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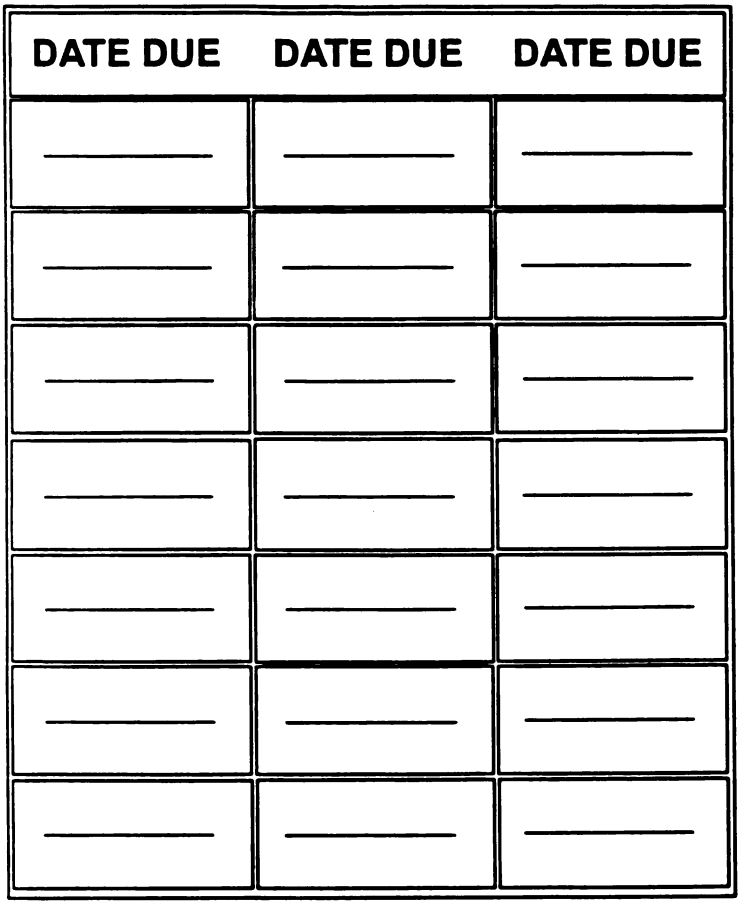

A STUDY OF THE VARIABLE /t/ IN THE ENGLISH DIALECT OF INDIAN IMMIGRANTS IN THE UNITED STATES

By

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ABSTRACT

A Study of the Variable /t/ in the English Dialect of Indian Immigrants in the United States

By

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This research concerns the variation and sound change from Indian English to American English of the sociolinguistic variable /t/ in first generation Indian immigrant speakers in the United States. Due to the underlying features of L1 (native language) of Indians, Indian English /t/ consists of [ṭ] with varying degrees of retroflexion; standard American English uses [t] among other allophones.

One male American, one female American, one male Indian, and a female Indian, interviewed and recorded speech samples from 24 subjects, 12 male and 12 female. As first used in Labov (1966), informal interviews elicited informal speech and a phrase list elicited formal speech.

The 3840 occurrences of /t/ studied consisted of two sociolinguistic variants - a high-prestige norm [t], and a low-prestige norm [ṭ]. Correlation of /t/ with subjects' period of residence in the U.S., accommodation to interlocutors' speech, subjects' gender, interlocutors' gender, and speakers' attitudes were significant ($p \leq .05$).

To my teacher

Prof. Julia S. Falk

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CHAPTER 1

INTRODUCTION

This research is concerned primarily with phonological variation and change in the English dialect spoken by first generation Indian immigrants in the United States. This dialect is acquired as a second language by that population. The research reported here is limited to the study of the particular phoneme /t/ in the English dialect of those immigrants, which has been noted to show interesting variation due to the posssible influence of certain sociological factors. These sociological factors, discussed in 2.3.2, are commonly acknowledged in the field of sociolinguistics to affect the state of a language or a dialect, so as to bring about variation in the speech patterns of individuals that ultimately leads to change in the language or dialect over time.

Let us consider the attention given to dialectal variation in sociolinguistic research. Scotton (1985) has this to say about the beginning of research on dialectal variation.

> . . . dialectal variation for motivations other than region of origin has been a subject for systematic study only since the 1960's [its main aim being] the correlation between linguistic variation and social group membership and its role in explaining the mechanisms and rationale of language change. (106)

Scotton (1985) further explains the theoretical bias that encouraged the study of dialectal variation in the following –

> Within any language, dialects are the linguistic reflection

> of the more static features affecting linguistic choices. . . . these are features identifying speakers as members of specific speech communities. For example, dialects are indexical of the speaker's home ties and socioeconomic class memberships. That the bulk of linguistic variation can be accounted for by such static features has been the dominant premise within sociolinguistic theory (eg. Labov 1972; Fishman 1972). (107)

Labov (1972:160) mentions two important studies conducted in Martha's Vineyard (Labov:1972b) and New York City (Labov:1966) which discovered regular relations between parameters such as stylistic variation and class stratification in the study of linguistic variables due to dialectal variation within a community. Labov (1972:160) asserts that "the most general issues that have been raised so far concern the explanation of linguistic change" or more specifically, sound change. Further, under 'A Strategy for the Study of Linguistic Changes in Progress' the discussion leads to 'the transition problem' for which a solution is proposed, which is to find "the route by which one stage of a linguistic change has evolved from an earlier stage" (161).

In studying certain phonetic variants of /t/ in the English spoken by first generation Indian immigrants in the United States, the ultimate aim of this study is to trace if possible the different stages of sound change in process of that variable /t/ in the dialect of that population of immigrants. Hence, there is the need for a crossectional study of the population of Indians who have acquired English formally as a second language in India, and continue to use it in the United States.

CHAPTER 2

BACKGROUND

2.1 INTRODUCTION

The main body of this chapter is composed of three major sections namely, 2.2, 2.3, and 2.4. Section 2.2 is further divided into two sections. Subsection 2.2.1 is a general description of the English language as it is used in India today. Subsection 2.2.2 deals particularly with characteristics of the phoneme /t/ in the English dialect spoken by Indian immigrants in the United States. Section 2.3 is an outline of previous research on similar and related topics. It redefines some fundamental concepts in sociolinguistic theory in 2.3.1. Subsection 2.3.2 explains the rationale for the selection of the sociological parameters that concern this research. Section 2.4 is comprised of three subsections. 2.4.1 is a description of a pilot study conducted in 1987 as part of a research report for a sociolinguistics course. Subsection 2.4.2 discusses the goals of this study and suggests ways in which to improve on the pilot study. Lastly, subsection 2.4.3 consists of the statement of the hypotheses for this research.

2.2.1 INDIAN ENGLISH

Kachru (1988) considers the current sociolinguistic profile of English in the world in terms of three concentric circles, namely, the inner circle, the outer circle, and the expanding circle. The inner circle represents regions that are "the traditional, cultural and linguistic bases of English" (1) - for instance, the United States and the United

Kingdom. The expanding circle represents those regions where active varieties of English are restricted in their use to "foreign language contexts" and do not have official status, - for example, China and Israel. Further, Kachru (1988) describes the outer circle as representing,

> . . . the institutionalized non-native varieties of English spoken in regions that have passed through extended periods of colonization. In these countries, English may be an official language used in educational, commercial and trade institutions, but is generally not the native language of the citizens. (1)

The Indian English dialect belongs to the outer circle.

2.2.1.1 SUBVARIETIES OF INDIAN ENGLISH

According to Kachru (1983),

> . . . there is a cline [or gradient] of Englishes in India ranging from educated (or standard) Indian English to varieties such as Babu[1] English, Butler English, Bearer English, and Kitchen English. (70)

Kachru (1983:70) quotes from Quirk et al. which is an apt assessment of the state of English in India among other countries of the outer circle.

> . . . we find an even spectrum of kinds of English, which extends from those most like Pidgin to those most like Standard English, with imperceptible gradations the whole way along. (1972:49)

The following statement by Kachru regarding the varieties of English in India is appropriate here :

> At one end of the spectrum we have educated English and at the other end we have Kitchen English. Other varieties such as Babu English, appear at various points on the spectrum. (1983:70)

For the purpose of this study, only speakers of Standard Indian English have been considered. Henceforth in the current study, all references to the Indian English dialect are to Standard Indian English.

2.2.1.2 THE SIGNIFICANCE OF ENGLISH IN INDIA

The following information is available in Kachru (1983) which argues for the relative significance of Standard Indian English within India in comparison with other major Indian languages.

Although only 3% (roughly 17 million out of 566.66 million)[2] of the Indian population are users of the Standard Indian English variety, when compared with the percentage of speakers of some other major official Indian languages such as Kashmiri, Assamese, Sindhi, and Sanskrit[3], this percentage is relatively high. English along with Hindi is used as the official language of the Union. Among educated Indians, English is used as the lingua franca by Indians to communicate with those Indians who are native speakers of other Indian languages and, therefore, have no other common language. In addition, English is used as the official language in two states of North Eastern India, Meghalaya and Nagaland.

The medium of higher learning in most universities in India is English. English is taught at various levels of education in all thirty one states and union territories[4] of India.

Finally, regarding the role of English in the Indian press, Kachru (1983) affirms that the statistics of the 23rd Annual Report of the

Registrar of Newspapers of India (1979) show that, "the impact of English is not only continuing but increasing" (71). Out of the total of 151,814 newspapers registered in India in 1978, 3085 (19.5%) were in English. This percentage was second only to Hindi newspapers which constituted 4196 (26.5%) of the publications. Also, while Hindi newspapers had the highest percentage of circulation (23.8%), English newspapers ranked next, their circulation being 22%. 53% of the total number of periodicals published by the Union Government were in English, while only 16% were in Hindi.

