language Warrongo (Tsunoda 2008) – also contribute to our understanding of the conditions affecting nasal deletion in Dzongkha. The conditions of nasality weakening have been found to differ from speaker to speaker in some languages according to the strength of prosody boundary and depending on the segment duration adjustment and prosodic tone (Yoshida 2008, on Korean). Thus, though various factors contribute to the implementing of nasal deletion in Dzongkha, there is an overall generalisation to be drawn: namely, the more sonorous the preceding environments, the higher the nasal coda deletion. Like phrase position, however, this is a weak effect.

Thus, in general, the immediate phonetic context and prosodic factors bear most of the weight of predicting nasal deletion, though grammatical category also plays a role that is yet to be explained. Linguistic predictors explain most of the variation for (N) – the five most significant predictors are all internal factors. As with other languages, more sonorous preceding environments favour deletion of the final segment; but the 'mirror' effect, with less sonorous following environments also favouring deletion, was not found, and further research is warranted.

6.1.7 Nasal Final (N) Correlated with Mother Tongue

The findings also agreed with the research hypotheses in respect of social explanatory factors. Of seven independent social variables, only mother tongue and education level (closely linked to social class) of participants were returned as statistically significant. The pattern of mother tongue indicates that nasal deletion is favoured by both Dzongkha native speakers and Lhotshampa native speakers (who are marginally ahead of Dzongkha natives), whereas Tshangla speakers are the most conservative group, noticeably preferring the traditional local form (-N). It is also worth mentioning that mother tongue is associated with social factors like geographic origin and ethnicity of speakers– they are all fundamentally interdependent by nature. This

complex of factors is the most important social predictor, and raises the question of speech community membership, considered below.

This linguistic behaviour of Lhotshampa (SSG), Dzongkha (WSG) and Tshangla (ESG) speakers appears to correlate with the fact that neither of the two variants (nasal deletion -Ø and nasal retention –N) shows any associated overt negative social meaning that influences speakers to avoid it, though it is possible that there might be a covert practice which speakers did not demonstrate for diplomatic reasons. Further research into language attitudes and perceptions is required, but the researcher was not aware of any stigma associated with either deletion or retention in the context of everyday speech. This is confirmed by the relatively low level of differentiation across social groups – a result also found for the variable (R), below.

However, the (n)-retained speech is primarily treated as a social identity marker of in-group membership within Eastern Dzongkha speakers themselves. As interpreted in §4.6.3.2.1, both multiple logistic regression and cross-tabulation in Rbrul suggest that such speakers, who are believed to have high levels of contact with native Western Dzongkha speakers and those from other linguistic backgrounds, tend to use the innovative variant more frequently than those with lower levels of contact. This finding supplements the observations made by Mazaudon & Michailovsky (1988) that the nasal codas are often not present in the speech of Chapcha, which is adjacent to the southern Lhotsampa-speaking region.

Earlier, contact patterns have been informally discussed, e.g. in sections §3.4.2, in §4.6.3.2.1 for speakers with Lhotsampa backgrounds, and in §4.6.3.2.2 for speakers with differing levels of education. Noting that there was no explicit measure of contact in the research design (e.g. social networks), these comments remain speculative, based on the author's knowledge of Bhutanese society, and future research ought to focus on contact as an explanatory factor. In general, the position taken is that for SSG and ESG speakers, contact with WSG speakers has increased with migration, urbanisation and education; while those of all groups with

secondary education only may have less wide contacts with daily use of Dzongkha – and additionally since many of them are teachers, they have an extra incentive to use conservative written forms.

6.1.8   Nasal Final (N) Correlated with Education Level

With respect to the speakers' level of education, Rbrul returned it as the least significant factor group. The results of analysis reveal that there is variation in the use of the (N) variable, which is potentially undergoing change in progress, with nasal deletion led by speakers with only elementary level (which includes both younger children and some parents), followed by those achieving at primary and degree level. Speakers in secondary level are the exception, in favour of nasal retention.

As mentioned earlier (§3.4.2.3), the level of education is interdependently associated with occupational class of participants (BCSR 2012, 2018). Al-Wer observed that education plays a vital role in influencing the pattern of linguistic variation since it works as a 'proxy variable' in substitution of other independent variables like social class. She affirms that "the higher the education level of the speakers, the more advanced the change in their speech towards the innovative forms" (2002: 15). Education creates social space, builds social networks between speakers with different linguistic backgrounds, and has other effects on language use and variation. The explanatory role of education for linguistic variation probably differs in Asian societies (or sectors of them) which do not closely match the Western model (e.g. Chand 2009, 2013, Panyaatisin 2018, and several studies in Stanford & Preston 2009).

It must be noted that the findings for education level are non-linear, in that the second-highest group (secondary-only) shows the least deletion, i.e. the most conservative or traditional speech. It is rational that the degree, elementary and primary levels were in favour of implementing the innovative zero variant due to their greater involvement in ordinary work life. Their counterparts with secondary level have a notable tendency to become teachers as their

typical profession, thus operating in a sphere of conservative Dzongkha usage, and being daily reinforced by conservative norms employed by their colleagues. It is a similar pattern to Horesh's (2014) observation that blue-collar workers favoured lenition more than white-collar workers due to their everyday involvement with Hebrew speakers. A majority of Dzongkha teachers hail from the east, where a conservative dialect background also prevails, and further are required to teach students with spelling-out of old-fashioned Dzongkha forms as a traditional method of instruction. However, educational level showed the weakest effect of all significant social predictors.

6.1.9   General Findings for (N) variable

As can be seen in §4.6.4, a general finding in the present study concerns the linguistic behaviour of women of all ages in the Dzongkha speaking community as opposed to their male counterparts. Women irrespective of age in this study were found to be in the lead in implementing the new variant, though sex was not significant overall. Though the difference between men and women is relatively small in younger and middle-aged groups, there is a significant difference between women and men participants in the older age group. However, females are somewhat ahead in implementing the new variant compared to their male counterparts, in all three generations. Among males, the situation is quite different for the younger participants: they tend to use it more than their middle-aged and older male counterparts, perhaps because they are highly exposed to the new variant as a group (see §4.6.4).

As the older women speakers in this study are typically stay-at-home mothers, retired teachers, or local shopkeepers, or doing part-time jobs in and around the local area, through these roles they receive considerable exposure to the incoming variant. Moreover, they get frequent opportunities to socialise with local people through various social gatherings that reinforce them in implementing the incoming variant. On the other hand, younger male speakers (who most closely match their female age-mates) have many opportunities to practise the new variant

through their socialisation with people at work, school and other sociable spaces with great mobility.

The result that female speakers, especially older women, seem to be in the lead in using the incoming variant is in agreement with previous variationist studies, which often point out that women use innovative variants more consistently than their male counterparts (Trudgill 1974, Macaulay 1977, Labov 1990, 2001, Su 2012). Nasal-deletion is not plausibly a change from above, as there is no prestigious speech community from whom Dzongkha speakers might be borrowing it; thus, any change must be change from below. Indeed, both for final (n) and (r), moving away from the consonantal pronunciation may be seen as similar to a modern urban prestige variety moving away from a diglossic H form (see 1.6, 5.7.3.2.2).

In summary, these findings reflect the fact that the behavior of the women in this community is not hampered by traditional norms; inversely, the conventional way of life and rapid process of socio-economic development empowers women to influence the structure of variation and the mechanisms of language change. As noted, many times above, however, it cannot be confirmed from this study that change is in progress, and more research on gender roles in contemporary Bhutanese society is needed. If nasal deletion eventually proves to be a change in progress, it may well be that Labov's Principle IV ("Women lead in change from below", 2001: 292) is operating here, led by older women and being followed by both sexes among the young – though as noted earlier, the depressed rate of deletion among middle-aged speakers for both sexes appears more typical of stable variables.

6.2   **Realization of Postvocalic (R) in Dzongkha**

Chapter 5 of this thesis focused on examining variation and potential change in the use of postvocalic rhotics in Dzongkha through apparent-time analysis across three age groups. This chapter mainly investigated the variation between non-rhotic and rhotic variants in correlation with selected linguistic factors (lexical tone, grammatical category, phrase position, preceding-1

vowels and following segment consonants) and social variables (style, mother tongue and speakers' age). The current repertoires of linguistic behavior of recent migrants are somewhat distinguishable from the native urban group. Accordingly, the variety they speak may tend towards conservatism and retention of historically traditional rhotics (e.g. for eastern Tshangla speakers), while the urban-born social group's dialect epitomizes language innovation and possibly changes (and the southern Lhotsampa speakers show an intermediate pattern). As hypothesised, this study demonstrates the range of variation in use of the Dzongkha postvocalic rhotics that varies across internal and external factor groups. Key findings are summarised as follows. Note that again linguistic predictors (especially the first three in the list just given) explain most of the variation, while social factors (and some other internal factors) are relatively weak. (Quantitative details can be found in Table 5.2 of section 5.7.3.)

6.2.1   Postvocalic (R) Correlated with Lexical Tone

With respect to the linguistic variables, Rbrul returned lexical tone as the most statistically significant factor among the linguistic factor groups. Low tone tends strongly to promote word-final rhotic deletion, while high tone contributes to the favoring of rhotic retention.

This finding agrees with previous studies. A number of descriptive and qualitative surveys observed from their informants that the low lexical tone has often influenced variation in the use of word-final rhotics in Dzongkha. For example, Dzongkha syllables with final liquid (-r) often occur before voiced and devoiced consonant initials in spontaneous speech, resulting in a lengthened and nasalised vowel with low level or low-falling tone (Mazaudon & Michailovsky 1988, van Driem 1992, Hansen 2012). Such results agreed with the research hypothesis and stage 2 model of Barale (1982), an appropriate model for the present study. The rhotic sound is present in the underlying spelling for liturgical purposes but frequently lost at surface level for everyday spoken purposes.

6.2.2   Postvocalic (R) Correlated with Grammatical Category

With regard to the grammatical category, Rbrul returned it as the second significant factor among internal predictors. As explained in §5.7.3.1.2, a majority of words and syllables are comprised of prepositions, adverbs or verbs in Dzongkha and they favour non-rhotic pronunciations, whereas nouns (which again make up a large fraction of the data, at 36%) and adjectives significantly favour rhotic speech across Thimphu. This result is in line with the observation of other researchers. In Dzongkha grammar, word-final (-r) is said to be present only in literary pronunciations, e.g. well-known proper names or titles from the history of Bhutan, or formal names of government-owned institutions, etc., tend to preserve final rhotics. Hence, nouns, and adjectives in their closely following post-nominal position, tend to retain a rhotic pronunciation in Dzongkha (van Driem 1992).

6.2.3   Postvocalic (R) Correlated with Preceding-1 (Vowel)

Preceding vowels proved to be the third most significant predictor, above any social factors. Of the five immediately preceding vowels, front and non-low vowels [i] and [e] promote rhotic deletion, whereas [u], [o] and [ʌ] or the lower alternant [ɑ] favour rhotic retention in the speech of Thimphu residents. The amount of variation found in the preference for non-rhotic variant between front vowels [i] and [e] and the back vowels [o], [u] and [ʌ] is moderately large, and a natural imbalance in the incidence of words containing [ʌ] was noted (this time, such words make up an even larger fraction of the data, at 68%). This supports the claim that compensatory lengthening is part of the derhotacization process, and operates especially in the vicinity of front and non-low vowels, as suggested by several works on Dzongkha (Mazaudon & Michailovsky 1988, Hansen 2012, Watters 2018),

6.2.4   Postvocalic (R) Correlated with Phrase Position

Rbrul returned phrase position as a significant factor affecting this variable, although like the remaining predictors it played a slight role in explaining variation. Unlike the phrase position for the (N) variable, in the pattern of rhoticity, non-rhotic speech is favoured slightly

when it occurs in phrase-medial or –initial position, rather than phrase-finally. As explained in §5.7.3.1.4, this finding supplement other studies in Dzongkha rhoticity. Van Driem (1992: 99) noticed that names for people or well-known organisations (e.g., ཀརྨ Karma) are pronounced without final (-r) when they occur in medial position of a word or a phrase. Further, as in ནོརཤ [ᴸnorᴴʃʌ] 'beef'—the postvocalic (r) is normally absent in the word-medial position (Hansen 2012: 11).

6.2.5   Postvocalic (R) Correlated with Following Segment (Consonant)

Following segment (consonant) is the least significant factor among linguistic variables. In the vicinity of following segments, the *r*-less variant is produced more often before an obstruent sound, while the *r*-full form is produced more often before a sonorant sound in the speech of Thimphu residents. There may be a number of reasons why obstruents promote the non-rhotic variant. One reason may be orthographical simplification and reduction of consonant clusters, e.g. CVC#C to CV#C (DDC 2012, Poplack 1979). In other words, the lower the sonority of following segments, the more deletion occurs. As detailed in §5.7.3.1.5, the Dzongkha rhotics are composed of flaps and trills– segments which are relatively _not_ very sonorant –thus it was noted that decreasing sonority of the following onset increases deletion of _non_-sonorant segments (the opposite effect to that seen for final nasals, which are sonorant).

6.2.6   Postvocalic (R) Correlated with Speaker Style

The analysis with Rbrul led to an alteration in the research hypothesis regarding style, although several other social explanatory factors – mother tongue and speakers' age – were statistically significant. Speaker style was initially included in social factors in this study since it links to traditions of typical honorific speech and liturgical pronunciation in Dzongkha (Tshewang & Gyaltshen 2009, Rinzin 2010, Rinchen & Subbha 2015). However, there was poor data distribution of styles across age groups, so it was not possible to include style in the final regression model. Yet the analysis in percentage terms revealed that informal style (storytelling

and interview) data does strongly favour the non-rhotic and innovative form, while formal reading style favoured the rhotic and traditional variant, with sizable gaps of 40-50% in rates between the styles for all age groups (Table 5.16).

This finding harmonises with observations made by a number of linguists. For example, word-final liquid (-r) is often deleted in the spontaneous speech of Dzongkha speakers, which corresponds to the casual speaker styles: storytelling and interview. On the contrary, the final liquid (-r) is said to be only pronounced in literary articulations, such as liturgical purposes which correspond to the formal reading style in the present study (Mazaudon & Michailovsky 1988, van Driem 1992, Hansen 2012, Watters 2018, all studies formulating their views in categorical terms as opposed to considering variation explicitly, or sampling a wide range of spoken data). In addition, it proved to be an interesting factor providing us with other clues to age-differentiated patterns: children tend to use more deletion and make less use of flaps and trills, overall.

Other recent studies have suggested that the importance of style as a social factor may be greater in Asian and South Asian societies, where formal registers play a large role in levels of speech, than in Western ones (e.g. Chand 2009, Panyaatisin 2018). For example, in Northern Thai cluster onsets with (r) and (Cr) showed greater rhoticity in formal styles, and style "played a greater role… in linguistic variability than the internal linguistic factors" (Panyaatisin 2018: ii). In the present study, the inequitable data distribution made it difficult to investigate this hypothesis in detail.

6.2.7   Postvocalic (R) Correlated with Mother Tongue

The quantitative analysis of Dzongkha rhoticity shows that the difference between speakers of Dzongkha, Lhotshampa and Tshangla mother tongues in the use of non-rhotic forms is statistically significant. As projected, the pattern of mother tongue strongly indicates that Western native speakers of Dzongkha contribute to the promoting of the new urban variant in the

capital city. The results from both multiple logistic regression and cross-tabulation consistently agree with several related observations made by current linguists. It was witnessed that postvocalic (r) is often not present in the casual speech of western Dzongkha native speakers, who instead produce a lengthened vowel (Mazaudon & Michailovsky 1988, van Driem 1992, Hansen 2012, Watters 2018). In other words, the higher the proficiency in native Dzongkha, the more the speakers promote *r*-less forms. This pattern clearly held with respect to Southern speakers of Lhotsampa; as well for Eastern Tshangla speakers, except for the young males.

6.2.8   Postvocalic (R) Correlated with Speakers' Age, Gender and Origin

Age was the weakest of the social effects, while gender was not statistically significant. However, it appears that they still may play important, if interacting, roles in structuring social variation. Cross-tabulation of the age patterning strongly suggests that the older females are ahead in implementing the incoming variant in all sex/age groups. There is linear patterning such that the older the speaker, in general, the higher the rate of deletion. Figures for age groups are very close together, and all show more deletion than retention in percentage terms (i.e. over 50%), so it is possible that younger speakers may be participating in a potential linguistic change, preferring the supra-local or innovative zero variant. Age however interacted with mother tongue and origin, such that this general pattern did not hold identically across the three groups – indeed, only Southern Lhotsampa speakers showed it – hence, perhaps, the low significance ranking for age.

Western native Dzongkha speakers in fact showed the opposite pattern, with old speakers as the most conservative. Rapid socio-economic changes might be the key factor in influencing the structure of linguistic variation and possible change, as the youngest urban generations were born in the modern era and have high levels of contact with speakers of different linguistic backgrounds, which empowers them to use the incoming variant. Likewise, older speakers who were born in the old-fashioned era with tight-knit networks may be able to

maintain the native vernacular pattern of Western Dzongkha pronunciations, which is known to be non-rhotic speech. On the other hand, middle-aged speakers were born in the beginning of the new era, with transformation of the socio-economic changes that paved the way for higher education in the country.

Eastern speakers showed a mixed pattern by age group, with middle-aged generations showing greatest use of the traditional and rhotic variant, which predominates in the Eastern dialect. As mentioned in §1.10, middle-aged speakers are also the direct product of a traditional Chöké syllabus that required students to study and memorise every letter by spelling out – frequently taught by teachers of Eastern origin. This age pattern was characterised as resembling a common curvilinear pattern of age-grading for stable variables in Western studies.

6.2.9   General Findings for (R) Variable

The general finding in the present study according to the cross-tabulation of the gender-differentiated pattern in Rbrul run shows that women (especially older women) use slightly more of the *r*-deleted form than men. This gender-differentiated pattern is comparable with general patterns found in other sociolinguistic studies, where females are more innovative in implementing the supra-local variant than males. Problems with concluding whether change is in progress have been noted.

However, as the rhotic variant is clearly the traditional, literary and prescriptive one, and is now widely used less than half the time in Thimphu speech, change may well be taking place. It is possible that we are seeing an early stage of it, perhaps led by older women of migrant groups and participated in by younger speakers especially of Western origin, but without further research clear patterns cannot be asserted at present.

These findings may directly or indirectly make a contribution to the study of linguistic variation and gender differentiation in general, especially if it turns out to show something other than typical Western patterns of change according to gender and prestige (Labov 2001).

6.3   Is Thimphu a Single Speech Community?

Earlier (2.3), the issue of whether Thimphu Dzongkha speakers constitute a single speech community was raised, in the light of classic and later models. It was argued above that under a broad notion of speech community as held by Gumperz or Hymes, there is no difficulty with a positive conclusion – despite, e.g., the typical monolingualism of Western Dzongkha speakers and bilingualism among the other groups. However, there is now detailed evidence of language variation correlated with social identity, which relates to the Labovian definition of speech community. If shared linguistic and sociolinguistic norms are one measure of speech community membership, do the distinct patterns of the three ethnic groups meet the criterion? One question is quantitative: it is about the size of the differences between the groups. Another question is qualitative: it is about contrasts in patterning within each group, either regarding strictly linguistic constraints, or sociolinguistic patterns.

On the quantitative criterion, deletion of (N) showed very similar rates for the Western and Southern groups (Table 4.19, 4.20), but notably lower rates for Easterners. By contrast, for (R) all three groups were very close in their overall rate of deletion, with less than 10% difference. There were some differences in preferences among the consonantal variants of /n/ and /r/ (e.g. §4.4.2, §4.6.3.1.1, §5.5.1.1), with e.g. Easterners showing some preference for [ŋ], but such differences are minor. There is no evidence of significant interaction between origin and any of the linguistic predictors, or of different ethnic patterning with regard to the significant linguistic constraints.

Two other criteria are difficult to evaluate with the results of the present study. Labov has argued that shared style-shifting norms are evidence of belonging to the same speech community; but this study cannot show comprehensive style comparisons across age groups. Also, similar attitudinal and ideological formations would suggest shared community membership but investigating those was not part of the research design. In sum, it is possible to

tentatively conclude that the three ethnic groups belong to the same urban speech community of Thimphu[23], while recommending further investigation.

6.4   Discussion of Ethnic Variation

The complexity of ethnolinguistic patterning found for both these variables, (N) and (R), reminds us of the social and interethnic meanings associated with salient variants in Giles's (1977, 1978 and 1979) studies of linguistic differentiation between ethnic groups. In order to understand this complexity in the Bhutanese community of Thimphu, further research is needed into the "social psychological processes which affect individuals who identify themselves as member of ethnic groups and hence… influence their language behaviour" (Giles 1979: 252). As Turner (1978) argues, the cognitive definition of social or ethnic group customarily consists of "two or more people who share common social identification of themselves or, which is nearly the same thing, perceive themselves to be members of the same social category" (*ibid*., cited in Giles 1979: 253). In other words, "it does not rely upon the notion that the individual has to be physically" present to be a member of the same social group, as "those individuals can perceive themselves to belong to the same ethnic category" and can act accordingly "in terms of this group membership" (Giles 1979: 253).

Research such as Giles's (1978) study has focused on ethnic minorities like Ceylon Tamil speakers in Sri Lanka (some of whom could <u>not</u> speak the majority language), Scots in the United Kingdom (mostly those who <u>only</u> speak the dominant language) and French Canadians in Canada (those who are bilingual). While there are many rural eastern speakers (ESG) and southern speakers (SSG) who are incabable of speaking the majority group's language (Dzongkha), and some in Thimphu who only speak the dominant social group's tongue, many are bilingual and cabable of speaking both their own mother tongue and the dominant language

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[23] This statement is probably truer for younger members of migrant groups.

(for example, speakers in mixed-marriage families). (Recall that all the speakers in this study are able to speak Dzongkha to a high degree.)

In order to build a clearer picture of "the possibilities existing for the language repertoires of ethnic in- and out-groups, Giles (1978) proposed a 4x4 matrix of sixteen interethnic contact situations" (cited in Giles 1979: 252). Such a typology would be helpful in identifying "potential mono- and bi-lingual combinations of both groups" (*ibid*, p. 253):

> In the model, the possibilities rendered for both in- and out-group were being (i) monolingual in the ingroup language, (ii) monolingual in the outgroup language, (iii) bilingual in the in- and outgroup language, and (iv) bilingual in the ingroup language and a lingua franca.

The typology extends beyond the specific characteristics of languages and can be assumed to apply to ethnic speech markers in particular, thus providing a basis in two respects (Giles 1979: 258):

> First, it can act as a marker of ethnic identity such as when a minority group member deliberately maintains his or her ingroup language, or switches back into it when implicit norms require the use of the majority group's language in interethnic communication. Second, it can act as a marker of the relationship existing between ethnic groups for a discussion of relationship markers such as when the frequent adoption of the dominant group's language by both parties in formal contexts reflects the subordinate and dominant power positions of one group *vis-à-vis* the other.

According to the context of Bhutanese society, it is imoortant to note that none of these ethnic speech patterns are a specific characteristic of all ESG, WSG, or SSG speakers in Thimphu. The present study has investigated speech markers (final nasals and rhotics) which are controversial in Dzongkha, with some speakers claiming that they are really different forms of Dzongkha, and reluctant to conceive of all ethnic groups as speaking a common variety of

Dzongkha. Thus, the data in this study perhaps "suggests that such differences are socially significant" (Giles 1979: 259-60) for native and non-native Dzongkha speakers by the age of 5 years old (the youngest speaker in the present study). Note also that Giles many considered language choice, rather than inherent variation within a single language.

In order to illustrate the complexity of ethnolinguistic groups and sub-groups of individuals within the linguistic community in Thimphu (see §3.3), it is worth considering the ethnic boundary model suggested by Giles (1979) based on Banton's (1978) notions of boundary maintenance. Intralingual markers and intergroup behaviour of ethnolinguistic groups "may be considered as occupying different positions along a continuum from perceived hard to soft ethnic boundaries" (Giles 1979: 275). Hard boundaries include e.g. a stable boundary ("interethnic mobility is virtually impossible") with distinctive physical complexions, including language and culture with "a whole range of exclusive attributes which are (i) difficult to acquire and (ii) often easily and frequently used for ethnic categorisation with the minimum cognitive effort" (Giles 1979: 275). In contrast, the "soft boundaries *vis-à-vis* a relevant outgroup would have far fewer of these attributes which could differentiate them, and hence interethnic mobility would be potential and much easier" (*ibid*. p. 275).

In this respect, it is worth classifying Bhutanese speakers across Thimphu into hard and soft linguistic and nonlinguistic boundary continua, which gives us the two-dimensional space according to their ethnolinguistic groups. For example, SSG and ESG can be perceived to have both 'hard linguistic boundary' (distinctive language – Lhotshampa and Tshangla, respectively) and 'hard nonlinguistic boundary' (distinctive regions and cultural traditions – foothill and eastern dwellers, respectively). The Tibetan ethnic community in Thimphu are considered to have a 'hard nonlinguistic boundary' (distinctive foods and cultural traditions) but a 'soft linguistic one' since they have assimilated Tibetan into Dzongkha with some distinctive features and tones (Giles 1979, Mazaudon & Michailovsky 1988, van Driem 1992, 1998, Downs 2011,

Hansen 2012, Watters 2018). Some of WSG have 'soft nonlinguistic boundaries' (values and cultural traditions) but a 'hard-linguistic one' (same language with distinctive features, tone and discourse markers – e.g. Sha-Wang-Pa-Dzongkha) as they speak a different dialect of the same language – Dzongkha within the western ethnolinguistic groups (van Driem 1993, Dorji 1990, DDC 1999, Tshewang 2013). Many Dzongkha speakers of other ethnolinguistic groups in Thimphu would consider themselves to be at the softer end of both continua as the mainstream values which they do not share are very few (soft nonlinguistic), and they share slightly distinctive tones or accents (soft linguistic attributes) with their outgroup counterparts "to form the boundary between themselves and the majority culture" (Giles 1979: 275-76). This ethnic boundary model suggests that every ethnic group in Thimphu would at least perceive themselves as having some differential traditional values and distinctive linguistic attributes to individualise them from relevant geo- or ethnolinguistic outgroups. Hence, it can be anticipated that the hardness-softness of the distinguishing boundaries would result in various distinctive intralingual markers according to different ethnolinguistic groups among the linguistic communities across Thimphu.

6.5   The Social Implication of Syllable-final Nasals and Rhotics for the Education System

The implications of the present study of (N) and (R) variables can be demonstrated through considerable variation existing among Bhutanese Dzongkha speakers in and around the capital city. Reasons include that: (i) most of the junior and secondary-level educated informants have reasons to adopt the old-fashioned consonantal variants due to some social implications; (ii) most of the time, they interact with easterners who are the dominant group in this social class; and (iii) they might have been trained to pronounce syllable-final nasals by Dzongkha teachers who hail from the eastern region.

The social implications of nasality and rhotics in the present education system refers to the effects of an individual's usage of nasal and rhotic coda in Bhutanese Dzongkha speaking society, due to social judgements about accents. This research quantitatively examines to what extent the variation of nasal finals in Dzongkha is influenced by both linguistic (internal) and social (external) predictors and it is suggested that nasal and rhotic finals are positively treated as a social identity marker among Eastern Dzongkha speakers, and negatively judged as a typical and unique outgroup accent in western native Dzongkha-speaking society. This makes eastern Dzongkha speakers often shy of speaking Dzongkha in public, with their teachers and friends, and contributes in reducing their use of Dzongkha. Thus, eastern Dzongkha is "regionally and socially diversified and stratified", as explained by Su (2012: 798). However, further research on perception, attitudes and beliefs about linguistic variation are needed, as they were not within the scope of this study. There was no data in the questionnaire specifically on language ideology about (R) or (N); and in general, most people answered few of the questions that might have allowed them to expand on attitudes, and simply agreed that Western Dzongkha is the preferred accent. Section 2.4 gave evidence from individuals that the accent of the Western Dzongkha is seen as the best, proper and formal form, but it does not constitute an attitude survey.

6.6   Encountered Difficulties with This Study

As mentoned in §4.6.5 and §5.7.5, the data of reading passage style were collected only from participants who have significant capability in reading, while the full interview data were collected only from adults who have the capability of answering all sociolinguistic questions. Thus, very limited interview data were collected from children as more data were elicited from story and picture tasks, and they produced very little reading passage data. Hence, the disordered data do not present a rounded picture of the speakers' style repertoires in the present study. The focus on educational roles (students, parents and teachers) also required a sampling design that is not representative of the city as a whole.

6.7   Suggestions for Further Research

This study has examined two linguistic variables (syllable-final nasals and postvocalic rhotics) found in Dzongkha. Both are cases of phonological variation and marked accent features in traditional localized Dzongkha. The possibility of change in progress towards innovative forms is expected in a time of modernisation and an increasingly digital world, but due to the structure of age and different geo-ethnic groups that were sampled, it could not be definitively determined in this study. There is also not a clear enough result at present to determine whether leadership of a change in progress patterns according to speaker sex. Further research is suggested on this subject, using a different sample design.

In addition to further study within the realm of (N) and (R) variation, further research on preceding segments (2 and 3) and following segments must be conducted by going into more detail with individual segments in order to obtain their distinctive effects on variation, since the current study has envisaged focusing on two overall features organising the range of consonant-types (sonorant and obstruent). Hence, it is important to examine further the vowels' height, length and stress characteristics using a larger database to further describe standardisation, special markers and socio-geographical variation of (N) and (R) in Dzongkha. In fact, of the constraints in which sonority was a factor, only the following segment consistently proved statistically significant. Therefore, further sociolinguistic research is recommended in the near future using a larger database covering all regions in Bhutan to explore socio-geographical variation of (n) and (r) in Dzongkha.

In the context of the syllable-final nasals and rhotics studied, greater depth in understanding variation might be achieved by employing instrumental acoustic software to examine pitch contours and tone characteristics, and to measure certain vowel features, to understand their social distribution in the capital city of Bhutan. Furthermore, there emerged quite a number of untouched and interesting linguistic features which this thesis was unable to

explore: for example, 'dropping suffixes', e.g. 'g-dropping'(e.g. འཇུག /dʒog/ >འཇུ /dʒo/ 'escape'),

'd-dropping' and fronting effects (e.g. སྐད /kɑd/ >སྐེ /ke/ 'sound'), and different vowel features

(e.g. palatalized vowels vs. nasalized vowels) both in monosyllables and disyllables, across the

Dzongkha-speaking community in Bhutan.

Given the rate of urbanisation and migration to Thimphu, it is important to conduct both

documentation studies of other Bhutanese languages (such as the East Bodish language

Nyenkha, see Rinzin, 2018 & 2019) which serve as substrates in relation to Dzongkha

acquisition, as well as dialectal varieties of Dzongkha as spoken in other regions.

In sum, there are numerous phenomena which are on waiting lists to be analysed since

there is limited analytical study done on languages and their variation in Bhutan. The data,

analysis, findings and interpretations of chapter (4) and (5) have shown significant effects on

variation of both (N) and (R) across the residents of Thimphu. Thus, it is necessary to conduct

further detailed investigations on Dzongkha in correlation with various disciplines, cultures and

traditions in larger urban and rural areas (e.g. the 20 districts/counties and 250 blocks/councils)

with different linguistic backgrounds, in order to grasp the clearer picture of linguistic variation

and change in progress in Dzongkha, together with other languages in Bhutan.

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Appendix 1: The classification of Bhutanese languages

No.	Language	Classification/Location	Population
1	Dzongkha	Tibeto-Burman/Western Part	160,000
2	Adap	Tibeto-Burman/South Central	n/a
3	Brokkat	Tibeto-Burman/Central Bumthang	n/a
4	Brokpake	Tibeto-Burman/East of Trashigang	5,000
5	Bumthangkha	Tibeto-Burman/Central of Bhutan	n/a
6	Bantawa-Chalikha	Tibeto-Burman/North of Mongar-east	1,000
7	ChkcaNgacaKha	Tibeto-Burman/Lower areas of Mongar	20,000
8	Dakpakha	Tibeto-Burman/Tashiyangtse & Mongar	1,000
9	Dzalakha	Tibeto-Burman/North-Eastern, Lhuntse	15,000
10	Gongdubikha	Tibeto-Burman//n/a	2,000
11	Khengkha	Tibeto-Burman/Central Kheng, Zhemgang	40,000
12	Kurtobikha	Tibeto-Burman/Tangmachu, Kurtoe	10,000
13	Lakha	Tibeto-Burman/Eastern, Wangdue	8,000
14	Layapikha	Tibeto-Burman/Northern Punakha	n/a
15	Lepcha	Tibeto-Burman/West & South, Bhutan	2,000
16	Bantawa-Lhokpu	Tibeto-Burman/Samtsi and Phuntsoling	2,500
17	Lunakha	Tibeto-Burman/North-Eastern, Punakha	700
18	Nepali	Indo-Aryan /South Central, Bhutan	156,000
19	Nupbikha	Tibeto-Burman/Trongsa	n/a
20	Nyenkha	Tibeto-Burman/Sephu, Wangdue	10,000
21	Olekha	Tibeto-Burman/Black Mountain, Bhutan	1,000
22	Tibetan	Tibeto-Burman/In & around Bhutan	4,000

| 23 | Tseku/Tsuku | Tibeto-Burman/n/a | n/a |
| 24 | Tshangla | Tibeto-Burman/East, Bhutan | 138,000 |

Table of the classification of Bhutanese languages, their location and number of speakers (RAOnline 200-2016)

Further explanation and definitions of languages and dialects spoken in Bhutan, according to van Driem (1992, 1993, 2007) and DDC (1999), are arranged according to their locations in the country from west to east, as explained below:

Dzongkha is spoken in the Dzongkhags of Ha, Paro, Thimphu, Punakha, Dagana, Chukha, Gasa and Wangdue Phodrang.

Lakha is spoken in Sephu Geog under Wangdue Phodrang Dzongkhag, and it is closely related to Dzongkha.

Lhokpu is also called Lhobikha in Dzongkha and spoken in the two villages of Taba and Dramding in Samtse Dzongkhag.

Lepchais spoken in several villages in Denchukha area under Samtse Dzongkhag.

Lhotshamkhais the Dzongkha name for the Nepali language spoken in the southern regions of the country.

Nyenkha/Ngaelungkha/Henkha/Mangdebikha is spoken in Phobjikha, Dangchu and Rukubji areas of Wangdue Phodrang and in few areas under the Trongsa Dzongkhag.

Olekhais also called Moenkha. It is spoken in the village of Rukha, in Wangduephodrang and Reti and Chungseng provinces beyond Nabji and Korphu villages, and under the Trongsa Dzongkhag.

Brokkat is spoken in the Dur area of Bumthang Dzongkhag.

Bumthangkha is spoken in the four Gewogs of Bumthang Dzongkhag.

Khengkha is spoken in Zhemgang Dzongkhag.

Gongduk is known as Gongdubikha in Dzongkha, and it is in several small villages under Gongduk Geog in Mongar Dzongkhag.

Kurtoepkhaalso known as Kurtöp and spoken in Lhuentsi Dzongkhag.

Cho-ca-nga-ca-kha is spoken in four Dzongkhags of Mongar, Lhuentsi, Trashiyangtse and Trashigang.

Chalikha is spoken in Chali, Wangmakhar, Gortshom, and near Tormazhong village under the Mongar Dzongkhag.

Dzalakha is spoken in the upper area of Kholongchu river under Trashiyangtse Dzongkhag and in Kurtöe region and call their language Khomakha after their village name Khoma.

Boekha, the Dzongkha name for Tibetan, is spoken by the Tibetans who have settled in Bhutan.

Tshangla is spoken in the five Dzongkhags of Mongar, Trashigang, Pema Gatshel, Samdrup Jongkhar and Tashi Yangtse.

Dakpa is spoken in Trashigang and Trashiyangtse Dzongkhag, but also spoken in the adjoining Tawang area of Arunachal Pradesh in India.

Brokpa or Brokpake is spoken in Merak and Sakteng villages in Trashigang Dzongkhag.

<u>Appendix 2: Early Historical Records of Dzongkha and Its Speakers</u>

Traditional archaeological evidence of human inhabitations in western Bhutan include a stupa with written labels at Sha Rajawog in Wangduephodrang, Bhutan in around 500 CE. where King Drimed Kuenden had hidden the tooth relics of Buddha Yoedsung. Likewise, historical evidence of Guru Padmasambhava's visit to Bhutan on the invitation of the King Sindu Raja to cure his illness in 737 CE. exists in texts (Rinchen 1972, Hasrat 1980, Tshewang 1995, Tashi 2004, Phuntsho 2013).

Meyer *et al*. (2009) asserted that the earliest inhabitation of Bhutan and its people came into existence in around 2000 B.C.E., based on evidence from northwestern Bhutan. According to Rinchen (1972), Savada (1993) and Tshewang (1995), Neolithic tools found in archaeological sites of Bhutan included stone tools and weapons, some pieces of stone pillar structures, ritual daggers and stone weapons, indicating that the inhabitants of Bhutan have lived in the Himalayan region for more than 11,000 years.

In Buddhist accounts, Bhutan was called Lho-Moen, which literarily means 'southern darkness' or 'dark land' (because it did not have the light of Buddhism) in ancient times, between 500 CE and CE 600 (Savada (1993: 254). Gradually, Bhutan woke up from the darkness and saw the light of Buddhism with the building of Kichu Temple in Paro and Jamp Temple in Bumthang by the King Songtsen Gampo in the 7th century. Soon after, in CE 747, the Vajra master Padmasambhava, known as Guru Rinpoche in Bhutan, came to Bhutan from Nepal on the invitation of King Sindhu Raja to free him from illness, and the sun of knowledge and education started to shine all over Bhutan (Rinchen 1972, Hasrat 1980, Savada 1993, Tshewang 1995). Since then, the prevailing of Buddhism and Tibeto-Burman languages continued to flourish in the nation with its dual temporal and spiritual systems.

During that time, there was no central government established in Bhutan, but a number of small independent monarchies arose in different regions by the early 9th century. For example,

King Sindhu Raja and Nyoe lineage in Bumthang, King Dewa in Khaling, Trashigang, Bangtsho King in Mongar, and many more. Some of them were considered to be descended from the divine realm, such as the Nyoe lineage—Lhaley Bapa 'descended from the realm of gods.' At the same time, Dzongkha, the official language of Bhutan, became firmly rooted through the religion, since most of the kings and leaders had a religious background and were known as Lam 'spiritual masters' in Dzongkha (Savada 1993:255), (Tshewang 1995: 87).