2.2.1.3 CHARACTERISTICS OF INDIAN ENGLISH RELEVANT TO THIS STUDY

According to the 1961 Census of India,[5] Indo-Aryan and Dravidian are the two major language families; 87% of the Indian population is divided in the ratio of 3:1, respectively, as native speakers of languages belonging to these two language groups. Languages of these two families, which are spoken not only in India but in other countries of South Asia, share a common phonological characteristic: the retroflexion of stops. Thus, we find for instance, extensive usage of [ṭ] and [ḍ] in languages which are either Indo-Aryan or Dravidian.

Kachru (1983) refers to certain generalizations that apply to South Asian varieties of English (SAE), their basis being, solely, "the underlying features of the languages of the region" (27). In the phonetics of SAE inclusive of Indian English, transfer or substitution of certain L_2 (English) elements by L_1 (native language) elements occurs. One exemplar of this substitution which is particularly relevant is the substitution of the entire alveolar series of L_2 by the retroflex series of L_1. This results in the substitution in Indian English of the phonetic

elements of /t/ by [t̪] in words such as, for example 'particular', 'potential', etc.[6] While American or British English varieties use [t] among other allophones, Indian English uses [t̪] with varying degrees of retroflexion. The degree of retroflexion may vary from region to region based on the native language of that region, and from person to person based on the idiolect of that individual. The degree of retroflexion may also vary depending on the phonetic environment of /t/: for instance, [t̪] in the Indian English word 'little' [lit̪ɪl] will have a lesser degree of retroflexion than the word 'pot' [pɔt̪] because, the preceding vowel [i] in 'little' is a front vowel whereas [ɔ] in 'pot' is pronounced further back in the mouth. Here the preceding vowel progressively decreases or increases the degree of retroflexion in each case of the following [t̪].

Retroflexion, among several other phonological features, distinguishes Indian English and other South Asian varieties from other English dialects such as the Standard dialects of America, Britain, and Australia. Hence, retroflex [t̪] can be considered as a marker of 'social identity' for the speakers of Indian English. Also, this particular standard variety of Indian English is the prestige dialect for those speakers of Indian English living in India. The existence of this phenomenon in the phonetics of SAE and thereby in Indian English is the critical criterion for the selection of /t/ as the dependent variable in this study.

2.2.2 /t/ IN THE ENGLISH OF INDIAN IMMIGRANTS IN THE UNITED STATES

Zwicky (1981) discusses the rationale for the transition within a particular speaker from one dialect to another –

> We grow up speaking the dialect of the region we live in and

> the social group we live among. If we decide for some reason to get rid of our native dialect - perhaps because its ... too unlike the way our friends speak - we can ... replace it by another dialect. (64)

On immigrating to the United States, at the very least there occurs in the speakers of Indian English a transition in the perception of 'the standard set of norms' from Standard Indian English to Standard American English.[7] Assuming the above, various gradual sound changes in the phonetics of English of those speakers may be predicted to follow. The sound change, if any, is an observable linguistic behavior facilitated by the unobservable personal/social motivation to assimilate to the new dialectal environment. A minute part of this slow change may be reflected in the speech of Indian English speaking immigrants in the sound change in process from Indian English [ṭ] to the American English [t] and other allophones of the American English /t/.

Thus, at any given time, the speech of Indian English speakers in the United States can be assumed to consist of [ṭ] as well as [t] in parallel distribution. The degree of occurrence of either one of these free variants within individual speakers may vary depending on time-related, sociological, and/or socio-psychological factors such as period of residence in the United States and thereby relative exposure to the new dialect; gender of the speaker; gender of the interlocutor (interviewer); ethnicity of the interlocutor; and speakers' attitude towards the new social setting and its dialect, reflected in their attitude towards American culture, its people, and its lifestyle.

According to Hawkins (1984:25), if the phonetic variation (as is predicted in this case) occurs within individual speakers, the language

situation requires closer scrutiny. According to Zwicky (1981) -

> Most of us make our style shifts largely within the bounds of our native dialect, but some people become 'bidialectal'. They speak a standard dialect at work or with strangers, but a regionally or socially marked dialect among friends and "homefolks". A bidialectal person can usually choose from a range of styles within each dialect, but he can also change his style by switching from one dialect to another. (64)

Hence, it is possible that the variation within individual speakers is a result of true bidialectalism. It is also possible as a result of change in the 'standard norm' from Standard Indian English to Standard American English that alveolar [t], along with other allophones of American English /t/, becomes a 'prestige norm'. The speaker uses [t] in 'highly self-monitored' (formal) speech, whereas the retroflex Indian English [ṭ] is used under conditions where 'self-monitoring' does not occur or occurs minimally, as in casual speech.

Labov (1972) refers to Sturtevant (1947: 74-84) which pertains to the status of two phonemic variants before one overpowers the other during the course of diachronic change.

> Before a phoneme can spread from word to word . . . it is necessary that one of the two rivals shall acquire some sort of prestige. (3)

This statement is applicable to phonetic variants as well. However, an objective data-based crossectional study of the population of Indian immigrants is warranted in order to substantiate the above predictions about /t/ in the English spoken by Indian immigrants in the United States.

2.3 STUDIES RELEVANT TO THE CURRENT STUDY

2.3.1 SOME GENERAL CONCEPTS

Since the focus of this study is the 'variable' /t/ and its phonetic variants [t] and [t̪] which are 'linguistic norms' in the English spoken by Indian immigrants, it would be appropriate at this time to consider what is meant by the terms 'a linguistic norm', 'a linguistic variable', and ultimately, 'a sociolinguistic variable'. Wald and Shopen (1981) discusses the above terms in considerable detail. "A linguistic norm is any linguistic feature that occurs regularly in the speech of more than one speaker in a community" (223). Accordingly, a standard norm is any linguistic norm that is accepted and used as the standard by more than one speaker in a community.

> A linguistic variable is any linguistic unit realized by more than one norm. The test for a variable is that one norm can be substituted for another without any change in meaning. . . . (1981:224)

The above test makes it more feasible to select phonological variables for study, as they lack referential meaning unlike lexical and syntactic variables. Lavendera (1978) discusses this methodological advantage of choosing phonological variables for study in sociolinguistic research in addition to the fact that the quantification of phonological variables is easier when the frequency of a variable is considered as an important factor in linguistic analysis.

Both Lavendera (1978) and Wald and Shopen (1981) discuss the importance of 'same referential meaning' in identifying a linguistic

variable and, therefore, the methodological advantage of selecting phonological variables so that the results of the study are clear-cut and not confounded. For instance, in the nasal phonetic variants [en~in] and [iŋ] in 'laughing' there is no change in the referential meaning of the word. Lavendera (1978) considers Labov (1966) as being superior to previous sociolinguistic research on Language Variation and Sound Change, due to the successful isolation of cases of free variation on the basis of similarity in referential meaning, or rather lack of it, of the variants of the variable. Wald and Shopen (1981) defines a sociolinguistic variable as -

> . . . a linguistic variable sensitive to social context. . . . we have a sociolinguistic variable when some feature of a social group or a social situation allows us to predict which norms will be used from a variable. . . . characteristics of speakers and listeners, and situations and topics, as well as historical factors that might explain changes in linguistic standards (norms), . . . [are used to explain language behavior]. (227)

Lavendera (1978: 176-177) refers to Labov (1966) which defines a sociolinguistic variable based on the following criteria.

a. items which are high in frequency and can be easily quantified on a linear scale;

b. items which are integral units of larger structures and are immune to conscious suppression; and

c. in general a sociolinguistic variable must be socially stratifiable within the community "should suggest an assymetric distribution over a wide range of . . . ordered strata of society" (Labov 1972:8).

/t/, the linguistic variable discussed in section 2.2.2, was selected based on the above criteria and thereby may be defined as a sociolinguistic variable. Additional substantiation of the definition can only be provided by an empirical study. If the phonetic variants are components of a linguistic variable, a sociolinguistic variable must consist of at least two phonetic variants which are themselves sensitive to social context and, therefore, reliable indicators of sociolinguistic phenomena. Thus, a phonetic variant of a sociolinguistic variable can be considered as a sociolinguistic variant of that variable if it fulfills the same criteria as a sociolinguistic variable in terms of frequency, stratifiability, and quantifiability.

2.3.2 SELECTION OF SOCIOLOGICAL PARAMETERS

2.3.2.1 SPEAKERS' ATTITUDES TO THE NEW SOCIO-CULTURAL ENVIRONMENT

Let us consider firstly speakers' attitudes toward the environment, its people, its culture, its lifestyle, and its role, either (a) in the transition - the sound change in process from Indian English to American English, or (b) in the effort by Indian immigrants to become truly bidialectal (acquire the American English Dialect while retaining the Indian English variety). Two studies in particular are pertinent.

Labov (1972:1-42) explains the pattern of occurrence of the centralized diphthongs [aw] and [ay] in the speech of the population of Martha's Vineyard, an island off the coast of Boston, in the following manner. The centralized diphthongs are markers of social identity. The frequency of their occurrence is higher in the speech of those natives

of Martha's Vineyard who are hostile toward mainland Bostonians, "the summer people" who come as tourists and buy property on the island that has belonged to the island's settlers for centuries. In contrast, those who are not hostile to mainland Bostonians and those who intend to leave the island for jobs on the mainland have a lower frequency of centralized diphthongs in their English dialect.

Falk (1979) discusses the following concepts in Gardner and Lambert (1972); 'integrative motivation' as opposed to 'instrumental motivation' is an important prerequisite for adults to successfully master a foreign language.

> Integratively motivated learners study a language because of an intense, personal desire to become familiar with, or even part of, the society in which the language is used; there are strong attachment and positive feelings toward the people and the culture represented by the language. Instrumental motivation on the other hand is more utilitarian. . . . Integrative motivation almost invariably leads to greater success in foreign language learning than does instrumental motivation. (445)

Extending the concepts of integrative motivation and instrumental motivation to foreign dialect acquisition, and applying the rationale used in Labov (1972) and Falk (1979), one may presume that Indian immigrants in the United States who possess integrative motivation and, thereby, a positive attitude to native Americans and their sociocultural environment will acquire American English to a greater extent. Conversely, those who have a negative attitude or possess only instrumental motivation, will either not acquire American English or acquire

it to a minimal extent. This can be observed directly in the greater frequency of one or the other of the corresponding phonetic variants under consideration. Hence, the experimental design must include a method by which to quantify speakers' attitude as either positive or negative.