By the 10th century, most of the major regions of Bhutan were ruled by five different Buddhist sects. Lam Phajo from the Drukpa Kagyud sect and his descendants prevailed across the whole of Bhutan and established the Drukpa Kagyud lineage formally between the twelfth and seventeenth centuries (Rinchen 1972, Tshewang 1995, Phuntsho 2013). The Tibetan Tsangpa Gyarey was one of the unbroken and reincarnated lineage holders of Drukpa Kagyud teaching. Later on, he was reincarnated as the Zhabdrung Ngawang Namgyel, who unified Bhutan and promoted Dzongkha as the *lingua franca* among Bhutanese people. Theocratic government was established with the arrival of H.H. Lam Zhabdrung Ngagwang Namgyel in 1616. He invaded all the five groups of different Lamas, unified the country, and ruled over it. Thereafter, Dzongkha became the official language since Zhabdrung Rinpoche gave the instruction to his army in pure Dzongkha in 1637 (Rinchen 1972, Hasrat 1980, Tshewang 1995).

The name *Bhutan*, meaning 'the land of Himalayan mountains', has been known to outsiders since the description and exploration of George Boggle's 1774 report to the East India Company followed by a number of historical and geographical accounts (Rinchen 1972, Hasrat 1980, Tshewang 1995, Phuntsho 2013). *Bhutan* is used by international onlookers, while *Druk Yul* (meaning "Land of Thunder Dragons") is significantly more ubiquitous among local citizens.

Appendix 3: The Royal Edict issued by the Third King

The Royal Edict issued by the Third King, HM Jigme Dorji Wangchuck in 1970 (Dorji 2010: 3)
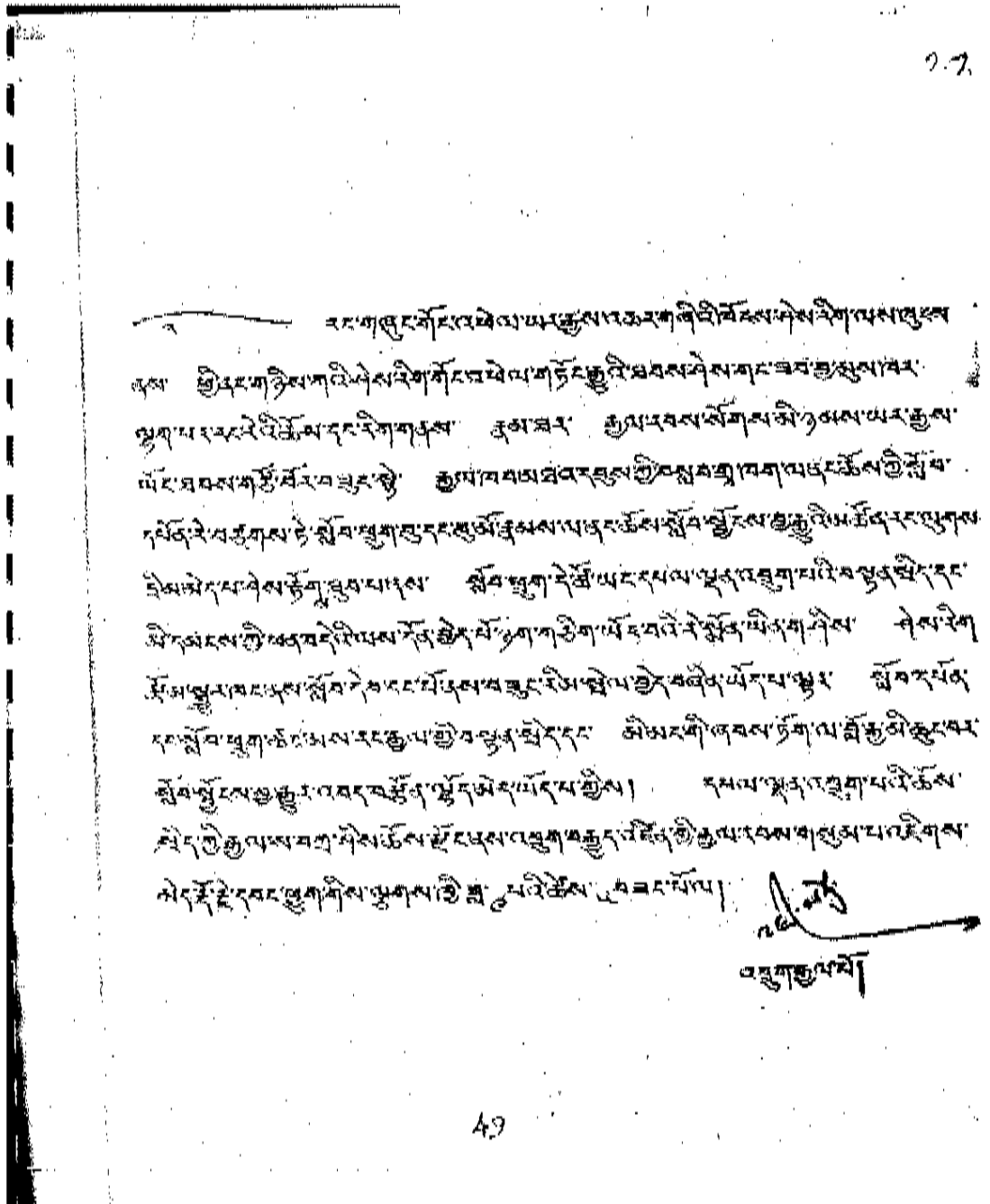
The copy of the Royal edict containing heartfelt advices on identity and sovereignty of country:

Appendix 4: The Royal Edict issued by the Fourth King

The Royal Edict issued by the Fourth King, HM Jigme Singye Wangchuck in 1983 (Dorji 2012: 5)

Appendix 5: Dzongkha Language Family

The map of the Sino-Tibetan language family proposed by Shafer, is shown below:

The map of Sino-Tibetan family, from Shafer (1996: VII)

Benedict (1942) also retained the outlines of 'Sino-Tibetan' making a number of changes, and including Dzongkha under Tibeto-Burman:

Sino-Tibetan

Chinese

Tibeto-Karen

Karen

Tibeto-Burman (including Dzongkha)

However, Benedict (1972) attempted to classify the linguistic phylum under the node of Sino-Tibetan largely based on morphosyntactic criteria, and offered phonological reconstructions based on consonant voicing and other criteria. He proposed to classify the Sino-Tibetan family into the divisions below, including Tibetan-Kanauri (which includes Dzongkha).

The illustration of Sino-Tibetan family (Benedict 1972: 2)
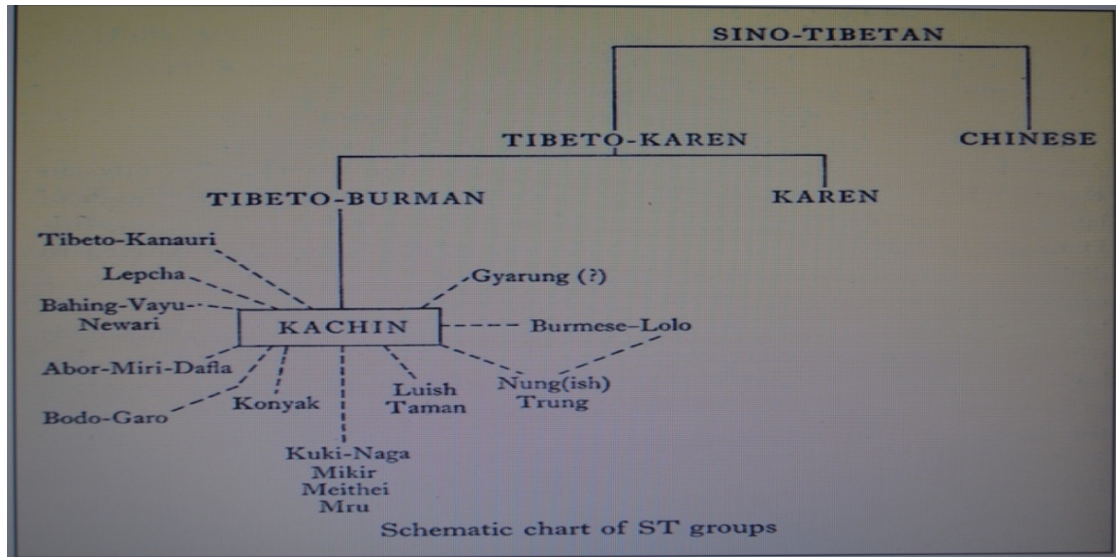
More recently van Driem (2001, 2005) has retained the Tibeto-Burman model but rejected a split between Sinitic and Bodic languages. This suggests that they have historical, typological and cultural links to their ancestral parent, Tibeto-Burman. van Driem (2005) also asserts that Chinese and Tibetan have a closer relationship than other languages like Burmese and, therefore, he strongly argues to uphold the Sino-Bodic hypothesis as proposed by Bodman (1980) with a proposal to classify Chinese within a Sino-Bodic sub-group, as below:

The model of Tibeto-Burman family with Sino-Tibetan sub-group (van Driem 2005: 89)
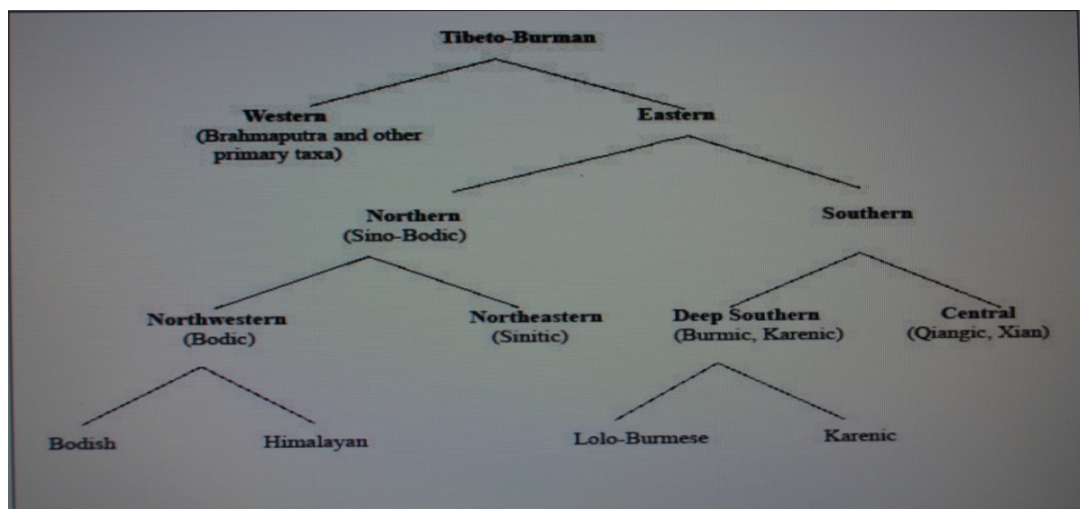
In addition, van Driem (2011, 2014) has suggested renaming the Sino-Tibetan language family as a "Trans-Himalayan" phylum (Trans-Himalaya is a mountain system of south-central

Asia extending about 1,500 miles through Kashmir, Northern India, Southern Tibet, Nepal, and Bhutan). According to van Driem (2011, 2014), the Trans-Himalayan hypothesis is proposed based on two fundamental reasons (2014):

> This Trans-Himalayan tale unites two narratives, an historical account of scholarly thinking regarding linguistic phylogeny in eastern Eurasia alongside a reconstruction of the ethnolinguistic prehistory of eastern Eurasia based on linguistic and human population genetic phylogeography.

The Trans-Himalayan linguistic sub-groups are, as shown in the following map (1.5).

Geographical distribution of the major Trans-Himalayan sub-groups with historical geographical centre of each of 42 major linguistic sub-groups (van Driem 2014: 17)

In addition, Bradley (1997) attempts to update the Tibeto-Burman branch based on much of the newer data, as reflected in figure (1.4) below.

The uptaded phylogenetic model of Tibeto-Burmen (Bradley 1997: 2)
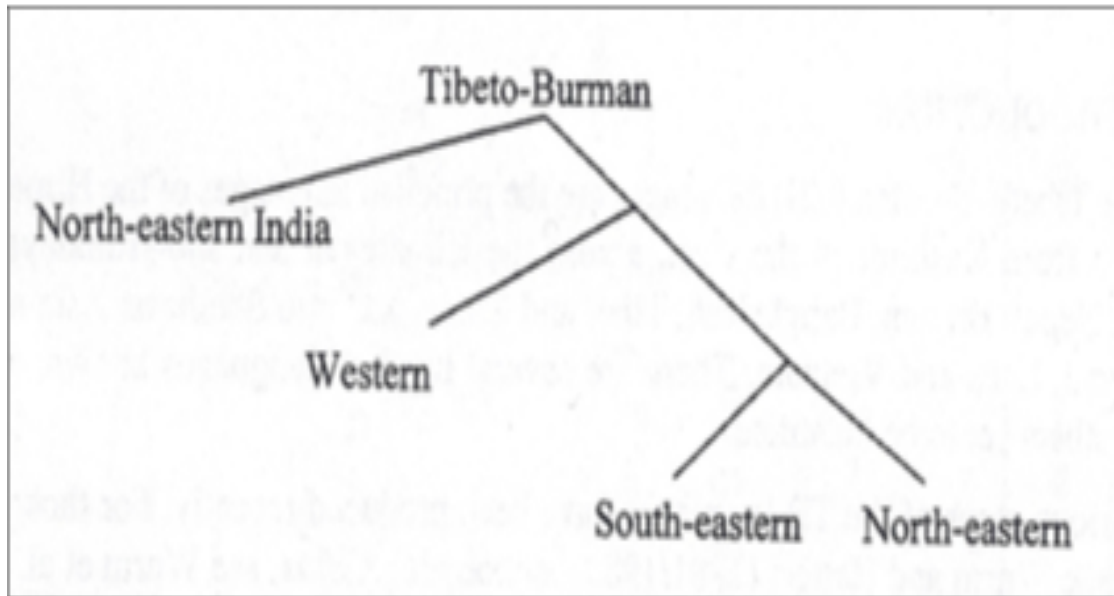
Bradley (2002) further updated Tibeto-Burman branches based on recent research, noting that for many sub-group languages linguists did not have adequate documented data available (such as grammars, dictionaries, wordlists, and naturally spoken audio recordings) to classify their linguistic family. His schema includes the sub-groups listed below:

I. Western (= Bodic)

    A. Tibetan-Kanauri (including Dzongkha)

        i. Tibetic

        ii. Gurung

        iii. West-Bodic (including Tsangla)

        iv. Kanauri

    B. Himalayan

        i. Eastern (Kiranti)

        ii. Western (Newar, Chepang, <u>Magar</u>, Thangmi, Baram)

II. *Sal*

    A. Baric (Bodo-Garo–Nothern-Naga)

B. Jinghpaw

C. Luish (incl. Pyu)

D. Kuki-Chin (incl. Meithei and Karbi)

III. *Central* (perhaps a residual group, not actually related to each other; Lepcha may also fit here, according to Bradley)

A. Adi-Gala-Mishing-Nishi

B. Mishmi (Digarish and Keman)

C. Rawang

IV. *North-Eastern*

A. Qiangic

B. Naxi=Bai

C. Tujia

D. Tangut

V. *South-Eastern*

A. Burmese-Lolo (incl. Mru)

B. Karen

In the most recent proposal, Blench and Post (2013) found a number of limitations in classifying Sino-Tibetan linguistic sub-groups. In their view, many minor languages spoken in northeastern India are yet to be classified, thus they proposed a provisional classification of the remaining languages. A shortened version is listed below:

- Sino-Tibetan (including Dzongkha)

- Karbi (Mikir)

- Mruish

- Unnamed group with nine branches, including Karenic, Northen and Southern Qiangic (Chinese (Sinitic), Lolo-Burmese-Naic, and Bodish languages belong to the latter)

Succinctly, Blench and Post (2013) acknowledge the latest proposed name "Trans-Himalayan" and attempt to argue against "Sino-Tibetan" and "Tibeto-Burman" as unsuitable names for the language family. This argument is not pursued here.

Appendix 6: Sociolinguistic Interview Modules for PhD research project

Based on original modules developed by Labov (1973-77) & best guidance in Labov (1984). Revised, re-devised, & some additional & relevant questions for PhD thesis by Wangchuk Rinzin, December 5, 2014

Demographics,

1. **Personal Information:**

1.1 Your name..Sex………………………..

1.2 What year were you born/your date of birth...

1.3 Where were your parents born (father and mother) .....………………………

1.4 Where were you born (which part of Bhutan) ………………………………

2. **Education and Work:**

2.1 How many years of school did you get a chance to finish? What kind of school did you attend as a child?

2.2 What was your first job after you completed school?

2.3 What positions have you held at work?

2.4 Are you working now?

2.5 Any good/bad experiences at work?

2.6 Where are your co-workers from? Thimphu? Eastern regions? The southern region? Anyone from your ancestral home?

2.7 Your present income (approximately)……………………….

3. **Family Information:**

    3.1   How many brothers and sisters do you have?

    3.2   Does anyone else in your family (father, mother, brother, sister, relatives, husband, wife, children, etc.) work?

    3.3   Is it easy to make ends meet or do you find that difficult? (Living expenses, travelling expenditure and etc.)?

4. **Marital Status**

4.1 Your spouse's name……………………………..

4.2 From……………………………………………..

4.3 What are his/her parents doing for living?

4.4 Who still lives there in your ancestral home?

4.5 Who still lives there in your spouse's ancestral home?

4.6 Have you even been to other countries?

      •   For what reasons?

4.7 Do you have anyone living in abroad, where and what h/s/they are doing?

5. **Home Address and living information:**

    5.1   After you left school, where was the first place that you lived?

    5.2   With whom (parents, spouse, relatives and so on)?

    5.3   Where is your next residence?

    5.4   Any special reasons for moving?

    5.5   Can you tell me little bit about your flat/house?

    5.6   Which of your apartment/flat is better (based on the situation of atmosphere, living standard, environment and etc. and why)?

    5.7   How did you/your family come to settle in Thimphu?

    5.8   How long have you been living in this capital city?

    5.9   I'd like to contact you again before I finish research. Can you tell me your telephone no if available………………………………………………...........

    5.10   Your email ID if possible……………………………………………...............

<u>**Language and Culture**</u>
Based on original module by Labov's (1973), revised module by Chai's (1999), and re-devised by Wangchuk Rinzin Dec 6, 2014.

1. **Communication information:**

1.1   What is your mother tongue?
- Is this that you spoke with your parents?
- Is it still your most comfortable language?
- Do you ever use it with your family now?
- Do you ever use it with friends? At work?
- What language do you mostly use with your husband/wife?...your children, why?

1.2   Do you like to hear different dialects and languages from around Bhutan?

1.3   How often have you travelled outside of your Home Town?

1.4   Did you ever speak any languages besides Dzongkha?

1.5   Did your parents, teachers, spouse, and friends, ever influence your language?

1.6   Who's someone that can speak Dzongkha really well? Why do you like the way they speak?

1.7   Have you ever noticed any difference between the way that people from East talk and the way that other people talk (differences between W-dzo-speaker vs. E-dzo-speaker vs. S-dzo-speaker)?

1.8   What kinds of differences
- What exactly do they say that sounds different? Can you imitate it for me?

1.9   How about the way, style, and pronunciation our K5 & K4 talk?

1.10 Is there any dialect or way of speaking in Bhutan that you DON'T like to hear?
- Anything that sounds bad to you? …Why?

2. **Cultural Activities:**

2.1   Could you briefly describe the word 'culture', the definition of 'culture to you?

2.2   Who holds the most status in your family?
- Are they the head of the household in your family?

2.3   Do you have any typical foods served in your family?
- Who prepares it? How did they/you learn to cook it?
- What else and why?

2.4   Do you eat any foods that are indigenous to your culture?

2.5   What is the main purpose of preserving such food culture?

2.6   Are there any typical style of dress code in your family and for what purposes do you wear such special dress?

2.7   What do you do when there is a birth?
- A wedding?
- A death in your family?
- Do you do anything special for promotions, house-warming ceremonies and so on?

2.8   Do you know anything about *Drig-Lam Nam-Zhag* 'the code of conduct' or 'the symbol of politeness' in the context of the traditional Bhutanese social system?

2.9   How do people greet one another?
- How would a visitor be welcomed to your home?

2.10 What is considered to be most respectful/disrespectful in the cultural norm and why?

2.1   Do you think the youth/young people today have a sense of culture?

2.12 Are the roles of men and women specifically defined in your family?
- How and what are they?
- Is there anything that women do in your family that men do not do?

2.13   Have you ever experienced racism and in what form? What can be done to eliminate such culture from your point of view?

2.14   What types of songs, mask dance and music do you like? For example, traditional one or modern one and why?

3.   Religious Activities:

3.1   Do you pray? If so, how do you pray and for what purposes?

3.2   What type of religion do you usually practice and why?

3.3   Do you actively participate in organised religious activities like going to visit religious places, holy places, offerings, prayers/rituals, festivals, annual religious functions-*tsechus* and so forth?

3.4   How important is religion for your family and why? If so, do you have any plan to pass it on on to your children/generations? Why and how?

3.5   What do you think is the most unique aspect of your religion?

3.6   Do you have any symbols of your religion and what do they symbolise? (bit difficult to understand by informants)

3.7   How do you feel about other religions and their way of practice?

3.8   Does your religion conflict with science?

3.9   Culturally and religiously, what are the most important and grand   occasions/festivals of your culture/religion?

- Why they are very important to you and your family's life?

3.10   Of numbers of religious traditions and rituals, which one do you favour most and why?

4.   Religious/cultural beliefs:

4.1   How important is hierarchy at work, in family, in the country etc.?

4.2   How are gender roles perceived in your community?

- such as women cannot enter   into *Goenkhang* 'protectors' chapel',
- women cannot play some traditional sports like *Khuru, archery, dies,* etc.

4.3   Do you think performing rituals (Buddhist or non-buddhist rituals) affect you and your family's daily life?

4.4   Do you think the religion would provide a guide for your future path or good luck to you or your family?

4.5   Do you believe in deities and their blessing/guidance/help/support and how?

4.6   Could you describe your feeling and relationship with the deities?

- Do you have faith, devotion, and trust?

4.7   What do you think about non-believers of your religion, any other religions, and   who is having false views about religions or cultures? What will happen to them   after the death?

4.8   What are the religious/cultural attitudes toward one's own parents and elderly people in and around your community?

- What about the larger society/country/world?

4.9   Do you have any specific marriage system in your community/society?

- like arranged marriage
- or loved marriage
- any cultural/religious ways of marriage ceremony?

4.10   Is there anything else you would like to add or share about the Gross National Happiness (GNH) or unique Bhutanese religion or culture associated with you, your life, and your family or relatives?

Games, Recreations, & Sports

5.1   Could you describe little bit about the national game of Bhutan?

5.2   What is the game that you are most fond of and why?

5.3   What you usually do during the leisure time?

5.4   Do you go to any leisure centre in the city like cinema hall and so on?

5.5   What are the differences between traditional games and modern games? Which
         you usually play and why?

5.6   What about your children – what do they do in leisure time? Would you wish
         them to do something else?

Danger of Death

Based on original module by Labov's (1973), re-devised by Wangchuk Rinzin Dec 11, 2014.

1   Have you ever been in a situation where you were in serious danger of getting
                 killed (where you said to yourself, "This is it")?

         1.1   What happened?

2   In most families, there's someone who gets a feeling that something is going to
                 happen, and it does happen.

         2.1   Is there anybody like that in your family?

         2.2   Do you remember anything like that that came true?

3   Was there ever anything that happened when you were growing up that you
                 couldn't explain?

         3.1   Were there any spooky places you wouldn't go at night?

         3.2   Does it bother you when people talk about ghosts?

4   What was the longest streak of luck you ever had?

         4.1   What about bad luck?

         4.2   Are you lucky at cards? With women/men?

5.   Is there anything special you do to be lucky?

Fear

Based on original module by Labov's (1973), re-devised by Wangchuk Rinzin Dec 11, 2014.

1   Have you ever known what it was to be afraid?

         1.1   When was that? What happened?

         1.2   How did you feel afterwards?

2   Did you ever know somebody that wasn't afraid of anything? What kind
         of a person was he?

2.1   Or is it just that some people can't admit it when they are afraid?

3   Did you ever dream about something that happened to you before, like that? Have
                 it all happen again?

[for 10-12-year olds]

4   Did you ever have a dream that really scared you?

Dreams and Sleep

*Based on original module by Angela, Claire, & Giota, November (1998), re-devised by
Wangchuk Rinzin Dec 11, 2014.*

1   When was the last time you dreamt?

         1.1   Do you think everyone dreams?

2   What do you dream about?   Who…………………………………….?

         2.1   How do you recognize things?

         2.2   Places?

         2.3   People?

         2.4   Yourself? How do you know it IS you?

         2.5   Have you ever confused a dream with reality?

      2.6   Have you ever thought life was a dream?

3   Tell me about a good dream?

      3.1   Tell me about a bad dream?

      3.2   Tell me about a recurring dream?

4   Do your dreams affect your mood?

5   Have you ever dreamt of something which happened later?

      5.1   Have you ever been inspired by a dream?

6   Have you ever analysed your dream?

7   Do you think you can control your dreams?

      7.1   Have you ever tried to continue a good dream?

8   Have you ever wished something was just a dream?

9   Are dreams some good things?

10   Do you think you sleep deeply?

11   Do you do anything in your sleep?

12   Do you find it easy to get to sleep?

      12.1   Can you sleep anywhere?

      12.2   What do you when you can't sleep?

      12.3   What stops you sleeping?

General Questions

Developed by K, Panyaatisin (2013), selectively re-devised by W, Rinzin, December 11, (2014).

1   What is the traditional ceremony that you like most and hate most, please describe?

2   Do you know how to cook? What is your favorite food, and do you know how to cook it/them?

3   Do you like the way people from West/East/ South/ sound or using their quality of voice (high/ low/ soft/ fast/ slow, etc.)?

4   What things do your kids say that you'd like to stop them from saying?

5   Did you ever get really annoyed at the way your parents talked?

5   Would you please tell us the most impressive story or the story that make you most happy?

Appendix 7: Picture Tasks for (N) and (R)
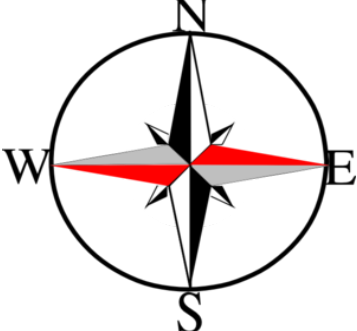
Picture Task for Children (N)
(Look at the pictures and say their name in Dzongkha)

Pictures	Pictures

Picture Task for Children (R)
(Look at the pictures and say their name in Dzongkha)

Pictures	Pictures

Appendix 8: Minimal Pairs for (N) and (R)

Dzongkha Minimal Pairs for (N)

No	Dzongkha	Roman Dzongkha	IPA/based on Coding Sheet	English Translation
1	ལམ། བླམ།	lam ′lam	lʌm^L lʌm^H	Road/Way Lama/Spiritual teacher
2	འོངས། འོམ།	om ′om	ô:m^L ʔö:m^H	Come Milk
3	ལྷུང་། དབང་།	wang ′wang	wʌŋ^L wʌŋ^H	Thimphu valley Empowerment
4	ལུང་། རླུང་།	lung ′lung	luŋ^L luŋ^H	Prophecy/recitation Air/wind
5	ལོང་། སྒོང་།	long ′long	loŋ^L loŋ^H	Get up Deep/centre
6	ངང་། དངངས།	ngang ′ngang	ŋʌŋ^L ŋʌŋ^H	Nature Fright
7	ལན། རློན།	len ′Len	len^L len^H	Answer Wet
8	ལིང་། གླིང་།	ling ′ling	liŋ^L liŋ^H	Thin banner Land
9	ལུང་། ཀླུང་།	lung ′lung	luŋ^L luŋ^H	Quotation Deep and large
10	ཁུང་། ཁྱུང་།	khung ′khjung	khuŋ^L cʃuŋ^H	Hole Garuda-bird
11	གོང་། འགྱུར།	gong ′gyong	goŋ^L dʒoŋ^H	Price Death
12	དངོན། སྔོན།	ngon ′ngon	ŋøn^L ŋøn^H	Ordinary Ancient
13	ཉིམ། རྙིངས།	nyim ′nyim	ɲim^L ɲim^H	Sun Old
14	ཉན། རྣན།	nyan ′nyan	ɲʌn^L ɲʌn^H	Listen Ear
15	ཉེན། གཉེན།	nyen ′nyen	ɲen^L ɲen^H	Risk Spouse
16	ནུམ། སྣུམ།	num ′num	num^L ŋum^H	Able Oil
17	བམ། བྱངམ།	bam ′bjam	bʌm^L dʒʌm^H	Bomb Flies
18	བུང་། དབུང་།	bung ′wung	buŋ^L Wuŋ^H	Breath Centre
19	བོང་། སྦྱོང་།	bong ′jong	boŋ^L dʒoŋ^H	Medicinal herbs Practice
20	མིན།	min	min^L	No

	སྨིན།	′min	ɱin[H]	Mature
21	མོན།	mon	møn[L]	Uncivilised country
	སྨོན།	′mon	ɱøn[H]	Wish
22	ཡང་།	yang	yʌŋ[L]	Again
	གཡང་།	′yang	yʌŋ[H]	Prosperity
23	ལོན།	lon	løn[L]	Receive
	རློན།	′lon	løn[H]	Wet
24	ཧམ།	ham	hʌm[L]	Shock
	ལྷམ།	lham	lhʌm[H]	Shoe
25	ཡིན།	Yin	jin[L]	Yes (Chöké)
	ཨིན།	ain	ain[H]	Yes (Dzongkha)

Dzongkha Minimal Pairs for (R)

No	Dzongkha	Roman Dzongkha	IPA/based on Coding Sheet	English Translation
1	ནར།	nar	nʌr[L]	Elongated shape
	བསྣར།	′nar	ŋʌr[H]	Stretch
2	ངར།	ngar	ŋʌr[L]	Temper
	སྔར།	′ngar	ŋʌr[H]	Past
3	ཉེར།	nyer	ɲer[L]	Counting from 21-29
	གཉེར།	′nyer	ɲer[H]	Wrinkle
4	ལར།	lar	lʌr[L]	General
	སླར།	′lar	lʌr[H]	Again
5	འཕར།	phar	ɸʌr[L]	Increase
	འཕུར།	′pchar	ʧʌr[H]	Hoist
6	ཕིར།	phir	ɸir[L]	There
	ཕྱིར།	′pchir	ʧir[H]	Because
7	ཤོར།	lor	lor[L]	Corrency note
	རློར།	′lor	lor[H]	To mind
8	འཕུར།	phur	ɸur[L]	Fly
	འཕྱུར།	′pchur	ʧur[H]	Heaps of dust
9	འབོར།	bor	bor[L]	Quantity
	འབྱོར།	′bjor	dʒor[H]	Arrive
10	བར།	bar	bʌr[L]	Between
	བྱར།	′bjar	dʒʌr[H]	Summer
11	ཝེར།	wer	wer[L]	Local deity
	དབྱེར།	′wer	wer[H]	Difference
12	ཝར།	war	wʌr[L]	Name of the script
	དབར།	′war	wʌr[H]	In between (Chöké)
13	མུར།	mur	mur[L]	Ruminate
	རྨུར།	′mur	ɱur[H]	Chew
14	མར།	mar	mʌr[L]	Butter
	དམར།	′mar	ɱʌr[H]	Red
15	ཡར།	yar	jʌr[L]	Up there

	གཡར	ʼyar	yʌr^H	Borrow (Chöké)
16	ཡུར	yur	jur^L	Drain
	གཡུར	ʼyur	jur^H	Weed
17	ཡོར	yor	jor^L	Oscillate
	གཡོར	ʼyor	Jor^H	Amount
18	ཡེར	yer	jer^L	Fear
	གཡེར	ʼyer	jer^H	Bell
19	ཁུར	khur	kur^L	Load
	ཆུར	ʼchur	cʃur^H	Whole
20	ཧུར	hur	hur^L	Eye gesture
	ལྷུར	lhur	hur^H	Diligence
21	ཧོར	hor	hor^L	Ancient country
	ལྷོར	lhor	hor^H	To the east

Appendix 9: Reading Passages for (N) and (R)

 སྣ་སྣའི་ཡིག་རྒྱུགས་དྲན་པའི་མེ་ལོང་།

Reading Passage for (N)

༄༅། །མཐོང་ཚམ་གྱིས་མི་རྣམས་ཀུན་གྱི་སེམས་ལུ་དགའ་བ་སྤྱིད་ཕུན་སུམ་ཚོགས་པའི་ལོངས་སྤྱོད་བྱེད་པའི་རྒྱལ་ཡོངས་དགའ་སྤྱིད་དཔལ་འཛོམས་ཀྱི་ཕུན་ཚོགས་ཀུན་གྱི་འབྱུང་གནས་པའི་
བ་ཅན་གྱི་ཞིང་ཁམས་དང་དབྱེ་བ་སྣ་ཙམ་ཡང་མེད་པའི་མཐོང་གྲོལ་དགའ་བའི་སྤྱིད་ཚལ་གྱི་གླིང་ག་ནང་ལུ་མི་དབང་མངའ་བདག་རིན་པོ་ཆེ་དང་རྒྱལ་བཙུན་སྲས་དང་སློན་པོ་དང་
འབངས་མི་སེར་ཡོངས་ཉིན་མཚན་མེད་པར་ཁ་ལུ་ཞིམ་པའི་ཞིམ་མངར་ལྡན་པའི་ཟས་སྣ་དང་གཟུགས་ལུ་འཇམ་པའི་གོས་རྣམས་ར་སྣ་ཚོགས་ནས་ཚོ་ལུ་ཧེན་པའི་བསིལ་སྙན་དང་རྒྱ་གླིང་
གླིམ་དུང་ཆེན་དུང་ཆུང་དབངས་ཅན་པེ་སྤང་དུང་དཀར་རོལ་དབངས་མིག་ལམ་ལུ་མཛེས་པའི་སྙན་ཁྲུག་རྒྱ་དང་ལྡན་པའི་རྣམ་འགྱུར་ཅན་གྱི་ཞབས་ཁྲ་དང་གར་འཆམ་གནོན་
དང་གཞོན་ནུ་མ་ཕོ་གཞོན་མོ་གཞོན་པས་ཕན་རྣམས་སློབ་དཔོན་དང་སློབ་དཔོན་མོ་མཁན་པོ་མཁན་མོ་བླམ་དང་བླ་ཆེན་སྤྲུལ་སྐུ་དང་ཡང་སྤྲུལ་དགེ་སློང་དང་ཨ་ནི་སྒོམ་ཆེན་དང་གྲོང་
ཆོབ་འགོ་དཔོན་དང་འགོ་དཔོན་མོ་ཕྱག་གཡོབ་དང་ཕྱག་གཡོམ་ཕྱག་ཞུས་དང་ཕྱག་ཞུམ་སྒོམ་དཔོན་ཡོག་དྲག་ཤོ་དང་དྲག་ཤོམ་འཁྲབ་ཙེཔ་ཆེན་དང་དགའ་དགའ་ཀོར་འཁྲེལ་མེད་ཀྱི་
དང་ལུས་མེད་ཀྱི་སེམས་ཅན་རྣམས་མ་ཚོགས་མེ་དང་ཡོངས་ཀྱིས་བསྐོར་བཞིན་དུ་སྡོན་གྱི་སན་རྒྱལ་དང་རྒྱལ་བའི་ལུང་བསྟན་བཟང་པོའི་བསྐབ་སྟོན་དང་འཕྲིལ་ཏེ་དཔལ་ལྡན་འབྲུག་རྒྱལ་
ཁབ་འདི་ཕྱི་དང་ནང་གསང་བའི་དཔུ་དང་གསུམ་ལས་དུ་གསུམ་རྣམ་པ་ཀུན་ཏུ་རྒྱལ་བའི་རྒྱལ་ཀི་སྲིད་པ་གསུམ་གནང་ལུ་བདུང་བཞིན་དུ་གནས་ཡོད་མི་ལུ་བུ་ཆུང་རང་ཡང་སེམས་གདིང་
ལས་རང་དགའ་བ་དང་དཔའ་བའི་བློ་སློབས་གོང་ལས་གོང་དུ་འཕེལ་བཞིན་ཡོད་མི་ལུ་ཧིང་དང་མི་འཁྲིལ་ལས་རང་མི་དབང་ཡབ་སྲས་རྒྱལ་ཡུམ་རྒྱལ་བཙུན་སྲས་དང་སྲས་མོ་ཉེ་རིང་
གི་སྐུ་འཁོར་རྣམས་སྐྱབས་ལ་ཡབ་སྲས་པཕམ་བཟང་ཅུགི་བཀའ་དྲིན་སེམས་ལུ་དྲན་པའི་ཚོར་བ་ལྷང་ལྷང་སྐྱེ་རྒྱལ་པའི་འཛུམ་མདངས་ཕྱི་ཁར་ཐོན་དང་འཕོན་བཞིན་དུ་དུ་སྟོང་རའི་
གདོང་ཁར་ཡོད་པའི་མེ་ལོང་ནང་ལུ་སླུ་སྦྱང་དུ་ཉིང་སང་སང་སྦྱེ་མཐོང་ངས།

'Na drai Yi-jug Dren (ᴧN-v) **-pi Me-long** (oŋ-n)