2.3.2.2. PERIOD OF RESIDENCE IN THE UNITED STATES

Closely related to attitudes towards speakers of a particular dialect is the matter of the speakers' attitude to the dialect spoken. Speakers are known to have 'opinions' and 'feelings' about their own or other's dialects. Fasold (1984) mentions Bailey (1973) which states an important factor that facilitates sound change. -

> The course of sound change is apparently influenced by whether the change is favored or disfavored by the speech community. (148)

Therefore, language (dialect) attitudes and the period of residence of informants in the United States must be considered as two related factors contributing to sound change, if any. A sound change may occur over a period of time in the speech of Indian immigrants from Indian English to American English, utilized minimally, for the purpose of crosscultural communication.

According to Giles (1979) mentioned in Bourhis (1984) -

> More often than not, it is the high-prestige language of the dominant group that is deemed most appropriate for cross-cultural communication. (35)

Within the minority speech community of Indians in the United States, the sound change is favored as the American English phonetic

variant [t] is the prestige-norm and therefore, the 'favored norm'. Studies on dialect attitude research have shown that the standard variety used by the dominant group is considered the high prestige dialect even by those speakers who strongly identify with the nonstandard regional variety. Fasold (1984:158) mentions (a) d 'Anglejan and Tucker (1973:22) -

> ... attitude research involving European French and two varieties of Canadian French in Quebec, found that the European French speaker was rated not only more intelligent and better educated, but more likeable than the Canadian French speaker [based on the respective dialects they spoke].

(b) Carranza and Ryan (1975:99) show that both Anglo and Mexican Americans rated English higher than Spanish on status scales and on solidarity scales. In addition, the sound change from 'Indian' to 'American' is favored by the American society in which the immigrants are a minority community. Thus, the sound change must take place in that favored direction.

A crossectional study of the population can be used to test this hypothesis by considering the period of residence of each subject in the United States. In other words a relative increase in the length of time in the United States of a subject can be shown to affect a sound change in speech, reflected in the greater frequency of the American English phonetic variant [t] and, correspondingly, a lower frequency of the Indian English phonetic variant [t̪]. Allowing for length of time, during which the sound change is likely to occur in the speech of those who are the minority group, the extent of occurrence of either of the two variants depends mainly on which one of the following psychological

factors dominates within each subject: the need to use the prestige norm or the need to identify with the regionally acquired non-prestige norm. This may be studied only by correlating /t/ with the independent variable period of residence in the United States.

2.3.2.3 ACCOMMODATION TO INTERLOCUTORS

Dialect choices, in addition to reflecting the language attitudes of speakers, can, as mentioned earlier, "also reflect speakers' like or dislike of their interlocutors as individuals or as group members" (Bourhis 1984:35). A positive attitude towards interlocutors is often reflected when speakers adapt or 'accommodate' their speech toward their interlocutors. Bourhis (1984) refers to several studies confirming the above phenomenon of 'interpersonal accommodation' -

> Instances in which speakers tend to adopt the speech patterns of their interlocutors have been shown to occur at various linguistic levels including speech rate, vocal intensity, speech silences, regional accents, and language switches (Giles and Powesland 1975). Such switches, known as speech convergence, not only can allow for efficient communication but may also reflect speakers' conscious or unconscious need for social integration with their interlocutor (Giles 1979). (34)

Interpersonal accommodation may occur in speakers of Indian English in the United States due to the "need for social integration" within the American society. The occurrence of this phenomenon may be indicated in the greater usage of the American English variant [t] when the interlocutor is a native American, and a greater usage of the

Indian English variant [t̪] when the interlocutor is another Indian immigrant. Ainsworth (1974:114) refers to Ervin-Tripp (1964a) which finds Japanese-American subjects showing greater interference from Japanese when speaking English to a Japanese test administrator than when speaking English to an American test administrator.

Thus, the experimental design requires the choice of American as well as Indian interviewers as interlocutors. The data gathered, consisting of speech exchanges between Indian subjects and Indian interlocutor verses Indian subjects and American interlocutor, could be considered as comparable parameters of the independent variable - accommodation.

2.3.2.4 GENDER OF SUBJECTS

Trudgill (1974), on gender differences affecting language use, affirms on the basis of previous studies carried out in Britain and America, that

> . . . allowing for other factors such as social class, ethnic group, and age, women consistently use forms which more closely approach those of the standard variety or the prestige accent than those used by men. (85)

Thus, variables may be correlated with the sex of speakers to illustrate sex differences in speech patterns. By balancing the data equally for gender it would, therefore, be possible to logically verify the above theory in the English dialect of Indians in the United States. On the basis of the above claim, the tendency in the use of the phonetic variants of /t/ by each sex is predictible. Sex differences, if any, are substantiated by the greater or lesser frequency of one or the other

norm by either sex.

2.3.2.5 GENDER OF INTERLOCUTORS

Sex differences in speech, in addition to sex of the subject (speaker) may be studied with the parameter of sex of the interviewer (interlocutor) and its effect on the speech of subjects of both sexes. Wolfson (1976) has pointed out that sex of the interviewer may affect the verbal behavior of the informant (speaker) (208). Thus, the experimental design contains interlocutors of both sexes.

2.3.2.6 SUBJECT-INTERVIEWER GENDER INTERACTION

Ainsworth (1974) raises the issue in an experiment which uses bilingual (Spanish and English) children:

> ...to control for sex of the administrator... would have been desirable; [but] to introduce four administrators with the appropriate sex-ethnic identity combinations would have greatly complicated the research design. (115)

Therefore, to study subject-interviewer gender interaction, the research design for this study requires the following sex-ethnic identity combinations of interviewers; a male Indian, a female Indian, a male American, and a female American. Studied in this manner, subject-interviewer gender interaction reflects significant differences, if any, in the speech exchanges between subjects and interviewers of the same sex as well as the opposite sex.

2.3.2.7 SUBJECT-INTERVIEWER GENDER AND ETHNICITY INTERACTION

Balancing gender and ethnicity of speakers and interlocutors provides, additionally, comparative parameters subsumed within subject-interviewer gender and ethnicity interaction. The comparison within these parameters could indicate in the occurrence of the variants [t]/[ṭ] the greater or lesser influence, due to the interaction of one of three independent variables, namely, subjects' gender, interlocutors' gender and accommmodation in the speech of subjects resulting from variance in the ethnicity of interviewers. The ethnicity of all speakers (subjects) is Indian and is, therefore, constant.

2.3.2.8 CONTEXTUAL STYLE

Trudgill (1974:100-122) argues, based on studies which discuss linguistic variation and contextual style, that there are two types of situational variation, the difference between them being more one of degree than of kind.

(a) Variation within dialects occurs when situational shifts along the scale of formality produce changes in pronunciation within the limits of a dialect.

(b) Variation between dialects which occurs within the speech of bilinguals. In cases of bidialectal switching according to situation, according to Trudgill (1974:112), "one dialect will occur in formal situations and another in informal situations." The more formal situation demanding the prestige variety is used among strangers while the non-standard regional dialect is used among friends and "homefolks" (Zwicky 1981).

Thus, it may be assumed that speakers of Indian English in the

United States would use the American English [t] in an attempt towards bidialectalism, in formal contexts, while retaining the Indian English norm [ṭ] for use among "homefolks". This assumption can be illustrated by isolating significantly distinct speech styles - formal and informal, and studying the frequency of occurrence of the norms [t] and [ṭ] in those styles in the speech of subjects. This is possible to achieve using Labov's technique for isolating distinct speech styles mentioned in Trudgill (1974:108) and discussed in Labov (1972:70-109). By controlling the degree of self-monitoring, the amount of attention paid to one's own speech at any given time, significantly distinct styles ranging at different levels on a scale of formality/informality may be isolated (refer to 3.3.3 of this thesis for isolation of contextual styles).

In conclusion, the following are the sociological parameters chosen based on previous studies that either suggest or use such variables to study phonological variation: speakers' attitudes to the new socio-cultural environment, period of residence in the United States, accommodation to interlocutors, gender of subjects, gender of interlocutors, subject-interviewer gender interaction, subject-interviewer gender and ethnicity interaction, and contextual style. The effect of these parameters on the verbal behavior of the speakers is discussed in chapter 4 of this thesis.

2.4.1 THE PILOT STUDY

A preliminary study was conducted in May-June 1987 using fifty two adult Indian English (IE) speaking informants residing in and around areas of Lansing and Detroit, Michigan.

The purpose of the study was to examine the distribution of the retroflex [ṭ] in the speech of the informants when correlated with

independent variables such as period of residence, contextual style, and accommodation to American and Indian English speakers. While formal speech was elicited from the subjects by their reading of a word list, informal speech was elicited by asking the informants personal questions during the course of an interview. Both word list readings and answers to personal questions were tape recorded.

The total number of informants was divided into four categories based on the period of residence of each subject in the United States. Despite imperfect balancing (uneven distribution) in the data for subjects' gender and number within these four categories, the study elicited some significant results.

a. The study showed that [t̤] is sensitive to social parameters and therefore is a sociolinguistic variant of the variable /t/. It is a reliable indicator of a slow change in time in the speech of first generation Indian English speaking immigrants, from Indian English to American English.

b. The study indicated, more specifically, a changing standard norm from [t̤] to [t] provided by the inversely proportional relationship between the occurrence of the variant [t̤] and the length of residence in the United States of each informant.

c. Additional substantiation of this change in the standard norm was given by the presence of a greater frequency of [t̤] in informal speech and a relatively lower frequency of [t] in formal speech. The American English variant [t], being the 'prestige norm', occured more in the formal speech style.

d. The study also suggested the speaker's need to integrate within the new society, reflected in the English of a majority of IE speakers

Table 1.1 : Percentage of occurrence of [ṭ]

CATE-GORY	TIME OF RESIDENCE IN THE U.S (in yrs.)	INDIAN INTERVIEWER (1 FEMALE)		AMERICAN INTERVIEWER (2 FEMALES)	
		INFORMAL	FORMAL	INFORMAL	FORMAL
1	0 - 2	69.30	64.30	53.50	50.00
2	2 - 5	55.00	52.80	52.80	46.40
3	5 - 10	46.25	41.25	50.80	44.10
4	10 & ABOVE	26.25	21.90	10.00	9.00

Table 1.2 : Accommodation, Contextual Style and [ṭ]

SPEECH STYLE	INTERVIEWER B (INDIAN)	INTERVIEWER A (AMERICAN)
INFORMAL (questions)	49.20%	41.78%
FORMAL (word list)	45.06%	37.38%

who accommodated to American English speakers by lowering the occurrence of [t̪] in their speech. When Indians interacted with another Indian, a higher frequency of [t̪] was noted. This was attributed to speakers' attitude towards American culture, its people, etc.; and the relative linguistic security of the informants, resulting from their relative socioeconomic stability in the 'alien' society. Table 1.1 illustrates the results of this study.

e. Finally, the results suggested that accommodation to American English interlocutors was a more influential factor in lowering the occurrence of [t̪] in IE speakers than formal speech context. This is illustrated in the figures in Table 1.2. Formal speech with the Indian English speaking interlocutor (interviewer) produced a higher percentage of [t̪] (45.06%) than informal speech with American English speaking interviewers (42.78%).

Disadvantages of the Pilot Study:

1. The physical setting for data collection was uncontrolled.
2. The data were not balanced for gender within the four categories into which the informants were grouped.
3. The number of informants in each group varied depending on availability. The results were quantified in terms of total percentages.
4. Three female interviewers were used to study accommodation to Indian English speakers verses accommodation to American English speakers (see Table 1.1). Ideally, four interviewers could have been used with the appropriate sex-ethnic combinations.
5. The data for studying accommodation were gathered from different informants. In order to control for personality of subjects, the

same informants would have been desirable.

6. Finally, the word list used to obtain samples of formal speech was too revealing. The specific variable being studied needed to be concealed so as to avoid conscious self-monitoring by the subjects.

Hence, a study controlling the above mentioned factors under more ideal conditions was warranted for examining the variable /t/.

2.4.2 THE GOALS OF THIS STUDY

The principal aim of this study is to examine in detail the socio-linguistic distribution of the variable /t/ in the English dialect of Indian immigrants in the United States. The general goal of the study is to explain the variation and thereby change in /t/ from [t̪] to [t] in the dialect spoken by first generation Indians in the U.S. This variation occurs due to the effect of certain social factors. This in turn results in the sound change which is currently in process in the speech of these speakers, from [t̪] to [t]. The study of variation, therefore, involves determining those factors that motivate speakers to use the opposing phonetic variants of the variable /t/ which are [t] and [t̪].

This study is intended to improve and expand on the preliminary study (2.4.1). To be able to obtain results that are unbiased, the current study contains in its experimental design an equal number of male and female informants. Within a sample of 24 subjects, it is possible to balance the data gathered for number and gender, with 6 subjects in each category - 3 male and 3 female informants. Also, a sample from the population of Indian English speaking informants can be selected in a manner so as to achieve even distribution of subjects within the aforementioned four categories in which the subjects are grouped.

Four interviewers are used in this study with the appropriate sex-ethnic combinations to study accommodation to interlocutors of Indian and American ethnic backgrounds, subject-interviewer gender and subject-interviewer gender and ethnicity interactions. The four interviewers interview all twenty-four subjects. In this manner, any change in the subjects' speech patterns due to accommodation could be noted.

Finally, the questionnaire includes a phrase list instead of the word list used in the pilot study, so that the variable /t/ under consideration could be disguised.

In addition to examining the variable /t/ in the speech of Indian immigrants in the United States in relation to factors such as period of residence of the speaker, accommodation to interlocutor, and contextual style, the current study also correlates /t/ with factors such as gender of subjects (informants), gender of interviewers (interlocutors), speakers' attitudes, subject-interviewer gender interaction, and subject-interviewer gender and ethnicity interaction. The effect of these factors, if any, can be observed in the change in frequency of occurrence, within the speech of informants, of the two opposing phonetic variants [t] and [t̪] of the variable /t/.

2.4.3 HYPOTHESES

The following are the hypotheses which need to be tested concerning the distribution of the variable /t/ and its two phonetic variants [t] and [t̪].

If /t/ is a sociolinguistic variable consisting of two opposing sociolinguistic variants [t̪] and [t] in the English spoken by first generation Indian immigrants in the United States -

a. the frequency of occurrence of [t̤] is inversely proportional to the period of residence in the United States of the informants. Conversely, the frequency of occurrence of [t] is directly proportional to the period of residence of the informants in the United States.

b. [t] is the 'high-prestige norm' in the society in which the informants currently reside. Therefore, due to self-monitoring within one's speech, the frequency of occurrence of [t] is higher in formal speech styles and lower in informal speech styles. As [t̤] is the 'low-prestige norm', the opposite is true for [t̤].

c. Due to accommodation of speakers to their interlocutors' speech, the American English variant [t] occurs more frequently in informants' speech when speaking with an American English speaking interlocutor and less frequently when speaking with an Indian English speaking interlocutor. Inversely, the Indian English variant [t̤] occurs more frequently when speaking with an Indian English speaking interlocutor than when speaking with an American English speaking interlocutor (interviewer).

d. Informants' (subjects') positive attitude towards American society, its people, its culture, and its lifestyle, is reflected in the higher frequency of [t] and a lower frequency of [t̤]. Informants' negative attitude towards American society is reflected in the relatively higher occurrence of the IE variant [t̤] and a lower occurrence of the American English [t].

e. Allowing for other sociological factors, in general, the frequency of [t̤] is higher in the speech of male Indian informants than female Indian informants. Inversely, the frequency of [t] is higher in women's speech than in men's speech.

f. The total percentage of [t̪] is higher in the speech of informants when the interlocutor (interviewer in the experiment) is male than when the interlocutor is female. The inverse is true of [t].

g. Due to interaction of subject-interviewer gender, the percentage of [t̪] decreases in descending order as follows. The subject (S)-interviewer (I) combinations are -

Male S/Male I > Male S/Female I > Female S/Male I > Female S/Female I.

The percentage of [t] increases in the following order of subject (S)- interviewer (I) combinations:

Male S/Male I < Male S/Female I < Female S/Male I < Female S/Female I.

h. Due to subject-interviewer gender and ethnicity interactions, the percentage of [t̪] decreases in the following descending order of subject(S)-interviewer(I) gender and ethnicity cominations:

Male S/Male Indian I > Male S/Male American I > Male S/Female Indian I > Male S/Female American I > Female S/Male Indian I > Female S/Male American I > Female S/Female Indian I > Female S/Female American I.

The opposite is true for [t], therefore [t] increases in the following order:

Male S/Male Indian I < Male S/Male American I < Male S/Female Indian I < Male S/Female American I < Female S/Male Indian I < Female S/Male American I < Female S/Female Indian I < Female S/Female Indian I.

NOTES

1. Babu - a pejorative term used by the British in India before 1947 to refer to a westernized Indian.
2. Today, according to the International Institute for Population Sciences, India's population is 800 million.
3. Sanskrit does not have a spoken component used for the purpose of everyday speech yet the Eighth Schedule of the Indian Constitution includes Sanskrit as one of the official languages and as the native language of 2544 speakers.
4. Territories directly governed by the center at New Delhi headed by the President, unlike the states which are headed and governed by the chief minister as the head of state.
5. Due to non-availability of recent census information I use the 1961 census. Kachru (1977) refers to the 1961 census of India.
6. Sahgal and Agnihotri (1988) conclude from their study of fortyfive subjects from a "relatively affluent and smart area of South Delhi" that "retroflexion of alveolar stops is not a pan-Indian feature of Ind E; in fact, educated urban middle class speakers generally use a non-retroflexed variety."

   Non-retroflexion is perhaps a particular feature of the middle class in South Delhi. A comparative study of other urban communities is required to apply this trend to the speech of all urban middle class Indians. If this finding is true in the speech of all urban middle class Indians (the social strata most likely to come to the United States for higher education) it is possible that there is an increase in the use of [ṭ] during the initial period of residence in the United States.

As mentioned in Labov (1972 : 29), phonetic differences become stronger as the group whose speech is experiencing a sound change fights to maintain its identity.

7. This assumption that speakers minimally perceive the difference between [t̤] and [t] was substantiated when subjects were told about the specific intent of the study after the interviews and they agreed that Indians pronounced /t/ differently from the [t] of American English.

CHAPTER 3

METHODOLOGY

3.1 INTRODUCTION

This chapter presents the experimental method and its underlying principles. The discussion includes three major topics in sections, 3.2, 3.3, and 3.4.

Section 3.2 is a detailed description of the subjects (3.2.1) and the interviewers (3.2.2) who participated in the experiment.

Section 3.3 is a discussion of the procedure followed in conducting the experiment. This section has three major subdivisions. Subsection 3.3.1 discusses the data collection which subsumes taping of the data as well as the number of sessions taken to collect the data. In subsection 3.3.2, I describe the major factors that were controlled during data gathering, and the rationale for doing so. Subsection 3.3.3 is a discussion of the principles and the manner in which the relevant data were elicited from the subjects. This subsection discusses the format of the interviews, and the selection of the appropriate speech samples for analysis.

Finally, section 3.4 consists of the analyses of the data , made up of two subsections. Subsection 3.4.1 discusses the distribution of the various phonetic components of /t/ in the data. A more detailed account of [t̪] and [t], the two sociolinguistic variants when correlated with other social parameters and their results, is given in Chapter 4. Subsection 3.4.2 involves a discussion of the statistical tests used to provide additional substantiation for the results of this experiment.