<u>Thom</u> (ᴧM-v) <u>tsam</u> (ᴧM-d) gis 'mi <u>'nam</u> (ᴧM-t) <u>kuen</u> (ʉN-t) -gi <u>sem</u> (eM-n) lu gakyi <u>phun</u> (ʉN-n) -<u>sum</u> (uM-u) tshong pi <u>long</u> (oŋ-v) -chod <u>jin</u>(iN-v)-pi/ Gyal-<u>yong</u>(oŋ-t) gaki pel <u>dzom</u>(oM-v)-ki <u>phun</u>(ʉN-n) tshog <u>kuen</u> (ʉN-t) -gi <u>jung</u> (uŋ-v) -ney/ dewa-<u>cen</u> (ᴧN-s) gi zhing-<u>kham</u> (ᴧM-n) <u>dang</u> (ᴧŋ-p) 'yewa pu-<u>tsam</u> (ᴧM-d) <u>yang</u> (ᴧŋ-d) medpi/ <u>thong</u>(oŋ-v) -drol gawai <u>ling</u> (iŋ-n) -tshel <u>ling</u>(iŋ-n) -ga <u>nang</u> (ᴧŋ-r) lu/ Mi-<u>wang</u> (ᴧŋ-n) 'nga-dag <u>rin</u> (iN-n) -po che <u>dang</u> (ᴧŋ-l) gyal <u>tsun</u> (ʉN-n) sey <u>dang</u> (ᴧŋ-l) <u>sem</u> (eM-n)/<u>Lyon</u> (øN-n) -po <u>dang</u> (ᴧŋ-l) <u>bang</u> (ᴧŋ-l) miser <u>yong</u> (oŋ-t)/ <u>nyin</u> (iN-n) <u>tshen</u> (eN-n) medpar khalu <u>zhim</u>(iM-a)-pi <u>zhim</u>(iM-a)-'ngar <u>den</u> (ᴧN-s) pi zey 'na <u>dang</u> (ᴧŋ-l)/zug lu <u>jam</u>(ᴧM-n) -pi goe '<u>nam</u>(ᴧM-n) -pa 'natshog/ '<u>nam</u>(ᴧM-n) -co lu <u>hen</u>(eN-a) -pi sil '<u>nyan</u> (ᴧN-n) <u>dang</u> (ᴧŋ-l) gya-<u>ling</u> (iŋ-n)/<u>lim</u> (iN-n) <u>dung</u> (uŋ-n) -<u>chen</u> (eN-a) <u>dung</u>(uŋ-n)-<u>chung</u>(uŋ-a)/ '<u>wang</u>(ᴧŋ-n) -<u>cen</u>(ᴧN-s) pi-<u>wang</u> (ᴧŋ-n)/ <u>dung</u>(uŋ-n) -kar rol-'<u>wang</u> (ᴧŋ-n)/ mig-<u>lam</u> (ᴧM-n) lu dzepi '<u>nyen</u>(eN-a) -khug gya <u>dang</u> (ᴧŋ-l) <u>den</u> (ᴧN-s) -pi '<u>nam</u>(ᴧM-a) -jur <u>cen</u>(ᴧN-l) -gi zhab-thra <u>dang</u> (ᴧŋ-l) gar <u>cham</u>(ᴧM-n)/ na-<u>zhon</u>(oN-a) <u>dang</u> (ᴧŋ-l) <u>zhon</u>(oN-a) -numa pho-<u>zhon</u> (oN-a) mo-<u>zhon</u>(oN-a)/ <u>pham</u> (ᴧM-n) <u>gyen</u>(eN-a) -gay lo-<u>pon</u> (oN-n) <u>dang</u> (ᴧŋ-l) lo-<u>pom</u> (oM-n) <u>khen</u>(ᴧN-n) -po <u>dang</u> (ᴧŋ-l) <u>khen</u>(ᴧN-n) -mo/ <u>lam</u> (ᴧM-n) <u>dang</u> (ᴧŋ-l) la-<u>chen</u> (eN-a)/ truelku <u>dang</u> (ᴧŋ-l) <u>yang</u> (ᴧŋ-d) truel/ ge-<u>long</u> (oŋ-n) dang ge-<u>long</u>(oŋ-n) -ma <u>anim</u>(iM-n)/ <u>gom</u> (oŋ-n) -<u>chen</u> (eN-a) <u>dang</u> (ᴧŋ-l) <u>drong</u>(oŋ-n) -chop/ go-<u>pon</u> (oN-n) <u>dang</u> (ᴧŋ-l) go-<u>pom</u> (oM-n) chag-yop <u>dang</u>(ᴧŋ-l) chag-<u>yom</u> (oM-n)/ chag-zhub <u>dang</u> (ᴧŋ-l) chag-<u>zhum</u>(uM-n) <u>gom</u> (oM-a) <u>pon</u>(oN-n) -yog/ dasho <u>dang</u> (ᴧŋ-l) da-<u>shom</u> (oM-n)/thrab tsep <u>dang</u> (ᴧŋ-l) thrab <u>tsem</u>(eM-n)/ lu-<u>cen</u> (ᴧN-s) <u>dang</u> (ᴧŋ-l) lumed ki <u>sem</u>(eM-n) -<u>cen</u> (ᴧN-s) '<u>nam</u> (ᴧM-t) ma <u>tsham</u>(ᴧM-t) mep yongis kor <u>zhin</u>(iN-r)-du/ '<u>ngon</u>(øN-a)-gi <u>san</u>(ᴧŋ-v) -gay <u>dang</u> (ᴧŋ-l) gyalwi <u>lung</u>(uŋ-n) -<u>ten</u>(ᴧN-n) <u>zang</u> (ᴧŋ-a) -poi lab-<u>ton</u> (oN-v) <u>dang</u> (ᴧŋ-l) thrill tey/ pel-<u>den</u> (ᴧN-s) druk gyalkhab di chi-<u>nang</u>(ᴧŋ-a) -<u>sang</u> (ᴧŋ-a) wi dra <u>dang</u> (ᴧŋ-l) yul ley/ du-<u>sum</u> (uM-u) '<u>nam</u>(ᴧM-d) -pa <u>kun</u> (ʉN-d) -tu gyalwai gyal 'nga sidpa <u>sum</u> (uM-u) <u>nang</u> (ᴧŋ-r) lu/ <u>dung</u> (uŋ-v) <u>zhin</u>(iN-r)-du 'ney yodmilu/ bu <u>chung</u> (uŋ-a) <u>rang</u> (ᴧŋ-p) <u>yang</u> (ᴧŋ-d) <u>sem</u>(eM-n) <u>ding</u> (iŋ-d) ley <u>rang</u> (ᴧŋ-d) gawa <u>dang</u> (ᴧŋ-l) pawi lotob/ <u>gong</u> (oŋ-d) ley <u>gong</u>(oŋ-d) -du phel <u>zhin</u> (iN-r) yodmilu <u>hing</u> (iŋ-d) <u>dang</u> (ᴧŋ-l) -mi kil-ley <u>rang</u>(ᴧŋ-d)/ mi-<u>wang</u> (ᴧŋ-n) yabsey gyal <u>yum</u> (uM-n) gyal-<u>tsun</u> (ʉN-n) sey <u>dang</u> (ᴧŋ-l) <u>sem</u> (eM-n) nye <u>ring</u> (iŋ-a) gi ku-khor '<u>nam</u>(ᴧM-t)/ capje <u>khen</u> (ᴧN-n) -po yabsey <u>pham</u> (ᴧM-n) <u>zang</u>(ᴧŋ-a) -po tshugi ka-<u>drin</u> (iN-n) <u>sem</u>(eN-n) -lu <u>dren</u> (ᴧN-v) pi/ tshorwa <u>lhang</u>(ᴧŋ-d) <u>lhang</u> (ᴧŋ-d) bey geypi <u>dzum</u>(uM-n) <u>dang</u> (ᴧŋ-a) chikhar <u>thon</u> (øN-v) <u>dang</u> (ᴧŋ-l) <u>thon</u> (øN-v) <u>zhin</u>(iN-r) -du/ dato nga rai <u>dong</u>(oŋ-d) -khar yodpi me-<u>long</u>(oŋ-n) <u>nang</u>(ᴧŋ-p) -lu taw da/ <u>hing</u>(iŋ-a) <u>sang</u>(ᴧŋ-d) <u>sang</u> (ᴧŋ-d) bey <u>thom</u>(oM-v) mey//

Preceding vowel-phonological Environment

Gram. Category	ʌ+ŋnm	i+ŋnm	u+ŋnm	e+ŋnm	o+ŋnm	ʉ+ŋnm	ø+ŋnm
Noun	14	09	07	11	11	03	01
Verb	03	01	01	01	08	00	02
Adjective	02	02	02	05	04	00	01
Adverb	08	02	00	00	03	01	00
Pronoun	01	00	00	00	00	00	00
Particle	25	00	00	00	00	00	00
Preposition	02	04	00	00	00	00	00
Determiner	02	00	00	00	02	02	00
Number	00	00	02	00	00	00	00
Possession	04	00	00	00	00	00	00

Total Tokens = 136

ར་སྐྱེའི་ཡིག་རྒྱུགས་སྐར་མ་གསར་མཐོང་།

Reading Passage for (R)

༄༅། །ཤར་གྱི་དཔལ་འབྱོར་གྱི་རྣམ་ཐར་ནང་ལུ་གླུ་གསུམ་འབྱོར་རྒྱས་ལས་མར་བལྟབ་སྟེ་གནམ་ཁ་ལུ་སྐར་མ་དཀར་པོ་ཅིག །ཤར་སྟོང་ཉུག་ལོ།ཡུ་ལྱར་དཀར་མ་མཚོང་སྲུང་སྟེ་དཀར་མཆོང་གི་ལ་ལུ་བཙོན་པའི་ཁར་ཛ་ཚང་སྐོར་རྒྱབ་པའི་ཁར་ཟ་ཚང་སྐོར་རྒྱབ་ཞྱར་ངོ་དང་མར་འི་ཚོགས་འཁོར་མ་ཆེད་པར་སྐོར་སྟེ་ཨོ་རྒྱན་གུ་རུ་འཁོར་དུ་མཁའ་འགྲོ་འབུམ་གྱིས་བསྐོར་ཏེ་བཞུགས་མི་ལུ་སྙེན་ཀུར་དང་། ཀུ་རུ་ག་ར་ཆམ་མར་མེ་དང་དཀར་མེ་སྨོན་ལམ་ཚུ་དིར་རི་རི་བྱས་ནམ་སའི་བར་ན་ཡང་མ་ཤོང་པར་གེ་ཕུལ་བ་དང་། དགོས་གཏེར་ཐམས་གཏེར་གོང་གཏེར་གཤིས་གཏེར་ཆུ་ཚར་དང་སེར་བཟུམ་པབ་པའི་ཁར་དཀར་སེར་དཀར་སྟོང་གི་དང་སྲ་ཚགས་ཀྱི་དར་ལས་འདྲལ་ཏེ་གཏེར་བཏོན་པ་ཡང་།གནམ་མཁར་བྱ་འཕུར་བ་དེ་འཕུར་དྱ་འ་ཡང་ཀུ་གར་གྱི་གར་འཁྲབ་ཅྱོར་སེར་ཤིག་དང་ཉི་མ་གང་ཤར་ཚུ་ཡང་བྱར་གུན་མེད་པར་ཕར་དཀར་སེར་དང་དཀར་སེར་འཛིན་པའི་དགེ་འདུན་པ་ཚུ་ཡང་འབྲེལ་ནར་ནར་བྱས་ཚར་ཏེ་ངར་སོལ་ཞིན་བཞུག་གནམ་མཁར་ལས་མེ་ཏོག་གི་ཆར་ཟིམ་བབ་ཏེ། སྤང་རྱི་བར་མཚམས་མེད་པར་ཁྱ་འཁར་ར་འཁྲིགས་བྱས་ཤྱར་སྤྱོང་ཆོང་མེད་པར་སྲང་གང་དུ་རིག་གསལ་ཚྱ་གིས་འཕྲྱལ་ཏེ་འྱར་དང་གཏན་གནས་སྐུ་ཚོགས་ཀྱི་བསྐོར་བ་རྒྱལ་དུས་པའི་ཆོས་ཀྱི་ཕུར་སྒྲ་དང་དངས་སྐད་སྒྲོག་མི་ཚེ་བར་ཏུ་བའི་ཁར་སེམས་ཁར་ཡང་དཀར་སྒྲོ་ཆོང་མེད་པར་རྒྱལ་ལུས་ཀྱི་བ་སྐུ་ཡང་ཡར་ལོང་དཔལ་དང་འབྱོར་པའི་བགྱིས་པའི་འཁོར་ལོ་བསྐྱར་ཏེ་གོང་མ་གི་ཞབས་ཞང་འཕར་མི་སེར་གྱི་རྒྱུ་རྫས་འཕེལ་སྐུ་ཆོ་ལུ་བར་ཆད་མེད་སངས་རྒྱས་ཀྱི་བསྙེན་པ་དང་ཞིང་རྒྱལ་དགའ་བའི་གསེར་ཏོག་བཀགས་སྐྱིད་པའི་རྒྱལ་མཚོན་འཕྱུར་ཏེ་དགའ་སྐྱིད་གསེར་ལས་དགོན་ཉུང་འདི་ལས་འཇིགས་ལས་ནས་ཡང་མ་ནུབ་པར་གནས་པའི་སྨོན་ལམ་ཞུ།

Ra drai yig-jug Kar(ʌR-n) -ma Sar(ʌR-a) –thong

Shar (ʌR-n) gi Lam pel-jor (oR-n) gi nam-thar (ʌR-v) nanglu/ Yu Jor (oR-n) gay ley mar (ʌR-d) taw da/ 'namkha lu Kar (ʌR-n) ma kar (ʌR-n) -p ci shar (ʌR-v) dod nug lo/ Yu de-khar (ʌR-t) 'mar (ʌR-a) chod pangtey/ kar (ʌR-a) -choed kyi lalu tshonpai khar (ʌR-d)/ Zatshang kor (oR-v) -jab bey yar (ʌR-d) ngo dang mar (ʌR-d) -ngoi tshog-khor (oR-n) mached par (ʌR-l) kor (oR-v) tey/ Ogyen guru khor (oR-v) -du khandro bumgis kor (oR-v)-tey zhugmilu/ 'nyen-kur (uR-v) dang 'lu-gur (uR-n) gar (ʌR-n) -cham mar (ʌR-n) -me dang kar (ʌR-n) -me monlam tshu dir (iR-v) -riri bey/ 'nam sai bar (ʌR-d) -na yang mashong par (ʌR-l) gey phulwa da/ 'ngar (ʌR-d) ley lungis zinpai ter (eR-n) -ton pagis ka-ter (eR-n) gong-ter (eR-n) ze-ter(eR-n) nor (oR-n) -ter (eR-n) ser (eR-n) -ter (eR-n) tshu/ char (ʌR-n) -p dang ser (eR-n) -w zum phab pi khar (ʌR-l)/ kar (ʌR-a) –ser (eR-a) 'mar (ʌR-a) -jang gi dar (ʌR-n) 'na tshogi dar (ʌR-n) -lam changtey/ ter (eR-n) -tonpa yang 'nam khar (ʌR-l) ja phur (uR-v) -w dey phur(uR-v)/ dedcen khor (oR-n) tshu yang lu-gar (ʌR-n) gi ga tro jur (uR-v)/ ser (eR-n) shig dang nyima gang shar (ʌR-v) tshuyang bjar (ʌR-n) gun med par (ʌR-l)/ bar (ʌR-d) -kyen ser (eR-n) -wa gis ma 'nod par (ʌR-l)/ bar (ʌR-d) -tsham med-par (ʌR-l) shar (ʌR-v)/ kar (ʌR-a) -ser(eR-a) 'mar (ʌR-a) ser (eR-a) dzinpi gedunpa tshuyang drel nar(ʌR-a) nar (ʌR-a) bey tsar(ʌR-n) -tey/ 'ngar (ʌR-a) sol zhin zhugden gur (uR-l) zhug/ jatshongi gur (uR-n) -phub/ 'nam-khar(ʌR-l) ley metogi char (ʌR-n) -zim bab/ dri 'ngar (ʌR-a) gis bar(ʌR-d) tsham med-par(ʌR-l) chap/ khar (ʌR-n) -'nga druk zum dir (iR-v)/

<u>ser</u> (eR-n) jam tshedmed <u>bar</u> (ʌR-d) -'nang gang/ ja rig tshugis <u>phur</u> (uR-v) ding dang/ cenzen tshugis <u>kor</u> (oR-v) -wa chap/ dampi chokyi <u>'ur</u> (uR-a) -dra dang <u>ngar</u> (ʌR-n) ked drog mi tshu/ 'na-<u>war</u> (ʌR-l) henpi <u>khar</u> (ʌR-l) sem <u>khar</u> (ʌR-l) yang gatro tshed med <u>par</u> (ʌR-l) gey/ lugi bapu yang <u>yar</u> (ʌR-d) long/ peldang <u>jor</u> (oR-n) -pi trashi pi <u>khor</u> (ʌR-v) -lo <u>jur</u> (uR-v) tey/ gomgi 'nga thang <u>phar</u> (ʌR-v)/ mi-<u>ser</u>(eR-n) gi ju-<u>nor</u> (oR-n) phel/ kutshe lu <u>bar</u> (ʌR-d) -ched med/ sangay gi tenpa <u>dar</u>(ʌR-v) zhing gey/ gawai <u>ser</u> (eR-n) -tog kel/ kyidpi gyaltshen <u>char</u> (ʌR-v) tey/ ga kyid <u>ser</u> (eR-n) ley kon rung/ dari di <u>khar</u> (ʌR-l) dzom ley/ namyang minub <u>par</u> (ʌR-l) 'ney pi monlam zhu//

Preceding vowel-phonological Environment

Gra. Category	ʌ	i	u	e	o
Noun	12	00	02	15	07
Verb	07	02	05	00	06
Adjective	10	00	01	03	00
Adverb	11	00	00	00	00
Determiner	01	00	00	00	00
Particle	15	00	01	00	00

Total Tokens = 98

Appendix 10: Questionnaire for Language Ideology and Attitude

QUESTIONNAIRE FOR LANGUAGE IDEOLOGY AND ATTITUDE

Date:_____

I   General Information
1.   Name of the participant:_____
2.   Age:_____
3.   Gender:_____
4.   Place of Birth & How long you lived there?:_____
5.   Dzongkhag:_____
6.   Your current place of work:_____
7.   Mother tongue:_____
8.   Education/Qualification:_____
9.   Profession:_____
10.   Medium of Instruction (majority) in primary school:
a)   Dzongkha_____
b)   English_____
c)   Others_____
11.   Rate the level of your Dzongkha today:
a)   Not very good.
b)   Fair
c)   Good
d)   Very good
e)   Excellent
12.   Rate the level of your Dzongkha skills:
a)   Reading: not very good Fair Good Very good Excellent
b)   Writing: not very good Fair Good Very good Excellent
c)   Speaking: not very good Fair Good Very good Excellent
d)   Listening: not very good Fair Good Very good Excellent
13.   Rate the level of your English or other languages:
a)   Not very good_____
b)   Fair_____
c)   Good_____
d)   Very good_____
e)   Excellent_____
14.   Rate the level of your English or other language skills:
a)   Reading: not very good Fair Good Very good Excellent
b)   Writing: not very good Fair Good Very good Excellent
c)   Speaking: not very good Fair Good Very good Excellent
d)   Listening: not very good Fair Good Very good Excellent

II   Language Ideologies and Attitudes
1.   Would you like to learn to speak and write better in Dzongkha?
a)   Yes
b)   No
c)   Neutral
2.   Motivations for improving Dzongkha:

a)   For good job___
b)   For communication___
c)   For functioning one's life___
d)   For fun___
e)   For identification___
f)   For a sense of pride___
g)   Other reasons____
3.   Motivations for learning English/Other languages_____:
a)   For good job___
b)   For communication___
c)   For functioning one's life___
d)   For fun___
e)   For identification___
f)   For a national pride___
g)   Other reasons_____
4.   Which of the following languages you can express yourself best?
a)   Dzongkha___
b)   English___
c)   Both___
d)   Other languages_____
         • Tshangla?
         • Lhotshampa?

5.   With whom you use Dzongkha to communicate:
a)   Parents
b)   Grand parents
c)   Teachers
d)   Superiors/seniors
e)   Friends
f)   Neighbours
g)   Strangers
h)   Every one
i)   No one
6.   With whom you use English/Other languages to communicate:
a)   Parents
b)   Grand parents
c)   Teachers
d)   Superiors/seniors
e)   Friends
f)   Neighbours
g)   Strangers
h)   Every one
i)   No one
7.   Do you use (Tshangla, Lhotshampa, etc) to communicate with anyone today?
a)   Parents
b)   Grand parents
c)   Teachers
d)   Superiors/seniors
e)   Friends
f)   Neighbours
g)   Strangers

h)   Every one
i)   No one
8.   The places you use Dzongkha to communicate:
a)   At home
b)   At school
c)   At work
d)   At meetings
e)   In the town
f)   On the street
g)   Every where
h)   Do not use any where
9.   The places you use English/Other languages to communicate:
a)   At home
b)   At school
c)   At work
d)   At meetings
e)   In the town
f)   On the street
g)   Every where
h)   Do not use any where
10.   The places you use Other languages to communicate:
a)   At home
b)   At school
c)   At work
d)   At meetings
e)   In the town
f)   On the street
g)   Every where
h)   Do not use any where
11.   Whether you write in Dzongkha:
a)   Yes
b)   No
c)   Sometimes
12.   Whether you write in English/Other languages:
a)   Yes
b)   No
c)   Sometimes
13.   Language use with your children (for parents):
a)   Dzongkha
b)   English
c)   Other languages: Tshangla? Lhotshampa?
d)   All o them
e)   Others
12.   Your readings in Dzongkha:
a)   Books
b)   News papers
c)   Magazines
d)   Prayers
e)   Stories
f)   Others

13.   Your readings in English/Other languages:
a)   Books
b)   News papers
c)   Magazines
d)   Prayers
e)   Stories
f)   Others
14.   How often do you use Dzongkha on face book/social media?
1)   Never
2)   Sometimes
3)   Frequently
4)   Most of the time
5)   All the time
15.   How often do you watch Dzongkha movie?
1)   Never
2)   Sometimes
3)   Frequently
4)   Most of the time
5)   All the time
16.   How often do you read Dzongkha news papers?
1)   Never
2)   Sometimes
3)   Frequently
4)   Most of the time
5)   All the time
17.   How often do you use your daily corresponding (emails, writing notes etc.) in Dzongkha?
1)   Never
2)   Sometimes
3)   Frequently
4)   Most of the time
5)   All the time
18.   How often do you use Dzongkha typing on Computers?
1)   Never
2)   Sometimes
3)   Frequently
4)   Most of the time
5)   All the time
19.   How often do you watch Dzongkha Channel on TV/BBS/Other Social Media?
1)   Never
2)   Sometimes
3)   Frequently
4)   Most of the time
5)   All the time
20.   How often do you listen to Dzongkha songs?
1)   Never
2)   Sometimes
3)   Frequently
4)   Most of the time
5)   All the time

21.	How often do you watch Dzongkha entertainments/Dzongkha Idols?
1)	Never
2)	Sometimes
3)	Frequently
4)	Most of the time
5)	All the time
22.	How often do you post updates on face book or other social media?
1)	Never
2)	Sometimes
3)	Frequently
4)	Most of the time
5)	All the time
23.	Do you use proper Dzongkha when you post a status update?
1)	Yes, I spell properly and follow grammatical rules
2)	I try to, but sometimes I forget punctuation or make a typo
3)	I spell correctly but I don't care about grammar
4)	I misspell a lot of things but I use correct grammar
5)	I don't care about spelling or grammar
24.	Do you use slang or other dialects when you when you make updates or chat with other people online?
1)	Never
2)	Sometimes
3)	Frequently
4)	Most of the time
5)	All the time
25.	Which of the Dzongkha accent do you like? Then, which is the prestige one?
a)	Shagi-Dzongkha
b)	Wangi_Dzongkha
c)	Paropi-Dzongkha
d)	Sharchopi-Dzongkha
e)	Lhotshampi-Dzongkha
f)	Bumthangpi-Dzongkha
g)	Trongsapi-Dzongkha
h)	Other Dzongkha accents
26.	Which of the Dzongkha accent do you like? Then, which is the best/proper/formal? one?
a)	Shagi-Dzongkha
b)	Wangi_Dzongkha
c)	Paropi-Dzongkha
d)	Sharchopi-Dzongkha
e)	Lhotshampi-Dzongkha
f)	Bumthangpi-Dzongkha
g)	Trongsapi-Dzongkha
h)	Other Dzongkha accents

27.	What kind of slang/dialects do you use, and why?
28.	According to you, is there any particular characteristics accent or styles of Shagi or Paropi or Wangi or Trongsapi Dzongkha that the other ones don't have?
29.	What language do you use when you talk over the phone?
30.	Can you recognize speaker where h/s is from by his/her Dzongkha accent?

31. Do you like the way people from East, West, and South sound? What do you like about it and what don't you like about it?

32. For example, if you talk to a speaker from East, or West, or South, does h/s have different accent/sound from others like western or eastern Dzongkha speakers?

33. When you were at home before going school which language your parents speak at home? Did they speak any other language like Tshangla, Lhotshampa, or mix of Dzongkha and other languages/dialects?

34. D you think there is a big difference between Ngalong-dzongkha (western-dzongkha) and other Dzongkha speaking styles?

35. Do you think older or younger generation sounds better or worse in Dzongkha speaking? What about in writing – who is better? Reading? and listening?

36. Would you like to share about the value of Dzongkha in terms of job market, economic benefits, social benefits, and positions in government jobs and so on?

37. So, what do you think about Dzonglish (mix of Dzongkha and English or may be also Dzonglish mix of other dialects like Trongsap, Tshangla, Bumthab, Khengpa etc.)? is it good enough to communicate between all social levels? who else are using it?

38. Do you feel very confident in level of your Dzongkha and how?

39. What do you mean by Dzongkha nyagchang 'pure Dzongkha'? who is considered to be a pure Dzongkha speaker? It is just your personal view?

40. What is the link between Dzongkha, Bhutan, its culture and identity, and long-term sovereign independence?

41. How do you consider them if someone doesn't speak and write Dzongkha very well?

42. How do you consider about the civil servant who doesn't know English much; for example, someone who studied all their subjects in Dzongkha when they were schooling?

43. Now a days, as you know that everybody marries other different speakers, do you think it is important for children to learn either the languages of their parents or one dominant language/dialect? Is Dzongkha the most important to learn and to teach their children from their childhood?

44. Any comments on the creation of new Dzongkha terminologies and their spellings?

45. Do you like speaking Dzongkha in a big gathering, town, meeting, and so on?

46. What do you think of the way our K5 talks? Could you tell me whether he sounds like a westerner or easterner or southerner?

47. Has anybody told you that you sound like someone from west or east or south? How do you feel about it? Do you take it as a compliment or different views?

48. Have you ever tried to change anything about the way you talk and what else?

49. Has anyone else like your parents, teachers, or friends ever tried to make you change something about the way you talk?

50. Do you think people should try to change their speech and how?

Appendix 11: Coding Sheet for (N and R)

Coding sheet for (N)

Column 1:   **Serial Number** *(represents a number put on tokens that are counted in large quantities, so that each has its own representative number)*

Column 2:   **Colums 2:   Timing** *(the skill of checking the frequency of tokens' appearance in the speech and its rough estimate)*

Column 3:   **Underlying Spelling** *(the real spelling and orthography of the Dzongkha writing system which is the most important element in the Dzongkha words)*

Column 4:   **Words** *(the smallest unit of language that people can understand if it is said with its respective pronunciations or written on its own spelling based on its pronunciation)*

Column 5:   **Environment** *(the transcription of the speech of the informants and their environments like preceding and following segments)*
    For example,
         gi miŋ kuenleg
         ming kʉn leg
         lek zʌŋ mo

Column 6:   **Meaning** *(it is the meaning of the source text, transcribed and translated words to express, communicate, and convey in their message to the observer or receiver)*
    For example,
         suŋ - 'story' and much, much more

Column 7:   **Bracket** *(We need to insert bracket [(] before all tokens based on the thumbs of rule of VarbRul itself)*
    For example,
         (NgmiZLHfn9mSy
         (NmZVpHHin9mSy
         (NptV2HHmn9mSy

Column 8:   **Variants** *(presence/absence of Nasals) (dependent variable)*
    For example,
         (n, m & g – present or nasalised (g for ŋ)
         (0 – absent/de-nasalized (NB: zero, not the letter "o")

Column 9:   **Prec-Seg-3** *(these are the 3ʳᵈ segment preceding the final Nasal)*
    Examples
    I now decided to categorise all pre-segs and following segs into two categories such as 'obstruent' and 'sonorant' in order to do easy analysis, obtain good result, and to avoid complication and confusion: we can go into more detail later on if we want conduct further research and study. The current study will envisage focusing on these two features. For example, all stops, affricates/fricatives, and sibilants are under 'obstruent' and all nasals, flaps. approximants, liquids, vowels, semivowels, laterals, and trills are under 'sonorant'. The same rule will apply for the R study as well. The details of this plan are, as follows:

1. **Obstruent:**
   a - /ʔ/ like /aa/
   b - /ba/ like /ba/
   B - /ʈʰ/ like /thra/ (use capital B for analysis)
   c - /tʃ/ normal ca
   C - /tʃʰ/ like /cha/ (use capital C for analysis)
   d - /d/ normal da
   D - /ɖ/ like /dra/ (use capital D for analysis)
   g - /g/ like /gis/ (small g)
   h - /ha/ like /ha/
   k - /k/ normal ka
   K - /kʰ/ like /kha/ (use capital K for analysis)
   p - /p/ normal pa
   P - /ɸ/ /pʰ/ like /pha/ (use capital P for analysis)
   Q - /q/ like kya (use capital Q for analysis)
   s - /s/ normal sa
   S - /ʃ/ like /sha/ (use capital S for analysis)
   t - /t/ normal ta
   T - /θ/ like /tha/ (use capital T for analysis)
   z - /z/ normal za
   Z - /dʒ/ like /ja/ (use capital Z for analysis)
   2 - /dz/ like /dza/ (use no: 2 for analysis)
   3 - /ʒ/ like /zha/ (use no: 3 for analysis)
   4- /ɦ/ like /h/ or /'/ (use nol 4 for analysis)
   6 - /tsa/ like tsa/ (use number 6 for analysis)
   7 - /ʈ/ like /tra/ (use no: 7 for analysis)
   8 - /tsʰ/ like /tsha/ (use no: 8 for analysis)

2. **Sonorant:**
   G - /ŋ/ like /nga/ (use capital G for analysis)
   H - /lha/ like lha (use capital H for analysis)
   l - /la/ like /lu/
   L - /laa/ like /luu/
   m - /ma/ like /ma/
   M - /maa/ like maa (use M capital for this high tone)
   n - /n/ normal na
   N - /naa/ like uvular /ɴ/ (use capital N for analysis)
   r - /r/ normal ra
   R - /Gʰ/ like nGaa (use capital R for analysis)
   w - /wa/ like /wa/ (small w)
   W - /waa/ like /waang/ (use capital W for analysis
   y - /j/ normal ya (use small y for analysis) *(this looks like capital Y in note pad doc)*
   Y - /yaa/ like yaa (use capital Y for analysis)
   5 - /mGaa/ like ngaa use no 5 for analysis)
   9 - /ɲ/ like /nya/ (use no: 9 for analysis)
The vowels are also included within the sonorant category, and we also need to conflate some
vowels with another since they have few tokens, as illustrated below:
   ʌ/ɑ- like tar (use capital V for analysis)   V
   i- like in or ir   i

u- like zur   u
e- like ʒer   e
o- like wor   o
ʉ- like gʉn   (use capital U for analysis)   U
ø- like drøn   (use capital O for analysis)   O
q – pausepause (didn't use this time)

(ʉ & ø regrouped into u & o as they are related to vowel U & O, Dzongkha has only 4 or 5 vowels in reality, and CSV excel doesn't accept IPA symbols)

<u>**Column 10:**</u>   **Prec-Seg-2** *(these are the 2ⁿᵈ segment preceding the final Nasal)*
        Examples

1. Obstruent:

a - /ʔ/ like /aa/
b - /ba/ like /ba/
B - /ʈʰ/ like /thra/ (use capital B for analysis)
c - /tʃ/ normal ca
C - /tʃ/ like /cha/ (use capital C for analysis)
d - /d/ normal da
D - /ɖ/ like /dra/ (use capital D for analysis)
g - /g/ like /gis/ (small g)
k - /k/ normal ka
K - /kʰ/ like /kha/ (use capital K for analysis)
p - /p/ normal pa
P - /ɸ/ /pʰ/ like /pha/ (use capital P for analysis)
Q - /q/ like kya (use capital Q for analysis)
s - /s/ normal sa
S - /ʃ/ like /sha/ (use capital S for analysis)
t - /t/ normal ta
T - /θ/ like /tha/ (use capital T for analysis)
z - /z/ normal za
Z - /dʒ/ like /ja/ (use capital Z for analysis)
2 - /dz/ like /dza/ (use no: 2 for analysis)
3 - /ʒ/ like /zha/ (use no: 3 for analysis)
4- /ɦ/ like /h/ or /'/ (use nol 4 for analysis)
6 - /tsa/ like tsa/ (use number 6 for analysis)
7 - /ʈ/ like /tra/ (use no: 7 for analysis)
8 - /tsʰ/ like /tsha/ (use no: 8 for analysis)
q – pause (didn't use this time)

2. Sonorant:

G - /ŋ/ like /nga/ (use capital G for analysis)
h - /ha/ like /ha/
H - /lha/ like lha (use capital H for analysis)
l - /la/ like /lu/
L - /laa/ like /luu/
m - /ma/ like /ma/
M - /maa/ like maa (use M capital for this high tone)
n - /n/ normal na
N - /naa/ like uvular /ɴ/ (use capital N for analysis)
r - /r/ normal ra

R - /Gʰ/ like nGaa (use capital R for analysis)

w - /wa/ like /wa/ (small w)

W - /waa/ like /waang/ (use capital W for analysis

y - /j/ normal ya (use small y for analysis) *(this looks like capital Y in note pad doc)*

Y - /yaa/ like yaa (use capital Y for analysis)

9 - /ɲ/ like /nya/ (use no: 9 for analysis)

The vowels are also included within the sonorant category, and we also need to conflate some vowels with another since they have few tokens, as illustrated below:

ʌ/ɑ- like tar use capital V for analysis)	V
i- like in or ir	i
u- like zur	u
e- like ʒer	e
o- like wor	o
ʉ- like gʉn (use capital U for analysis)	U
ø- like drøn (use capital O for analysis)	O
q – pause	

Column 11:   **Prec-Seg-1** *(these are the 1st and immediate vowel preceding the final Nasal)*
(Preceding vowel (according to Hansen [2012]**, Dzongkha has 11 vowel sounds like i, ɪ, e, ɛ, ä, ü, ö, ɑ, ə, u, o)** *but requires more Dzo vowels*

For example:

ʌ- like taŋ (will use capital V for analysis) V	
i- like in or iŋ	I
u- like zuŋ	u
e- like ʒeŋ	e
o- like woŋ	o
ʉ- like gʉn (will use capital U for analysis)	U
ø- like drøn (will use capital O for analysis)	O

Column 12:   **Vowel Nasalized?** *(Whether the (N) is absent or present in a speaker's naturally occurred speech)*

For example,

N- nasalized

D- de-nasalized referring to the dependent variables (de-nasalized)

Column 13:   **Following segment** *(the sound of the words of the following segment affix right after the final nasal)*

For example,

1. Obstruent:

a - /ʔ/ like /aa/

b - /ba/ like /ba/

B - /ʈʰ/ like /thra/ (use capital B for analysis)

c - /tʃ/ normal ca

C - /tʃ/ like /cha/ (use capital C for analysis)

d - /d/ normal da

D - /ɖ/ like /dra/ (use capital D for analysis)

g - /g/ like /gis/ (small g)

k - /k/ normal ka

K - /kʰ/ like /kha/ (use capital K for analysis)

p - /p/ normal pa
P - /ɸ/ /pʰ/ like /pha/ (use capital P for analysis)
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S - /ʃ/ like /sha/ (capital S for analysis)
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2 - /dz/ like /dza/ (use no: 2 for analysis)
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6 - /tsa/ like tsa/ (use number 6 for analysis)
7 - /ʈ/ like /tra/ (use no: 7 for analysis)
8 - /tsʰ/ like /tsha/ (use no: 8 for analysis)
q – pause (didn't use this time)

2. Sonorant:

G - /ŋ/ like /nga/ (use capital G for analysis)
h - /ha/ like /ha/
H - /lha/ like lha (use capital H for analysis)
l - /la/ like /lu/
L - /laa/ like /luu/
m - /ma/ like /ma/
M - /maa/ like maa (use M capital for this high tone)
n - /n/ normal na
N - /naa/ like retroflex /ɳ/ (use capital N for analysis)
r - /r/ normal ra
R - /Gʰ/ like nGaa (use capital R for analysis)
w - /wa/ like /wa/ (small w)
W - /waa/ like /waang/ (use capital W for analysis
y - /j/ normal ya (use small y for analysis) *(this looks like capital Y in note pad doc)*
Y - /yaa/ like yaa (use capital Y for analysis)
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The vowels are also included within the sonorant category, and we also need to conflate some vowels with another since they have few tokens, as illustrated below:

ʌ/ɑ- like tar	(use capital V for analysis)	V
i- like in or ir		i
u- like zur		u
e- like ʒer		e
o- like wor		o
ʉ- like gʉn	(use capital U for analysis)	U
ø- like drøn	(use capital O for analysis)	O
q – pause		

<u>**Column 14:**</u>   ***Lexical Tone*** *(it is the way one's voice sounds and the use of pitch in languages to distinguish lexical or grammatical meaning)*
       For example,
          H- high tone

L - low tone

Column 15: **Following Tone** *(it is the way one's voice sounds and the use of pitch in the following segments which can be distinguished lexical or grammatical meaning in them)*
>   ***For example,***
>   H - high tone
>   L - low tone

Column 16: **Phrase Position** *(it is to distinguish the position of the phrase, which is positioned in initial, or medial, or final in its words or sentence)*
>   ***For example,***
>   i -   Initial
>   m -   Medial
>   f -   Final

Column 17: **Grammatical Category** *(it is a property of items within the grammar of a language such as tense, number, gender and so on)*
>   ***For example,***
>   a- adjective
>   c- conjunction
>   d- adverb
>   l - particle *(this looks like number 1 in note pad doc)*
>   m- modal
>   n- noun
>   p- pronoun
>   r- preposition
>   s - possession
>   t - determiner
>   u - number
>   v- verb
>   x- auxiliary
>   i – interjection (May need to be conflated with other GCs like "T" etc. due to very the less frequency)

(Recoded Grammatical Category; for example, I combined determiner with adverb, interjection with adverb, and I kept noun, adjective, conjunction, adverb, verb, number, pronoun, and preposition at the moment. We will recode later if anything not relevant).
(Again recoded Grammatical Category as it has a huge number of categories. For example, I conflated pronoun with noun since both are associated with noun in grammatical elements, number with adverb since it is quite similar to time of adverb in Dzongkha syntax, and conjunction with adjective since conjunction places after noun which is similar to adjective. So, it now condensed from 8 categories into 5 categories, Noun, Adjective, Adverb, Verb, & Preposition).

Column 18: **Style** *(This code is for only children and it indicates us to understand whether the tokens are from the interview/module or story and so on)*
For example,
As I discussed with my supervisor in the last PhD meeting, I decided to conflate these 3 (P, M, & R) together and categorised it as Reading (R), and finally three categories: I, S, & R, as follows:

"G-info" is Interview/Module =   I
"Story-1" =   1
"Story-2" =   2
"Story -3" =   3
"P-task", Picture-task =   P
"R-pass", Reading Passage =   R
"Min-P" Minimal Pair =   M (this needs to disgard or conflated since I didn't
use it, except just 1 speaker for a few tokens)
(Recoded story 1, 2, & 3 are as 'S', P-task and Minimal pair clubbed with reading task as 'R'
and kept interview as 'I').