3.2.1 SUBJECTS

Out of the population of first generation Indian immigrants in the United States, 24 subjects, 12 male and 12 female, were selected for this study.

The subjects were chosen based on the following criteria -

a. The subjects possessed a speaking knowledge of English at the time the study was conducted.
b. The subjects were first generation Indian immigrants currently residing in the United States.
c. All subjects had resided in India from the time of their birth until at least eighteen years of age, after which they had immigrated to the United States. Therefore, their first exposure to the English language was the Indian English variety.
d. Consequently, all subjects had acquired English formally, as a second language in India and not in any other country. All subjects were native speakers of Indian languages which belonged to the Indo-Aryan or Dravidian language families only. The subjects were native speakers of one of the following languages - Hindi, Punjabi, Marathi, Oriya, Bengali, Assamese, Gujarati, Tamil, Telugu, or Malayalam.

All subjects currently resided in or around Lansing, Michigan. 18 out of 24 subjects were either students or faculty members at Michigan State University. All students were graduate students. The remaining 6 were permanent residents of the United States.

The pilot study (2.4.1) showed clear differences, in the results obtained, between each of the four groups which were defined based on

the period of residence of each subject in the U.S. Therefore, the same guidelines as in the pilot study were used, to group the 24 subjects according to their respective time of residence in the U.S. The subjects were divided into four categories,

Group A : 0 - 2 years

Group B : 2 - 5 years

Group C : 5 - 10 years, and

Group D : 10 years & above.

6 subjects, 3 male and 3 female, were selected in each of the above groups. An attempt was made to achieve even distribution of subjects within each category and within the entire list for gender and period of residence in the United States. It was possible to attain some degree of even distribution when selecting subjects with respect to period of residence within the above groups A, B, and C. This, however, became increasingly difficult within Group D. The period of residence of subjects in Group D ranged between 11 years 6 months and 35 years with uneven spacing between subjects' period of residence (refer to list of subjects in the appendices).

Considering the limitations in experiments involving human subjects, gender was equally distributed within each category and in the entire list of subjects; 12 male and 12 female informants were equally distributed within the four groups with 3 male and 3 female subjects in each group. However, gender was not evenly distributed within the four categories. By even distribution for gender, I refer to the regular alternation of male and female subjects within each category and throughout the subject list (refer to subject list in the appendices). Whenever possible, however, even distribution of subjects was

achieved.

3.2.2 INTERVIEWERS (INTERLOCUTORS)

Wolfson (1976) has pointed to the fact that sex, age, occupation, attitude and/or dialect of the interviewer may affect verbal behavior of the informant(208). Brouwer, Gerritsen and De Haan (1979), as a conclusion to the study, strongly advocates the significance of the interviewer in sociolinguistic research in the following -

> Sociolinguistics must start from the principle that the selection of the interviewer needs as much attention as the selection of the informants, and . . . both need a similarly detailed description in the research report . . . . (49).

In this study, four interviewers were chosen at first. Later, due to non-availability of the female native American interviewer after the first session, a second female native American was used.

Accommodation to interlocutors (2.3.2.3), subject-interviewer gender interaction (2.3.2.6), and subject interviewer gender and ethnicity interaction (2.3.2.7) were three sociological parameters chosen for this study, due to the possibility that the ethnic group identity, gender of the interviewers, and gender of the subjects may affect the verbal behavior of the subjects. To be able to study the above in detail, interviewers of the following four sex-ethnic identity combinations were selected : one male Indian English speaker, one female Indian English speaker, one male native American English speaker, and one female native American English speaker. This selection of interviewers, therefore, controlled for two major factors, namely, sex and dialect of the interviewers, which could affect the verbal behavior of

the 24 subjects to be interviewed.

Other variables of the interviewer were accounted for, in the following manner.

a. Socio-economic class : This factor was controlled for by selecting all interviewers from the same socio-economic strata of society. All interviewers were either senior undergraduate or graduate students.

b. Affect : The personality factor was not possible to control within the interviewers due to the uniqueness of each individual. However, an attempt to control the attitudes of all the interviewers towards the subjects was made by selecting only those interviewers who had prior interviewing experience and/or relative experience in communicating with ethnic minorities in the United States. Interviewers were either personally acquainted with people from such minority groups or lived among members of these groups. The interviewers lived in student housing at the university, which is largely an international community. Thus, they were not unfamiliar with 'foreigners'. The native American interviewers were noted as having a highly positive attitude towards the subjects, indicated by the enthusiasm they expressed for having the opportunity to interact with people from a different ethnic background. The Indian interviewers also had a highly positive attitude towards the subjects expressed in their desire to meet people of their own ethnic background.

c. Age : The age range of the interviewers was between 23 years and 32 years. No deliberate effort was made to select interviewers of the same age. But an effort was made to select an interviewer whose age was close to that of the others. It was difficult to find interviewers who fulfilled all the above criteria and in addition were available for

a month or more, during which time the data for this study were to be gathered. Hence, among the available interviewers an arbitrary age range was selected which was also representative of the ages of persons who were most willing to be hired on an hourly basis.

Thus, some major variables of the interviewers that could be identified and could possibly affect the subjects' speech patterns were accounted for. The idea was to attain uniformity; that is, if a particular variable of the interviewer could affect the speech of the subjects, by maintaining a certain degree of uniformity within the interviewers, one could predict that the data would be affected in a similar manner. Also, the effect of an unforeseen variable if any, could be nullified within the experiment. However, because factors such as personality cannot be controlled, perfection can never be achieved in an experiment involving human subjects or interviewers.

3.3 PROCEDURE

3.3.1 DATA COLLECTION

The data gathered for the current study consists of a total of 96 interviews with 24 subjects, i.e., four interviews with each subject. All subjects were interviewed by interviewers of all four sex ethnicity combinations, that is, once each by a male Indian English speaker, a female Indian English speaker, a male native American English speaker, and a female native American English speaker, but not necessarily in that order.

The total time taken to interview 24 subjects was approximately 14 hours. The average length of time per interview was 35 minutes.

3.3.1.1 TAPING OF DATA

All data were recorded on tape by the interviewers themselves, with the prior consent of the subjects. The four tape recorders used for this purpose were of different name brands. Therefore, they were utilized in such a manner that no tape recorder was used for the same subject twice. In this way any possible discrepency in the quality of recording of one particular set of interviews was avoided. The tapes used were high frequency 90 minute casettes manufactured by Sony Magnetic Products Inc. (Japan).

3.3.1.2 NUMBER OF SESSIONS

The data were collected during three sessions between 17th June and 28th July 1988 on the Michigan State University campus. Each of these sessions was arranged largely on the basis of availability of the interviewers and subjects at that particular time. The interviews were set up so that every subject was interviewed by the different interviewers in a single session. The first session was for a duration of 8 1/2 hours, the second session for 3 1/2 hours and the final session for 2 hours.

3.3.2 MAJOR FACTORS CONTROLLED IN THE STUDY

3.3.2.1 PHYSICAL SETTING

Four classrooms were assigned for data collection in the Department of Linguistics and Germanic, Slavic, Asian and African Languages, Wells Hall.

Each of the interviewers was assigned a particular classroom. The subjects were directed to the different rooms until each subject had completed all four interviews, so that a subject was interviewed in a room only once. Both male and female subjects were interviewed in the same four rooms. In this way the physical setting was controlled for both male and female subjects.

The furniture in the classrooms was placed in a manner so as to create an informal atmosphere.

Although the rooms were not sound proof, the noise level was minimized by keeping all doors closed during the course of each interview. Also, during the summer no classes were being conducted on the floor in which the classrooms were located. Therefore, the noise level was minimal.

3.3.2.2 GENDER

The possible effect of gender as a factor influencing the verbal behavior of subjects was controlled by considering two aspects, namely, (a) gender of subjects, and (b) gender of interviewers.

(a) The possible effect/s of the gender of subjects, was controlled by selecting an equal number of male and female subjects for the study; 12 female and 12 male subjects. In addition, within the four groups A, B, C, and D, 3 male and 3 female subjects were selected for all four groups (refer to appendices for list of subjects/ gender).

(b) The possible effect/s of the gender of interviewers was accounted for, by choosing 2 males and 2 females as interviewers, each consisting of one American and one Indian interviewer.

3.3.2.3 ORDER OF INTERVIEWS

For the purpose of analysis, the data were divided into four sets of interviews, grouped under each of the four sex-ethnicity combinations of interviewers. For all subjects the four interviews were identical, that is, the format of the questionnaire for each interview was identical so as to maintain a certain uniformity of context for all subjects.

The manner in which questions were answered and the specific choice of questions varied from interview to interview with some degree of similarity between subjects, and a greater degree of similarity within each subject. But human nature being as it is, answering identical questions and reading the same phrase list four times was bound to be disinteresting to the subjects in the long run, resulting in subject fatigue. This in turn would result in an imbalance in the data from each subject between successive interviews with increasing disinterest and practice due to learning in progressive order. To counterbalance the effects of subject fatigue and learning due to practice, the order of the four successive interviews for every subject was arranged so that every fourth consecutive subject starting from the top of the subject list (refer to appendices for subject list) was interviewed in the same order. In this manner, the number of shortened uninteresting interviews due to repetition of the substance of speech was equally shared between the four sets of interviews, thereby neutralizing the adverse effects of 'subject fatigue' and 'the practice effect'.

3.3.3 ELICITATION OF DATA

Brouwer, Gerritsen and De Haan (1979) discuss the various methods used to gather data for research on sex-based differences in language use. The discussion of the method of elicitation in particular is relevant as this method was utilized to obtain the data for the current study. The specific intent of data collection was concealed from the subjects. The only information given was that the data collected would be used to study certain aspects of Indian English.