Social/Speaker Factors:

Column 19:   **Speaker ID** *(it is the identification of a person from characteristics of voices*
                which could identify their gender, age, social class etc.)
        For example,

1PWpmSaET1	(Phuntsho Wangdi)	1
2TTpmSaET1	(Tshewang Tenzin)	2
3KTtmPoETD	(Karma Tshering)	3
4JNtmPaETD	(Jigme Norbu)	4
5JTsmSyET6	(Jamyang Tenzin)	5
6UDsmSyET6	(Ugyen Dorji)	6
7SPpmSaWD1	(Sigay Phub)	7
8PTpmPaWDP	(Pemba Tshering)	8
9PDtmPaWDS	(Phub Dorji)	9
10LTtmP0WDP	(Lhakpa Tshering)	10
11TDsmSyWD6	(Tshering Dorji)	11
12NRsmSyWD6	(Namgay Rinchen)	12
13KBpmSaSL9	(Khemlal Biswa)	13
14DSpmEoSLM	(Dampar Sign)	14
15TPtmPaSLP	(Tej Prasad)	15
16JNtmPaSLS	(Jai Narayan)	16
17SBsmSySL6	(Sanjay Biswa)	17
18ARsmSySL6	(Arun Rai)	18
ATDpfSaET1	(Tenzin Dema)	A
BSZpfSaET1	(Singay Zangmo)	B
CCCtfPaETD	(Chimi Choden)	C
DWLtfPaETS	(Wangdi Lhamo)	D
ETWsfSaET5	(Tandin Wangmo)	E
FSYsfSyET5	(Sonam Youden)	F
GTDpfSaWD9	(Tandin Dema)	G
HSLpfPaWDS	(Singay Lham)	H
IDWtfPaWDP	(Dorji Wangmo)	I
JTLtfPaWDD	(Tashi Lhamo)	J
KKZsfSyWD6	(Kinley Zangmo)	K
LSPsfSyWD6	(Sonam Peldon)	L
MSBpfSaSL9	(Sachita Biswa)	M
NKRpfSoSL9	(Kumari Rai)	N
OKRtfPaSLS	(Kalpana Rai)	O

PPStfPaSLS   (Passang Sherpa)   P
QSBsfSySL5   (Subana Biswa)   Q
RGMsfSySL6   (Ganga Maya)   R

Column 20:   **Role** *(The role of the speakers whether they are parent, or teacher, or students)*
        For Example,
            Parent =   p
            Teacher =   t
            Child =   c

Column 21:   **Sex of Speaker** *(it is a biological distinction of an organism between male and female and their different speeches in terms of words and sentences)*
        For example,
            m – Male
            f – Female

Column 22:   **Social Class of Speaker** *(it is a model of social stratification based on their income and standard of life into a set of hierarchical social categories)*
        For example,
                E-   Executive & specialist level
                P-   Professional & management level
                S-   Supervisory, support & operational level *(it is based on the Royal Civil Service Commission position classification)*
They are equivalent to general social class respectively, as shown below:
                U-   Upper class
                M-   Middle class
                W -   Working class *(it is based on general system of social stratification for sociolinguistic study)*

Column 23:   **Age of Speaker** *(it marks the particular periods of someone's life which can distinguish between young, adult, old or old age, middle age, and teenage)*
        For example,
            y- Young (06-18)
            a - Adult (19-50)
            o - Old (51-80)

Column 24:   **Education** *(It differentiates the levels of education between parents, teachers, and students such as which speaker has obtained more qualification and who has the less qualification among them)*
As we discussed in the last PhD meeting, I decided to reorganise these into less groups to avoid silly confusion and get good results through simple data analysis, as structured below:
Students from 0 – 5 =   5
Students from 0 – 6 =   6(5 & 6 both are primary level and conflated as "6")
Parents from 0 - 2 =   1   (illiterate)=   (parents   0-2   considered   as elementary/primary level and categorised as "E")
Parents from 8 - 10 =   9(secondary edu) = (parents 8-10 considered as secondary level as categorised as "S")
Parents from M. Sc =   M (parents who have MA are categorised as "M")
Teachers B. Ed 10 =   P

Teachers B. Ed 12 =   S (teachers who have primary and secondary level B. Ed
                                        are categorised as "S")
Teachers BA - PGDE + Dip =   D (teachers BA and Degree level are categorised as "D")
*(Recoded education such as student class 5 & 6 recoded as '6', parents uneducated and attended
up to class 1-2 are recoded as 'E' (elementary), who has masters are recoded as 'M', teachers
who have qualification up to class 12 are recoded as 'B' (B. Ed), who have attended up to class
8 or 10 recoded as 'S' (secondary level), and who have degree are kept as 'D' degree. So, it
comes to 6 categories like '6', 'E', 'S', 'M', 'B', & 'D'. Rest remained as before and data is
ready to run by using Rbrul now).*
*(This time again Education level is recoded and condensed from 6 categories to 4 categories
such as all students are at primary level and recoded as "P" (primary), parents from 0-2 are
remained as before "E" (elementary), parents attended class between 8-10 are remained as
before "S" (secondary), and parents and teachers who have MA, B. Ed, BA, Degree are recoded
as "D" (degree). So, education has 4 different levels now: E, P, S, & D)*

Column 25:   **Origin** *(which is in the Speaker Catalogue as "Ethnicity", but means region of
                     birth)*
     For example,
                     From East =   E
                     From West =   W
                     From South =   S

Column 26:   **Child's Parents Origin** *(which is in the Speaker Catalogue as "Birthplace"),
                     because for the children – only – their birthplace is almost uniformly Thimphu,
                     but their parents' origin determines linguistic input at home, so we need to take it
                     into account)*
     For example,
                     From East =   E
                     From West =   W
                     From South =   S

Column 27:   **Mother Tongue** *(which is in the Speaker Catalogue as "Native") – WR will have
                     to create coding symbols for the 7 varieties here, namely Dzongkha, Tshanglo,
                     Lhotshampa as the main 3, plus 3 speakers of Bumthap, and 1 each of Khenkha,
                     Kurtoep and Mangdep)*
     For example,
                     Dzongkha =   D
                     Tshangli =   T
                     Lhotshampa =   L
                     Bumthap =   b
                     Khenkha =   h
                     Kurtoep =   k
                     Mangdep =   m
*(It doesnt show much differences in pivot tables and crosstabs, and I would like to condense
them into three major languages and recoded as Tshangla, Dzongkha, and Lhotshampa as they
are the 3 of 4 major languages of Bhutan)*

Column 28:   **IPA** *(the actual pronunciation of the speakers and their underlying words with its spellings)*

For example,
   ∫ʌ, ∫ʌŋ etc. and

Column 29:   **Remarks** *(something that I say or my personal opinion what I have noticed when I am working on this project about anything on any topic at any time)*

Coding sheet for (R)

Column 1:   **Serial Number** *(represents a number put on tokens that are counted in large quantities, so that each has its own representative number)*

Column 2:   **Timing** *(the skill of checking the frequency of tokens' appearance in the speech and its rough estimate)*

Column 3:   **Underlying Spelling** *(the real spelling and orthography of the Dzongkha writing system which is the most important element in the Dzongkha words)*

Column 4:   **Words** *(the smallest unit of language that people can understand if it is said with its respective pronunciations or written on its own spelling based on its pronunciation)*

Column 5:   **Environment** *(the transcription of the speech of the informants and their environments like preceding and following segments)*
   For example,
      Janang mʌʀ/r/ɹ/ɭ Lʰug

Column 6:   **Meaning** *(it is the meaning of the source text, transcribed and translated words to express, communicate, and convey in their message to the observer or receiver)*
   For example,
      dʌʀ - 'banner' and much, much more

Column 7:   **Bracket** *(We need to insert bracket [(] before all tokens based on the thumbs of rule of VarbRul itself)* (This is for Varbrul only)
   For example,
      (NgmiZLHfn9mSy
      (NmZVpHHin9mSy
      (NptV2HHmn9mSy

Column 8:   **Variants** *(presence/absence of Rhotics)* (dependent variable)
   For example,
      (r-T/trill/, ɾ-F /flap/, ɹ-A /approx/, & R-U /uvular trill –very few/ – present or rhotacized (R for all rs)
      (ʋ-W labiodental approx., ɻ-X retroflex approx., ɽ-L retroflex flap)
      (0 – absent/de-rhotacized) (NB: zero, not the letter "o")

   Regrouped done!
      (r-T/alveo trill/ -

ɾ-F /flap/
ɹ-A /approx/
R-U /uvular trill
(0 – absent/de-rhotacized – very frequent and be a non-rhotic
(A & U combined with F, 0 & T remained unchanged)

(This time I have conflated Flap with Trill as F has only 183 tokens. It is considered to be quite less and we now analyse between "0" (as non-rhotic/null) and "T" (as rhotic) as dependent variable)

<u>**Column 9:**</u>   **Prec-Seg-3** *(these are the 3ʳᵈ segment preceding the final Rhotics)*

I now decided to categorise all pre-segs and following segs into two categories such as 'obstruent' and 'sonorant' in order to do easy analysis, obtain good result, and to avoid complication and confusion: we can go into more detail later on if we want conduct further research and study. The current study will envisage focusing on these two features. For example, all stops, affricates/fricatives, and sibilants are under 'obstruent' and all nasals, flaps. Approximants, liquids, vowels, semivowels, laterals, and trills are under 'sonorant'. The same rule will apply for the N study as well. The details of this plan are, as follows:
Examples
   1. Obstruent:
      a - /ʔ/ like /aa/
      b - /ba/ like /ba/
      B - /ʈʰ/ like /thra/ (use capital B for analysis)
      c - /tʃ/ normal ca
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      P - /ɸ/ /pʰ/ like /pha/ (capital P for analysis)
      Q - /q/ like kya (use capital Q for analysis)
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      S - /ʃ/ like /sha/ (use capital S for analysis)
      t - /t/ normal ta
      T - /θ/ like /tha/ (use capital T for analysis)
      z - /z/ normal za
      Z - /dʒ/ like /ja/ (use capital Z for analysis)
      2 - /dz/ like /dza/ (use no: 2 for analysis)
      3 - /ʒ/ like /zha/ (use no: 3 for analysis)
      4- /ɦ/ like /h/ or /'/ (use nol 4 for analysis)
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      7 - /ʈ/ like /tra/ (use no: 7 for analysis)
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      q – pause-(didn't use this time)

   2. Sonorant:
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L - /laa/ like /luu/

m - /ma/ like /ma/

M - /maa/ like maa (use M capital for this high tone)

n - /n/ normal na

N - /naa/ like uvular /ɴ/ (use capital N for analysis)

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R - /ɲʰ/ like nYaa (use capital R for analysis)

w - /wa/ like /wa/ (small w)

W - /waa/ like /waang/ (use capital W for analysis

y - /j/ normal ya (use small y for analysis) *(this looks like capital Y in note pad doc)*

Y - /yaa/ like yaa (use capital Y for analysis)

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The vowels are also included within the sonorant category, and we also need to conflate some vowels with another since they have few tokens, as illustrated below:

ʌ/ɑ- like tar   (use capital V for analysis)   V

i- like in or ir   i

u- like zur   u

e- like ʒer   e

o- like wor   o

ʉ- like gʉn   (use capital U for analysis)   U

ø- like drøn   (use capital O for analysis)   O

(ʉ & ø regrouped into u & o as they are related to vowel U & O, Dzongkha has only 4 or 5 vowels in reality, and CSV excel doesn't accept IPA symbols)

Column 10:   **Prec-Seg-2** *(these are the 2nd segment preceding the final Rhotics)*

Examples

1. Obstruent:

a - /ʔ/ like /aa/

b - /ba/ like /ba/

B - /ʈʰ/ like /thra/ (use capital B for analysis)

c - /tʃ/ normal ca

C - /tʃ/ like /cha/ (use capital C for analysis)

d - /d/ normal da

D - /ɖ/ like /dra/ (use capital D for analysis)

g - /g/ like /gis/ (small g)

k - /k/ normal ka

K - /kʰ/ like /kha/ (use capital K for analysis)

p - /p/ normal pa

P - /ɸ/ /pʰ/ like /pha/ (use capital P for analysis)

Q - /q/ like kya (use capital Q for analysis)

s - /s/ normal sa

S - /ʃ/ like /sha/ (use capital S for analysis)

t - /t/ normal ta

T - /θ/ like /tha/ (use capital T for analysis)

z - /z/ normal za

Z - /dʒ/ like /ja/ (use capital Z for analysis)

2 - /dz/ like /dza/ (use no: 2 for analysis)

4- /ɦ/ like /h/ or /'/ (use nol 4 for analysis)

3 - /ʒ/ like /zha/ (use no: 3 for analysis)

6 - /tsa/ like tsa/ (use number 6 for analysis)

7 - /ʈ/ like /tra/ (use no: 7 for analysis)

8 - /tsʰ/ like /tsha/ (use no: 8 for analysis)

2. Sonorant:

G - /ŋ/ like /nga/ (use capital G for analysis)

H - /lha/ like lha (use capital H for analysis)

l - /la/ like /lu/

L - /laa/ like /luu/

m - /ma/ like /ma/

M - /maa/ like maa (use M capital for this high tone)

n - /n/ normal na

N - /naa/ like uvular /ɴ/ (use capital N for analysis)

r - /r/ normal ra

R - /Gʰ/ like nGaa (use capital R for analysis)

w - /wa/ like /wa/ (small w)

W - /waa/ like /waang/ (use capital W for analysis

y - /j/ normal ya (use small y for analysis) *(this looks like capital Y in note pad doc)*

Y - /yaa/ like yaa (use capital Y for analysis)

9 - /ɲ/ like /nya/ (use no: 9 for analysis)

The vowels are also included within the sonorant category, and we also need to conflate some vowels with another since they have few tokens, as illustrated below:

ʌ/ɑ- like tar	(will use capital V for analysis)	V
i- like in or ir		i
u- like zur		u
e- like ʒer		e
o- like wor		o
ʉ- like gʉn	(will use capital U for analysis)	U
ø- like drøn	(will use capital O for analysis)	O
q – pause		

Column 11:   **Prec-Seg-1** *(these are the 1st and immediate vowel preceding the final Rhotics)*
(Preceding vowel (according to Hansen [2012]**, Dzongkha has 11 vowel sounds like i, ɪ, e, ɛ, ä, ü, ö, ɑ, ə, u, o)** *but requires more Dzo vowels*
For example:

ʌ- like tar	(will use capital V for analysis)	V (strongest favour trill)
i- like in or ir		i
u- like zur		u
e- like ʒer		e
o- like wor		o
ʉ- like gʉn	(will use capital U for analysis)	U
ø- like drøn	(will use capital O for analysis)	O

Column 12:   **Rhoticised?** *(Whether the (R) is absent or present in a speaker's naturally occurred speech)*

        For example,

            R- rhoticised

            D- derhoticised referring to the dependent variables (non-rhotics)

Column 13 :   **Following segment** *(the sound of the words of the following segment affix right after the final Rhotics)*

For example,

    1. Obstruent:

        a - /ʔ/ like /aa/

        b - /ba/ like /ba/

        B - /ʈʰ/ like /thra/ (use capital B for analysis)

        c - /tʃ/ normal ca

        C - /tʃ/ like /cha/ (use capital C for analysis)

        d - /d/ normal da

        D - /ɖ/ like /dra/ (use capital D for analysis)

        g - /g/ like /gis/ (small g)

        k - /k/ normal ka

        K - /kʰ/ like /kha/ (use capital K for analysis)

        p - /p/ normal pa

        P - /ɸ/ /pʰ/ like /pha/ (use capital P for analysis)

        Q - /q/ like kya (use capital Q for analysis)

        s - /s/ normal sa

        S - /ʃ/ like /sha/ (use capital S for analysis)

        t - /t/ normal ta

        T - /θ/ like /tha/ (use capital T for analysis)

        z - /z/ normal za

        Z - /dʒ/ like /ja/ (use capital Z for analysis)

        2 - /dz/ like /dza/ (use no: 2 for analysis)

        3 - /ʒ/ like /zha/ (use no: 3 for analysis)

        4- /ɦ/ like /h/ or /'/ (use nol 4 for analysis)

        6 - /tsa/ like tsa/ (use number 6 for analysis)

        7 - /ʈ/ like /tra/ (use no: 7 for analysis)

        8 - /tsʰ/ like /tsha/ (use no: 8 for analysis)

        q – pause

    2. Sonorant:

        G - /ŋ/ like /nga/ (use capital G for analysis)

        H - /lha/ like lha (use capital H for analysis)

        l - /la/ like /lu/

        L - /laa/ like /luu/

        m - /ma/ like /ma/

        M - /maa/ like maa (use M capital for this high tone)

        n - /n/ normal na

        N - /naa/ like uvular /ɴ/ (use capital N for analysis)

        r - /r/ normal ra

        R - /Gʰ/ like nGaa (use capital R for analysis)

        w - /wa/ like /wa/ (small w)

        W - /waa/ like /waang/ (use capital W for analysis

y - /j/ normal ya (use small y for analysis) *(this looks like capital Y in note pad doc)*

Y - /yaa/ like yaa (use capital Y for analysis)

9 - /ɲ/ like /nya/ (use no: 9 for analysis)

The vowels are also included within the sonorant category, and we also need to conflate some vowels with another since they have few tokens, as illustrated below:

ʌ/ɑ- like tar	(will use capital V for analysis)	V
i- like in or ir		i
u- like zur		u
e- like ʒer		e
o- like wor		o
ʉ- like gʉn	(will use capital U for analysis)	U
ø- like drøn	(will use capital O for analysis)	O
q – pause		

Column 14: **Lexical Tone** *(it is the way one's voice sounds and the use of pitch in languages to distinguish lexical or grammatical meaning)*

For example,

H- high tone

L - low tone

Column 15: **Following Tone** *(it is the way one's voice sounds and the use of pitch in the following segments which can be distinguished lexical or grammatical meaning in them)*

For example,

H - high tone

L - low tone

Column 16: **Phrase Position** *(it is to distinguish the position of the phrase which is positioned in initial, or medial, or final in its words or sentence)*

For example,

i - Initial

m - Medial

f - Final

Column 17: **Grammatical Category** *(it is a property of items within the grammar of a language such as tense, number, gender and so on)*

For example,

a- adjective

c- conjunction

d- adverb

l - particle

m- modal

n- noun

p- pronoun

r- preposition

s - possession

t - determiner

u - number

v- verb

x- auxiliary

I – interjection

(Recoded *Grammatical Category; for example, I combined determiner and number with adverb, pronoun with noun, and I kept noun, adjective, adverb, verb, and preposition).*

Column 18: **Style** *(The style indicates us to understand whether the tokens are from the interview/module or story and so on)*

For example,

As I discussed with my supervisor in the last PhD meeting, I decided to conflate these 3 (P, M, & R) together and categorised it as Reading (R), and finally three categories: I, S, & R, as follows:

"G-info" is Interview/Module =	I
"Story-1" =	1
"Story-2" =	2
"Story -3" =	3 (need to combine, e.g. story 1,2,3, together as "S")
"P-task", Picture-task =	P (Less frequency)
"R-pass", Reading Passage =	R (Very less frequency may need to be combined)
"Min-P" Minimal Pair =	M (this needs to disgard or conflated since I didn't use it, except just 1 speaker for a few tokens)

(Recoded story 1, 2, & 3 are as 'S', P-task and Minimal pair clubbed with reading task as 'R', and kept interview as 'I').