Contextual style (2.3.2.8) was selected as one of the independent variables in this study. Therefore, in order to be able to study correlation of the dependent variable /t/ and contextual style, an interview situation necessitated two contrastive speech contexts. These are casual and careful speech contexts, which elicit informal and formal speech styles respectively. Therefore, the interview was made up of two parts, one to elicit casual speech and the other to elicit highly self-monitored speech (2.3.2.8).

A phrase list and answers to personal questions provide samples of formal and casual speech respectively; this concept is borrowed from sampling methods first used in Labov's 1966 study of English in New York City. Labov (1972) discusses the concept of specific samples as representing a continuum with informal on one end and formal on the other end of the scale, on the basis of his 1966 and other studies. Thus, dependent variables could be tested along the following scale borrowed from Labov (1972: 99) and modified in order to study situational

variation according to context.

CASUAL / CAREFUL / READING / WORD LISTS / MINIMAL PAIRS

(Passages)

INFORMAL FORMAL

Labov (1972) concludes this discussion with the following.

> We... therefore put forward the hypothesis that the various styles of speech we are considering are all ranged along a single dimension of attention paid to speech, with casual speech at one end of the continuum and minimal pairs at the other. (99)

3.3.3.1 INTERVIEWS

The two part interviews, firstly, consisted of questions of possible interest to the subjects, in an attempt to produce near spontaneous speech. While the questions were asked verbally, they were also given to the subject in written form as part of a questionnaire at the beginning of each interview. The questions asked were identical for all interviews so as to maintain a certain uniformity. Only questions that required the subjects' personal involvement while answering were chosen.

The subjects were asked to speak about or discuss one or more of the following three broad-based questions for a total time of approximately 10 minutes. However, the subjects' responses actually ranged from a lower bound of 10 minutes to an upper bound of 30 minutes. The questions asked were as follows (refer to the appendices):

1. How did you feel about the United States when you first came here?
2. Do you like/dislike the United States, its people, the culture, the lifestyle, etc. ? Please elaborate.
3. Have you had an experience in your life which has caused or seemed to cause danger to your life? If yes, please narrate.

All subjects answered questions 1 and 2 once or more than once in the four interviews. Some subjects chose not to answer question 3. Question 2 was asked with the specific intent of evaluating speakers' attitude toward their new socio-cultural environment.

The data gathered in this manner, constituted the first part of the interviews and contained samples of casual speech.

In addition to the above questions the questionnaire consisted of a second part, a phrase list (refer to appendices). Formal speech samples were elicited by making each subject read aloud the phrase list four times, once in each interview. Thus the total number of phrase list readings was 4 times 24, i.e., 96. The phrase list was chosen instead of the word list so as to disguise the actual variable being studied. The variable /t/ was embedded within phrases, whereas concealing the specific intent of the study, /t/, may not have been as successful within a word list.

3.3.3.2 SELECTION OF SAMPLES OF CASUAL SPEECH

A major disadvantage of using any method of elicitation, as Brouwer, Gerritsen and De Haan (1979) points out, is that although this method is aimed at eliciting everyday speech, often the speech is not adequately spontaneous, as the interview situation makes the subjects uncomfortable.

In this study, an attempt to counterbalance the above disadvantage was made by analyzing only those stretches of conversation which showed signs of uninhibited behavior such as,

(a) laughter; or display of other emotions such as

(b) personal involvement while recollecting a past incident, indicated by long stretches of intricate narration of some kind; or

(c) display of strong resentment towards a particular issue.

Such samples of speech are characterized by certain channel cues which are markers of casual speech. According to Labov (1972) -

> A change in tempo, a change in the pitch range, a change in volume or rate of breathing, form socially significant signs of shift towards a more spontaneous or more casual style of speech. (95)

In addition to the above mentioned nonphonological[1] channel cues, Labov (1972) also characterizes casual speech within the interview in terms of five contextual situations. This characterization is used in Labov's 1966 study of English in New York City to identify samples of casual speech. Two of the contextual situations pertain to this study.

a. Speech not in response to questions: In the current study, this contextual situation typically consists of some subjects who showed signs of wanting to talk more and digress from the main topic during the course of the interview. Many of the long stretches of speech in response to questions 1 and 2 reflected such a situation. The longer the speaker digressed, the better were the chances of capturing the speaker's natural speech pattern. For instance, in the following conversation between a female subject and the female American interviewer the speaker directed the entire conversation while the

interviewer encouraged the subject to speak.

Speaker - I've lived for one and a half years in down South and two years - three years in Michigan.

Interviewer - Do you find a big difference between the South and the North?

Speaker - [slowly] Yah, South people are, you know, more relaxed, and they have more social life . . . They have more time so they have more human tendencies. Here everybody is busy you know, [faster] taking two shifts, three shifts, and going to college and nobody has any time. [faster] And whatever spare time, it goes sprinkling the lawn, cleaning the house . . . .

Interviewer - [laughs] more busy work, right?

Speaker - [digresses] Yah, and a family life is completely different than our [Indian] way, you know, [digresses] man is a . . . you know, women are . . . . I appreciate American women more than any other women in the whole world . . . they are the most hardworking . . .

As the speaker digresses her speech becomes more spontaneous.

b. The danger of death: In the current study question 3 of the questionnaire was chosen from Labov (1966) and rephrased slightly. The purpose was to create a contextual situation in which, a subject, who had experienced a situation which had caused danger to her/his life became very "involved in the narration". He/she seemed to be "reliving the critical moment" and showed signs of highly uninhibited behavior such as, nervous laughter, heavy and irregular breathing due to tension, or a change in pitch. For example, consider the following conversation

between a male subject and the female American interviewer in response to question 3 (see appendices).

Speaker - . . . he suddenly was moving around and decided to point it at me, and, [clears his throat] . . . I was standing about, altogether five feet away from him, a little more than that. And this other friend told him "its loaded, don't point it at him." [heightened pace] Apparently he didn't realize that he had ahh . ., it was a very fine trigger, and almost like feather touch [nervous laughter], and perhaps he didn't realize but the trigger went off, and the next thing I knew was, there was a ringing sound in my ear and . . .

Interviewer - He was only five feet from you?

Speaker - Yah, it was a very short trip, and fortunately it was a gun which didn't have a ahh, it was a old gun . . the one I had was a very new one but ahh . . from the face I could see that something really bad had happened [shaky voice] and from that ringing sound I knew that something had gone wrong but I didn't feel a thing. When I touched my forehead I found this hard thing stuck to my forehead. [very shaky, intense, low pitched voice] That was a really frightening experience . . .

Further, Labov (1972) says that,

> The formal definition of casual speech within the interview requires that at least one of the five contextual situations prevail, and also one of the five nonphonological cues. (87)

Therefore, samples were selected for analysis of casual speech if

and when they fulfilled the above requirement. Out of 96 interviews there were only three in which such definite characteristics were absent. In these cases, only the last few minutes of the conversation in each interview were taken into consideration. This was done to avoid the portion of the subject's speech when he/she was still in the process of familiarizing himself/herself with the interview environment.

3.3.3.3 SELECTION OF /t/ WITHIN SAMPLES

The selection of /t/ within samples of highly self-monitored speech, which comprised 96 readings of a phrase list, was as follows. There were 30 occurrences of /t/ within each phrase list. In each of the 96 cases only the first 20 successive instances of /t/ were considered for the analysis of formal speech. In similar cases in previous studies, when subjects were made to read lists of words it has been observed that, as subjects' reading progresses down the list, self-monitoring of speech decreases and as a consequence, the reading becomes more spontaneous. Therefore, for all samples of formal speech, only the first 20 occurrences of /t/ were considered so as to obtain the most formal speech available within each interview, of which the phrase list was a part. The number 20, however, is arbitrary.[2]

The selection of /t/ from samples of casual speech was as follows. The selection of subsamples of casual speech was discussed in section 3.3.3.2. From these subsamples that best represented casual speech, in each of the 96 cases, 20 successive instances of /t/ were selected for all 96 interviews.

Thus, for each of the 96 interviews, a total of 40 occurrences of /t/ 20 from informal speech and 20 from formal speech were

considered for analysis. The phonetic nature of these selected occurrences was determined as to whether [t], [t̪] or any other variant of /t/ appeared.

3.4 DATA ANALYSIS

3.4.1 DISTRIBUTIONAL ANALYSIS

A total of 3840 occurrences of /t/ were analysed in this study. 18 (.47%) of the 3840 occurrences were determined as unclear for analysis.

Of the remaining 3822 instances of /t/ 1416 (37.10%) were recognized as the variant [t̪]. The criteria discussed in Labov (1966) referred to in Lavendera (1978) and mentioned in 2.3.1 of this thesis are used here. [t̪] could be defined as a sociolinguistic variant of the variable /t/ because:

1. [t̪] is easily stratifiable within the sample of the population being studied;
2. [t̪] is high in frequency;
3. [t̪] is immune to conscious suppression;
4. [t̪] is an integral unit of a larger structure, namely, the word in which it occurs; and
5. [t̪] being a phonetic variant carries purely nonreferential information, occurs in all possible phonetic environments of /t/, and is easily quantifiable within the data.

8 occurrences of /t/ in the data were realized as [tɬ]. The lateral affricate [tɬ] occurred in the restricted environment of word final position of a single word 'petal' pronounced as ['peɬ]. All [tɬ] occurred in samples of formal speech. This was the only possible environment

for [tɬ] in samples of formal speech. In addition, these 8 occurrences were found in the formal speech of female subjects only, restricted to categories A (0-2 years) and B (2-5 years). Other words with similar phonological environments such as 'little' elicited [-ṭɪl] or [-tɪl] in informal speech.

The occurrence of [tɬ] can be accounted for by arguing that some Indian English speakers with relatively less exposure to American English used the Standard British English [tɬ] which is perhaps fossilized in IE and is used in certain hyper-formal styles of Indian English as the 'super-standard norm' in those contexts in that environment. [tɬ] in the speech of Indians, and therefore in the speech of Indian immigrants in the United States, can be traced historically to be the result of "extended periods of colonization" (see 2.2.1) of India by the British. Jones (1943: 323) describes 'petal' as a single syllabic word ['petl] which suggests that [tɬ] is a single phone in that environment in British English. Whether [tɬ] belongs to /t/ or to /l/ can only be answered by a detailed phonological analysis of the two phonemes in British English. Similar words such as 'metal' and 'little' are described in Jones (1943) as disyllabic words, ['met/l] and ['lit/l] respectively; the slant line indicating syllable boundaries within morphemes. At this point, this apparently arbitrary syllabic division remains inexplicable. The above explanation however, accounts for

(a) the occurrence of [tɬ] in the data, in samples of formal speech and its absence in similar environments within informal speech; and

(b) the presence of [tɬ] in the speech of female subjects, only in categories A (0-2 years) and B (2-5 years) and not in C (5-10 years) and D (10 years & above).

The absence of [tɬ] in categories C and D could be explained as follows. Beyond 5 years the prestige norm changes from the hyper-formal (British English) norm [tɬ] in that environment to American English [t] in the speech of these subjects at least in formal speech. [t] is used in 'petal' as ['petəl] instead of ['petɬ] in the speech of subjects whose period of residence in the United States is 5 years or more.

Two occurrences of /t/ in the data are realized by the unaspirated dental stop [t̪]. It occurs in the speech of one particular subject (no. 20 in the subject list in the appendices). [t̪] is also restricted to a single word 'pistol'. This English word has been borrowed by Indian languages and indianized by substituting the unaspirated dental stop [t̪] for the alveolar stop [t]. Thus, the Indianized version ['pist̪ɔl] is used in the standard dialects of certain Indian languages such as Hindi, Marathi, Gujarati, etc., to mean 'pistol'. The subject in whose speech [t̪] occurred (two out of four times in formal speech) was a native speaker of Gujarati and used the Gujarati ['pist̪ɔl] in her idiolect of Indian English instead of the Standard Indian English ['pist̪əl] or the Standard American English ['pistəl].

Bhatia (1967:75) mentions the loanword ['pist̪ɔl] as occurring in Standard Hindi. The following discrepency is noted in Bhatia (1967) regarding a similar word 'hospital' in Gujarati. Bhatia (1967:162) gives a comparative table of contrastive Hindi phonemes in the Devanagari Script,[3] and the phonetic script equivalents of these phonemes. The unaspirated dental stop त in the Devanagari Script is given the equivalent symbol [t̪]. The same symbol त is used in Bhatia (1967: 180gə) in the Gujarati word for 'hospital' which is a loanword from English. The equivalent phonetic transcription however, does not have

the symbol t̪ but is given as [ispita:l] with an alveolar stop [t]. According to Kachru (1983:27-28), the alveolar series in SAE is substituted by the retroflex series due to the underlying features of L_1 of the region. This implies that in Indian languages alveolar [t] does not exist. Bhatia's transcription of [t] in the English loanword 'hospital' in Gujarati is probably incorrect.

Besides, that the loanword ['pist̪ɔl] exists in Gujarati was substantiated when native Gujarati speakers were asked for the word 'pistol' in Gujarati. Two speakers were asked and both speakers confirmed the presence of the word [pist̪ɔl] in Gujarati.

The three variants [t̤], [tɬ], and [t̪], as discussed above, are not phonetic components of the American English /t/; therefore, I treat them here as belonging to Indian English. The Indian English variant [t̤] occurred freely in the data with the American English variant [t] in all possible environments of /t/. Thus, [t̤] and [t] are sociolinguistic variants occuring in parallel distribution in the dialect of the twenty four Indian immigrants whose speech was studied.

2315 (62.4%) instances of /t/ in the data were realized as the alveolar stop [t]. [t] may also be considered as a reliable sociolinguistic variant of /t/ as it occurred in the speech of all subjects and was frequent in both contexts and in the speech of both sexes. Also, [t] is an allophone of the American English /t/ and a reliable indicator of the acquisition of the American English dialect; the percentage of [t] increased proportionally as the period of residence of the subjects increased (see Table 4). [t] showed "assymetric distribution over a wide range of . . . ordered strata of society" (Labov 1972: 8).

81 instances of [r̆] were found in formal and informal speech styles

of both male and female subjects in all four categories A, B, C, and D. Table 2 below shows the occurrence of [ɾ̆] in the four categories. [ɾ̆] is an allophone of the American English phoneme /t/; hence it may be considered here as belonging to American English and not to Indian English.

Table 2 : the frequency of [ɾ̆] in subjects' speech.

CATEGORY	NUMBER OF [ɾ̆]
A	4
B	8
C	24
D	45

[ɾ̆] like [tɬ] and [t̪], however, did not occur in the speech of all subjects in the data. [ɾ̆] occurred in the restricted intervocalic position in words such as, [wɒ ɾ̆ə ɾ̣] 'water' and [hwɒɾ̆ə] 'what a'. For reasons discussed earlier in this section, [ɾ̆], [tɬ], and [t̪] cannot be treated as sociolinguistic variants of /t/.

Thus, in the data analyzed, the sociolinguistic variable /t/ consisted of five variants - [ṭ], [tɬ] and [t̪] belonging to IE and [t] and [ɾ̆] belonging to American English.[4] However, only two of these variants, [ṭ] and [t] could be characterized as sociolinguistic variants of /t/. Chapter 4 of this thesis discusses the distribution of the sociolinguistic variants [ṭ]~[t] when correlated with sociological parameters.

3.4.2 STATISTICAL ANALYSIS

The following are the independent variables in this study - the period of residence of the subjects in the United States-X_1, subjects' gender-X_2, interviewers' gender-X_3, (accommodation due to) ethnicity of interviewers (interlocutors)-X_4, Speakers' attitude to their new socio-cultural environment-X_5, and contextual style-X_6. The two interactions, subject-interviewer gender interaction, and subject-interviewer gender and ethnicity interaction are Z_1 and Z_2, respectively. These variables were coded in the following manner. X_1, the period of residence of subjects is a continuous variable and it takes the values as was reported when Indian English speakers were requested to be informants in this study. The other variables X_2, X_3, X_4, X_5 and X_6 are nominal variables which were coded consistently, for the purpose of analysis as given in Table 3. Since the variables X_2, X_3, and X_4 are dichotomous, that is, they take the values -1 or 1, the interaction between them, as is calculated in similar analyses, is the product of those variables. Thus, subject-interviewer gender interaction -Z_1 = X_2 times X_3, and subject-interviewer gender and ethnicity interaction -Z_2 = X_2 times X_3 times X_4.

To study the effect of the independent variables X_1, X_2, X_3, X_4, X_5, and X_6, and the interactions Z_1 and Z_2 on the covariants [t̪] and [t] of the dependent variable /t/, the following linear models were proposed for the data:

(1)

$$Y_1 = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5 + B_6X_6 + B_7Z_1 + B_8Z_2 + \epsilon_1$$

Table 3 : Coding of nominal variables.

LABEL	VARIABLE	VALUES TAKEN	CODING
Sex of Subjects	X_2	-1, 1	-1= Female 1= Male
Sex of Interviewers (Interlocutors)	X_3	-1, 1	-1= Female 1= Male
Ethnicity of Interviewer (accommodation)	X_4	-1, 1	-1= Indian 1= American
Subjects' Attitude to their new environment	X_5	1, 0, -1	1= Positive 0= Undetermined -1= Negative

(2)

$$Y_2 = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5 + B_6X_6 + B_7Z_1 + B_8Z_2 + \epsilon_2$$

In equation (1) above,

Y_1 is the frequency of occurrence of the retroflex variant [ṭ];

B_0 is the intercept;

$B_1 \ldots B_8$ are the sociological parameters (coefficients of the independent variables, and interactions); and

ϵ_1 is the random unobservable error.

In equation (2),

Y_2 is the frequency of occurrence of the alveolar variant [t];

B_0 is the intercept;

$B_1 \ldots B_8$ are the sociological parameters (coefficients of the independent variables, and interactions); and

ϵ_2 is the random unobservable error.

To study the significance of the parameters, multiple regression analyses were performed on both models. F-tests were conducted to determine whether the models suited the data. From Table 12, 4.3.1, it is evident that both models (1) and (2) are significant; the models proposed fitted the data ideally; the significance level of both models being .0001. The R-squares for both models were not high indicating that there is not much variation in the data (refer to Table 12). R-square values close to 1 are generally preferred. However, for the purpose of this study, R-squares of .4411 for [ṭ] and .4395 for [t] were acceptable.

The significance of the statistical analysis and its interpretation is presented in chapter 4.

NOTES

1. Labov (1972: 87) uses this term. See quote on page 44. Rate and pitch are phonological, i.e., suprasegmental elements, therefore, the term nonsegmental is perhaps more appropriate than nonphonological.
2. The greater the number of /t/, the better are the chances of capturing regularities. When sampling /t/ in casual speech, for instance, /t/ occurs very often and a smaller number, if used, will include a very small stretch of conversation which is less likely to capture regularities within speech. On the other hand, one might argue that a smaller number could have been more confined to self-monitored speech in the phrase list.
3. The Script of Sanskrit and also of languages derived from it such as Hindi and Gujarati.
4. For the purpose of the statistical analysis and correlation of /t/ with the sociological parameters, the comparatively small number of occurrences of [t̪] and [t̠] were included within the sociolinguistic variant [t̤] and the occurrences of [r̆] were included within [t], so as not to exclude these occurrences from the study.

   The small number of the variants [t̠], [t̪] and [r̆] when compared with that of [t̤] and [t] indicate the possibility of considering the sociolinguistic variants [t̤] and [t] at a level intermediate to the variable /t/ and its five variants (which then, may be treated as subvariants of the phonetic variants [t̤] and [t]). However, the basis for such an analysis in this study is insufficient; it would be based solely

on quantitative differences between the occurrences of these variants. Among the factors that might justify such an analysis is speakers' perception of one variant verses the other, for instance, [t̩] verses [tɬ], or [t] verses [r̆].