Social/Speaker Factors:

Column 19: **Speaker ID** *(it is the identification of a person from characteristics of voices which could identify their gender, age, social class etc.)*

For example,

1PWpmSaETE	(Phuntsho Wangdi)	1
2TTpmSaETE	(Tshewang Tenzin)	2
3KTtmPoETD	(Karma Tshering)	3
4JNtmPaETD	(Jigme Norbu)	4
5JTsmSyETP	(Jamyang Tenzin)	5
6UDsmSyETP	(Ugyen Dorji)	6
7SPpmSaWDE	(Sigay Phub)	7
8PTpmPaWDD	(Pemba Tshering)	8
9PDtmPaWDD	(Phub Dorji)	9
10LTtmP0WDD	(Lhakpa Tshering)	10
11TDsmSyWDP	(Tshering Dorji)	11
12NRsmSyWDP	(Namgay Rinchen)	12
13KBpmSaSLS	(Khemlal Biswa)	13
14DSpmEoSLD	(Dampar Sign)	14
15TPtmPaSLD	(Tej Prasad)	15
16JNtmPaSLD	(Jai Narayan)	16
17SBsmSySLP	(Sanjay Biswa)	17
18ARsmSySLP	(Arun Rai)	18
ATDpfSaETE	(Tenzin Dema)	A
BSZpfSaETE	(Singay Zangmo)	B
CCCtfPaETD	(Chimi Choden)	C

DWLtfPaETD	(Wangdi Lhamo)	D
ETWsfSaETP	(Tandin Wangmo)	E
FSYsfSyETP	(Sonam Youden)	F
GTDpfSaWDS	(Tandin Dema)	G
HSLpfPaWDD	(Singay Lham)	H
IDWtfPaWDD	(Dorji Wangmo)	I
JTLtfPaWDD	(Tashi Lhamo)	J
KKZsfSyWDP	(Kinley Zangmo)	K
LSPsfSyWDP	(Sonam Peldon)	L
MSBpfSaSLS	(Sachita Biswa)	M
NKRpfSoSLS	(Kumari Rai)	N
OKRtfPaSLD	(Kalpana Rai)	O
PPStfPaSLD	(Passang Sherpa)	P
QSBsfSySLP	(Subana Biswa)	Q
RGMsfSySLP	(Ganga Maya)	R

Column 20: **Role** *(The role of the speakers whether they are parent, or teacher, or students)*
For Example,

Parent =   p
Teacher =   t
Child =   c

Column 21: **Sex of Speaker** *(it is a biological distinction of an organism between male and female and their different speeches in terms of words and sentences)*
For Example,

m - Male
f - Female

Column 22: **Social Class of Speaker** *(it is a model of social stratification based on their income and standard of life into a set of hierarchical social categories)*
For example,

E-   Executive & specialist level
P-   Professional & management level
S-   Supervisory, support & operational level *(it is based on the Royal Civil Service Commission position classification*

They are equivalent to general social class respectively, as shown below:

U-   Upper class
M-   Middle class
W -   Working class *(it is based on general system of social stratification for sociolinguistic study)*

Column 23: **Age of Speaker** *(it marks the particular periods of someone's life which can distinguish between young, adult, old or old age, middle age, and teenage)*
For example

y- Young   (06-18)
a - Adult   (19-50)
o - Old   (51-80)

**Column 24:**   **Education** _(It differentiates the levels of education between parents, teachers, and students such as which speaker has obtained more qualification and who has the less qualification among them)_

As we discussed in the last PhD meeting, I decided to reorganise these into less groups to avoid silly confusion and get good results through simple data analysis, as structured below:

Students from 0 – 5 =   5

Students from 0 – 6 =   6(5 & 6 both are primary level and conflated as "6")

Parents from 0 - 2 =   1   (illiterate)=   (parents   0-2   considered   as elementary/primary level and categorised as "E")

Parents from 8 - 10 =   9(secondary edu) = (parents 8-10 considered as secondary level as categorised as "S")

Parents from M. Sc =   M (parents who have MA are categorised as "M")

Teachers B. Ed 10 =   P

Teachers B. Ed 12 =   S (teachers who have primary and secondary level B. Ed are categorised as "S")

Teachers BA - PGDE + Dip =   D (teachers BA and Degree level are categorised as "D")

(Recoded education such as student class 5 & 6 recoded as '6', parents uneducated and attended up to class 1-2 are recoded as 'E' (elementary), who has masters are recoded as 'M', teachers who have qualification up to class 12 are recoded as 'B' (B. Ed), who have attended up to class 8 or 10 recoded as 'S' (secondary level), and who have degree are kept as 'D' degree. So, it comes to 6 categories like '6', 'E', 'S', 'M', 'B', & 'D'. Rest remained as before and data is ready to run by using Rbrul now).   Recoded as 6, E, S, & B.

(This time again Education level is recoded and condensed from 6 categories to 4 categories such as all students are at primary level and recoded as "P" (primary), parents from 0-2 are remained as before "E" (elementary), parents attended class between 3-10 are remained as before "S" (secondary), and parents and teachers who have MA, B. Ed, BA, Degree are recoded as "D" (degree). So, education has 4 different levels now: E, P, S, & D)

**Column 25:**   **Origin** _(which is in the Speaker Catalogue as "Ethnicity", but means region of birth)_

**For example,**

            From East =   E

            From West =   W

            From South =   S

**Column 26:**   **Child's Parents Origin** _(which is in the Speaker Catalogue as "Birthplace"), because for the children – only – their birthplace is almost uniformly Thimphu, but their parents' origin determines linguistic input at home, so we need to take it into account)_

**For example,**

            From East =   E

            From West =   W

            From South =   S

**Column 27:**   **Mother Tongue** _(which is in the Speaker Catalogue as "Native") – WR will have to create coding symbols for the 7 varieties here, namely Dzongkha, Tshanglo, Lhotshampa as the main 3, plus 3 speakers of Bumthap, and 1 each of Khenkha, Kurtoep and Mangdep)_

For example,

Dzongkha =	D
Tshangli =	T
Lhotshampa =	L
Bumthap =	b
Khenkha =	h
Kurtoep =	k
Mangdep =	m

(It doesnt show much differences in pivot tables and crosstabs, and I would like to condense them into three major languages and recoded as Tshangla, Dzongkha, and Lhotshampa as they are the 3 of 4 major languages of Bhutan)

Column 28:   **IPA** *(the actual pronunciation of the speakers and their underlying words with its spellings)*

For example,

ʃʌ, ʃʌr etc. and

Column 29:   **Remarks** *(something that I say or my personal opinion what I have noticed when I am working on this project about anything on any topic at any time)*

Appendix 12: Cross-tabulation for (N) by Phonetic Context

This appendix reports details of preceding and following phonetic context in the following order. First it reports the consonantal context, for which division and grouping into sonorants and obstruents was made in the Rbrul analysis. This allows one to see whether that grouping was justified. The order of reporting is: Proceeding-3, Preceding-2, Following Segment (all consonants). Lastly, the details of Preceding-1 environment are reported; however, recall that these are always vowels, and hence do not lend themselves to interpretation using the categories of sonorant and obstruent.

Preceding -3 (Consonants)

(N) Variants						
Preceding-3	**ø**	**ŋ**	**m**	**n**	**Token (N)**	**%**
2	8	12	2	1	23	35%
3	14	7	8	2	31	45%
6	9	19	3	1	32	28%
7	4	4	1	2	11	36%
8	28	29	9	8	74	38%
9	15	36	14	3	68	22%
a	40	23	54	6	123	33%
B	62	31	30	19	142	44%
c	183	37	72	43	335	55%
d	150	72	107	94	423	35%
g	138	86	55	53	332	42%
h	5	5	29	1	40	13%
K	100	24	30	15	169	59%
l	175	79	153	73	480	36%
m	64	32	37	19	152	42%
n	105	32	60	16	213	49%
p	84	25	44	49	202	42%
Q	0	1	0	0	1	0%
r	88	30	35	34	187	47%
S	64	20	19	15	118	54%
t	63	28	41	20	152	42%
w	26	7	5	96	134	19%
y	65	11	17	27	120	54%
z	40	18	9	7	74	54%
Grand Total	**1530**	**668**	**834**	**604**	**3636**	**42%**

Table of cross-tabulation of preceding-3 consonants for (N), using a light orange background for obstruents and white background for sonorants

For Preceding-3 consonants, environment of (N).

➢ The overall finding is that Sonorants favour nasal deletion at 0.58, but it does not show a unified effect and was not statistically significant in the Rbrul run in 4.6.3.

➢ Of the 24 coding categories in which data occur, 17 are coded as Obstruent and 7 as Sonorant.

➢ Sonorants: only 3 of 7 categories are above the Grand Mean (=42%) as expected; 3 are below, sometimes considerably, and one is at the mean. This is not a unified category.

➢ Obstruents: 8 of 17 categories are below the mean as expected, 3 are at the mean, and 6 above. This is not a unified category.

➢ This is a poor result, not demonstrating that either obstruents act in a unified manner, or that sonorants do so. No wonder then that it is not a significant effect in modelling variation.

Preceding 2 (Consonants)

	(N) Variants					
Preceding-2	**ø**	**ŋ**	**m**	**n**	**Token (N)**	**%**
2	3	36	11	6	56	05%
3	22	30	55	26	133	17%
6	10	6	6	5	27	37%
7	5	3	2	1	11	45%
8	15	12	30	34	91	16%
9	5	27	35	13	80	06%
a	131	23	48	36	238	55%
B	10	3	54	18	85	12%
c	47	44	98	122	311	15%
d	172	57	26	58	313	55%
g	39	27	15	22	103	38%
H	39	6	6	7	58	67%
K	69	35	14	13	131	53%
l	30	54	62	56	202	15%
m	28	42	11	27	108	26%
n	276	10	55	1	342	81%
p	31	1	12	54	98	32%
R	320	61	67	5	453	71%
s	57	30	99	7	193	30%
T	81	68	70	70	289	28%
V	3	0	1	0	4	75%
W	22	38	10	0	70	31%
y	89	9	0	9	107	83%
Z	26	46	47	14	133	20%
Grand Total	**1530**	**668**	**834**	**604**	**3636**	**42%**

Table of cross-tabulation of preceding-2 consonants for (N), using a light orange background for obstruents and white background for sonorants

For Preceding-2 consonants, environment of (N):
➢ The overall finding is that Sonorants favour nasal deletion at 0.56 (overall mean= 42%). Of the 24 coding categories for which data occur, 15 are coded as Obstruent and 9 as Sonorant.
➢ Sonorants: 5 of 9 categories are above the mean as expected; 4 are below, sometimes considerably. This is not a unified category.
➢ Obstruents: 11 of 15 categories are below the mean as expected, and only 4 above. This is a good overall result for Preceding-2; but not as clear as Following segment.

Following segment (Consonant)

Following Segment	ø	ŋ	m	n	Token (N)	%
			(N) Variants			
2	18	4	2	6	30	6%
3	11	3	12	4	30	37%
6	9	6	13	6	34	26%
7	6	2	1	3	12	5%
8	17	8	10	33	68	25%
9	27	5	27	5	64	42%
a	131	20	28	25	204	64%
b	86	48	54	31	219	39%
c	97	17	130	68	312	31%
d	142	112	145	84	483	29%
g	109	81	43	51	284	38%
h	25	3	5	6	39	64%
k	31	102	30	28	191	16%
l	159	63	48	40	310	51%
m	156	16	45	25	242	64%
n	100	17	46	27	190	53%
p	46	53	50	57	206	22%
R	50	10	23	7	90	56%
S	57	21	41	16	135	42%
T	69	35	40	47	191	36%
w	7	6		2	15	47%
y	116	18	16	8	158	73%
z	61	18	25	25	129	47%
Grand Total	**1530**	**668**	**834**	**604**	**3636**	**42%**

Table of cross-tabulation of following segment for (N), using a light orange background for obstruents and white background for sonorants

For Following Segment consonants, environment of (N):
➢ The overall finding is that Sonorants favour nasal deletion at 0.59 (overall mean= 42%). Of the 23 coding categories for which data occur, 16 are coded as Obstruent and 7 as Sonorant.

➢ As a group, sonorants favour deletion; one environment was right at the mean (42%) and the other 6 were all above it. They behave as a coherent category.

➢ Obstruents are a bit more diverse but also generally pattern as a group: 12 of 16 categories are below the mean as expected, one at the mean, and only 3 above.

➢ It can be concluded that the individual components of the categories Sonorant/ Obstruent do pattern together coherently for Following Environment.

Preceding-1 (vowels)

(N) Variants						
Preceding-1	**ø**	**ŋ**	**m**	**n**	**Token (N)**	**%**
i	168	97	220	201	686	24%
u	127	93	132	103	455	28%
e	58	15	58	47	178	33%
o	243	205	114	110	672	36%
ʌ	934	258	310	143	1645	57%
Grand Total	**1530**	**668**	**834**	**604**	**3636**	**42%**

Table of cross-tabulation of preceding-1 (vowels) for (N) variable

For immediately Preceding-1 (vowels), environment of (N):

It can be seen that the % distribution matches the Rbrul result in 4.6.3; /ʌ/ is highly favouring to deletion and contains 45% of the data. There is no clear effect of front/back, but lower vowels favour deletion over higher ones.

Appendix 13: Cross-tabulation for (R) by Phonetic Context

This appendix reports details of preceding and following phonetic context in the following order. First it reports the consonantal context, for which division and grouping into sonorants and obstruents was made in the Rbrul analysis. This allows one to see whether that grouping was justified. The order of reporting is: Preceding-3, Preceding-2, Following Segment (all consonants). Lastly, the details of Preceding-1 environment are reported; however, recall that these are always vowels, and hence do not lend themselves to interpretation using the categories of sonorant and obstruent.

Preceding-3 (Consonants)

(R) Variants					
Preceding-3	Null-ø	Flap	Trill	Token (N)	%
2	1		1	2	50%
3	12	2	0	14	86%
5	8	4	2	14	57%
6	6	1	4	11	55%
7	18	0	0	18	100%
8	35	12	41	88	40%
9	7	4	5	16	44%
A	31	12	30	73	42%
B	67	7	12	86	78%
C	176	15	38	229	77%
D	166	16	63	245	68%
G	67	7	39	113	59%
H	4	0	1	5	80%
Y	0	0	5	5	0%
K	53	10	65	128	41%
L	162	18	76	256	63%
M	74	13	66	153	48%
N	70	14	41	125	56%
P	56	8	38	102	55%
R	48	9	35	92	52%
S	42	5	12	59	71%
T	101	12	51	164	62%
W	5	0	0	5	100%
Y	83	9	23	115	72%
Z	40	5	33	78	51%
Grand Total	**1332**	**183**	**681**	**2196**	**61%**

Table of cross-tabulation of preceding-3, using a light orange background for obstruents and white background for sonorants

For Preceding-3 consonants, environment of (R):
➢ It was never significant in Rbrul analysis.
➢ Sonorants disfavour deletion.
➢ 6 of 9 sonorant categories are below the mean 61% and one is very near it, with only two notably above the mean.
➢ Obstruentsdo not make a coherent pattern: 8 of 16, or exactly half the categories, unexpectedly are below the mean, and 8 are above. Much of the obstruent data is in 3 highly favouring categories ("c, d, t" contain 638 of 2,196 tokens, or 29%), making it appear that obstruents favour deletion.

Preceding-2 (Consonants)

(R) Variants					
Preceding-2	Null-ø	Flap	Trill	Token (N)	%
3	1	0	0	1	100%
5	2	2	1	5	40%
6	0	0	2	2	0%
7	1	0	1	2	50%
8	81	0	2	83	98%
9	0	1	2	3	0%
A	14	0	0	14	100%
B	16	3	8	27	59%
C	7	2	4	13	54%
D	47	5	24	76	62%
G	32	7	28	67	48%
H	1	1	0	2	50%
K	285	75	282	642	44%
L	5	0	3	8	63%
M	132	8	59	199	66%
N	13	0	6	19	68%
P	220	10	47	277	79%
Q	0	2	0	2	0%
R	1	1	6	8	13%
S	141	29	101	271	52%
T	25	8	47	80	31%
W	28	2	2	32	88%
Y	94	10	14	118	80%
Z	186	17	42	245	76%
Grand Total	**1332**	**183**	**681**	**2196**	**61%**

Table of cross-tabulation of preceding-2, using a light orange background for obstruents and white background for sonorants

For preceding-2 consonants, environment of (R):
➢ There is no strong effect for either obstruents or sonorants, though sonorants appear to have some favouring effect on deletion.
➢ As a predictor, it was ***not statistically significant***.
➢ Only 3 categories of ***sonorants*** with very little data (5, 9, R) are below the mean 61%; the remaining 5 categories (which contain 95% of sonorant data) are above it.
➢ For ***obstruents***, 5 coding categories have only 1 or 2 tokens so cannot be reported; of the rest five are above the mean, and six are below it. Most of the obstruent data are in 4 categories (K, P, s, z), but 2 of those favour deletions (P, z) and 2 disfavours (K, s). In other words, there is no clear effect for either obstruents or sonorants.

Following Segment (Consonants)

	(R) Variants				%
Following Segment	**Null-ø**	**Flap**	**Trill**	**Token (N)**	
2	9	1	3	13	69%
3	28	1	1	30	93%
5	3	0	2	5	60%
6	4	0	1	5	80%
7	4	0	1	5	80%
8	23	1	8	32	72%
9	9	3	1	13	69%
A	58	1	10	69	84%
B	68	4	20	92	74%
C	80	10	69	159	50%
D	152	23	63	238	64%
E	0	0	1	1	0%
G	125	28	114	267	47%
H	22	1	4	27	81%
K	63	3	23	89	71%
L	160	12	31	203	79%
M	77	23	105	205	38%
N	54	18	38	110	49%
P	40	11	34	85	47%
R	41	5	3	49	84%
S	76	6	10	92	83%
T	88	16	84	188	47%
W	21	2	4	27	78%
Y	44	1	3	48	92%
Z	83	13	48	144	58%
Grand Total	**1332**	**183**	**681**	**2196**	**61%**

Table of cross-tabulation of following segments, using a light orange background for obstruents and white background for sonorants

For following segment environment of (R), which was the least significant factor in Rbrul:
➢ Following obstruents favour deletion.
➢ Obstruents however do not form a coherent pattern but are bimodal: a few categories with many tokens ("C, g, p, t, z" contain 843 of 2,196 tokens, or 38%) have values below the mean as expected, but of the other obstruent coding categories, 11 out of 16 have values unexpectedly above the mean.
➢ The sonorants are also not a highly coherent category.5 of 9 coding categories are well above the mean 61%;one is at 60%; one category has too little data to comment on ("E", 1 token), but two of them ("m", "n", which represent a fair number of tokens) are below the mean, going against the pattern.
➢ Thus, sonorants slightly disfavour deletion, but obstruents have no unified effect, and this is why the significance is very low.

Preceding-1 (vowels)

(R) Variants					
Preceding-1 (vowels)	**Null-ø**	**Flap**	**Trill**	**Token (N)**	**%**
I	9		2	11	80%
e	199	16	40	255	78%
u	59	13	28	100	59%
o	118	44	162	324	36%
ʌ	947	110	449	1506	63%
Grand Total	**1332**	**183**	**681**	**2196**	**61%**

Table of cross-tabulation of preceding-1(vowels) for (R) variable

For Preceding-1 (vowels), in the environment of (R):
➢ Front vowels favour deletion. Model II in Table 5.6 shows "i, e" favouring deletion and "u, o, ʌ" disfavouring.
➢ However, note that the /ʌ/ vowel constitutes two-thirds of the data (68.6%), and that the 63% deletion results we see here do not match the Rbrul low log-odds of -0.653): /ʌ/ is low in the latter, disfavouringdeletion, but above the mean 61% in percentages. There is evidently interaction here, but it is not within the scope of this thesis to explore it in detail given the data distribution.

Appendix 14: Cross-tabulation of gender and educational level against rhotics

Education Level	Gender		Application value: Ø
	Female	**Male**	**Total-N**
Elementary	60%	61%	305
Primary	61%	60%	732
Secondary	68%	56%	305
Degree	59%	57%	854
Total			2196

Table of cross-tabulation between gender and edicational evel against rhtocics (R)