CHAPTER 4

RESULTS

4.1 INTRODUCTION

This chapter reports the results of this study in 4.2. Section 4.2 has eight subsections which report the correlation of the dependent variable /t/ with various parameters presented in 2.3.2.

Section 4.3 is divided into two subsections. Subsection 4.3.1 discusses the statistical significance of the results and the interpretation of the statistical analysis conducted. Subsection 4.3.2 gives a sociolinguistic explanation for the various patterns in the occurrence of the variants [t̤] and [t] of /t/.

4.2 CORRELATION OF SOCIOLOGICAL PARAMETERS AND THE DEPENDENT VARIABLE /t/

2396 occurrences of the alveolar [t] and 1426 occurrences of the retroflex [t̤] were separately correlated with the independent variables and interactions, discussed in 2.3.2 and mentioned in 3.4.2. This permits the study of the effect of these parameters on the two opposing covariants [t̤] and [t] which are phonetic components of the sociolinguistic variable /t/. The results obtained are discussed in the following subsections.

4.2.1 PERIOD OF RESIDENCE IN THE UNITED STATES AND /t/

[t] and [t̤] were correlated with the continuous independent variable period of residence in the United States. Figure 1 shows a considerable

Figure 1

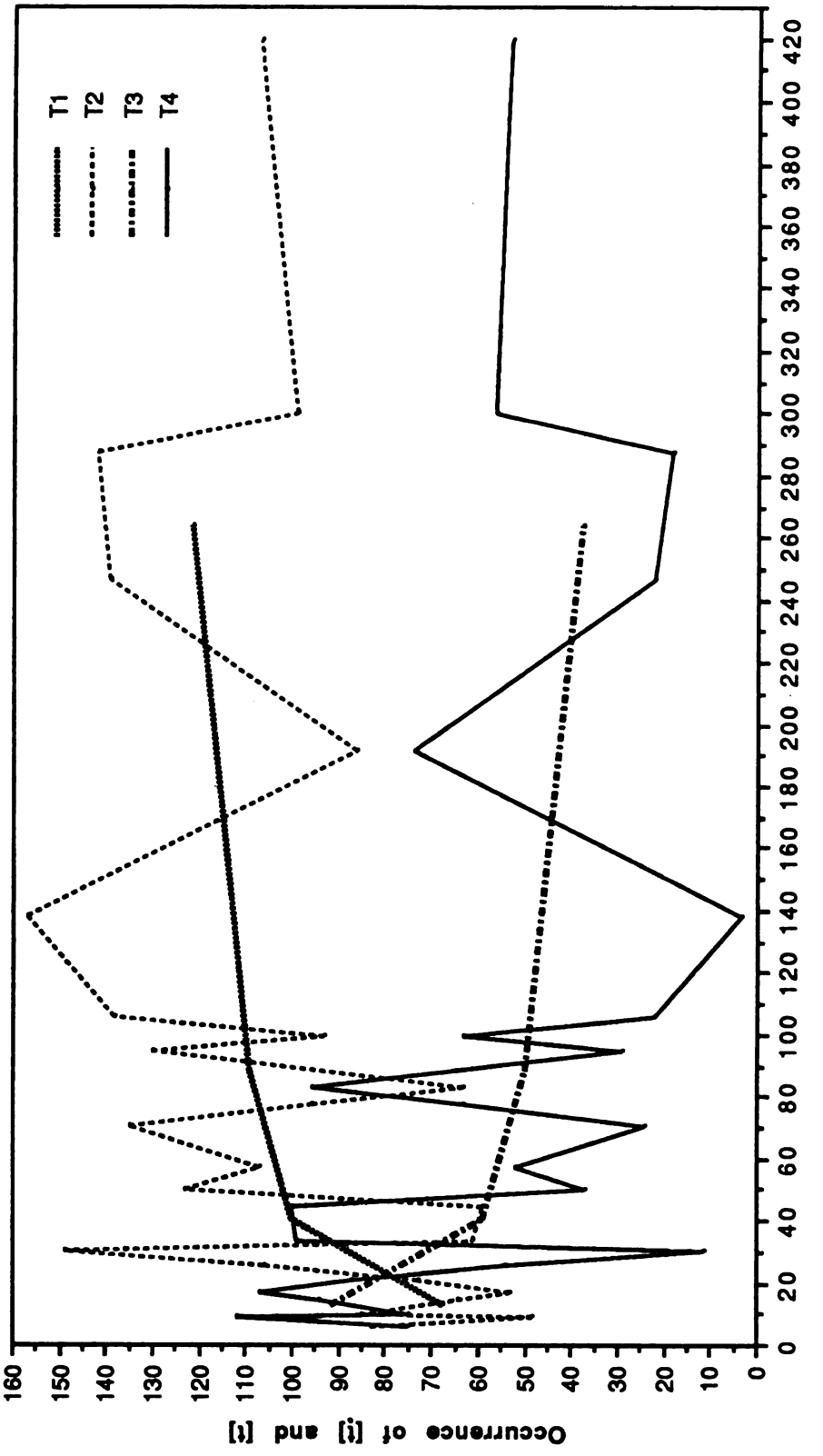
T1
T2
T3
T4
Occurrence of [i] and [t]
Period of residence in the U.S. (in months)
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360
380
400
420

Table 4: Distribution of [ṭ] and [t] in subjects' speech in relation to the period of residence of subjects in the United States.

ID. NO.	PERIOD OF RES.(Mo.)	MEAN (In Mo.)	CATE-GORY	OCCURRENCE OF [ṭ]	TOTAL NO. OF [ṭ]	% OF [ṭ]	MEAN [ṭ]	OCCURRENCE OF [t]	TOTAL NO. OF [t]	% OF [t]	MEAN [t]
1	6			75				83			
2	9.5			112				48			
3	10	13.08	A	75	550	38.57	91.66	85	406	16.94	67.66
4	15		(0-24	94				64			
5	17		mo.)	107				53			
6	21			87				73			
7	26			54				106			
8	31			11				149			
9	34	40.50	B	99	353	24.75	58.83	61	605	25.33	100.33
10	45		(25-	100				59			
11	50		60mo.)	37				123			
12	57			52				107			
13	71			24				135			
14	78			63				96			
15	83	88.83	C	96	297	20.83	49.50	63	655	27.33	109.16
16	95		(61-	29				130			
17	100		120mo.)	63				93			
18	106			22				138			
19	138			3				157			
20	192			74				86			
21	247	264.16	D	22	226	15.85	37.66	139	730	30.47	121.66
22	288		(121-	18				142			
23	300		420	56				99			
24	420		mo.)	53				107			
TOTAL					1426	100.00			2396	100.00	

degree of individual variation in the occurrence of [t] in T2 and [ṭ] in T4. However, when the mean of the individual scores for [t] and [ṭ] within the categories A, B, C, and D are considered (refer to Table 4), a more regular pattern emerges in T1 and T3 for [t] and [ṭ], respectively, as can be seen in Figure 1.

The results of this correlation confirm the hypothesis a. postulated in 2.4.3: the frequency of occurrence of [ṭ] is inversely proportional to the period of residence in the United States of the informants. Conversely, the frequency of occurrence of [t] is directly proportional to the period of residence of the informants in the United States.

As the period of residence increases the mean scores for the alveolar phonetic variant [t] in the speech of speakers belonging to the four categories increases progressively which is observable in T1. The mean score values for [ṭ], the retroflex variant, decreases with an increase in the subjects' length of residence as is indicated by T3 (Figure 1).

This result is additionally substantiated by the results of the t-test for statistical significance discussed in 4.3.1. The correlation of /t/ with X_1 - the period of residence is indicated in Table 12 which shows the parameter estimates as -.3867 for [ṭ] and .3781 for [t], and a probability of .0001 for both [ṭ] and [t]. A p-value of .05 (5%) or less generally shows that the result is significant.

Table 4 shows a rapid decrease of 13.82% in the occurrence of [ṭ] in speakers, from category A (38.57%) to category B (24.75%). Thereafter, the decrease is gradual. Similarly, a rapid increase in the occurrence of the American English variant [t], can be observed in the speakers studied, between category A (16.94%) and category B (25.33%)

which is an increase of 8.39%. The increase from group B to C and from C to D is gradual.

4.2.2 CONTEXTUAL STYLE AND /t/

The results, illustrated in Table 5, confirm the hypothesis b. stated in 2.4.3: [t] is the 'high-prestige norm' in the society in which the informants currently reside. Therefore, due to self-monitoring within one's speech, the frequency of occurrence of [t] is higher in formal speech styles and lower in informal speech styles. As [t̤] is the 'low-prestige norm', the opposite is true for [t̤].

The Indian English variant [t̤] occurs more frequently in informal speech (51.47%) and less frequently in the subjects' formal speech (48.53%). The American English variant [t] being the prestige norm occurs more in formal speech (50.75%) and less in informal speech (49.25%), of the Indian informants studied. The difference between percentages, however, is not significant. This is also confirmed by the t-test for statistical significance. The parameter estimate for [t̤] when correlated with the independent variable X_6 - Contextual style is -.0484 and the probability .3815. The parameter estimate for [t] is -.0065 and the probability of the hypothesis being rejected is .4213 showing that the results are not significant (refer to Table 12, 4.3.1).

Table 5, however, shows some deviation in the pattern of occurrence of [t] and [t] within the categories A, B, C, and D.

In categories A, B, and C the occurrence of [t̤], the low prestige norm, is lower in formal speech than in informal speech, for instance in C the percentage of occurrence of [t̤] in formal speech is 10.24% whereas in informal speech it is 10.59%. Category D however, indicates

Table 5 : distribution of [ṭ] and [t] in formal and informal contextual styles in categories A, B, C, and D.

CATEGORY (in years)	OCCURRENCE OF [ṭ]				OCCURRENCE OF [t]			
	INFORMAL		FORMAL		INFORMAL		FORMAL	
	No. of [ṭ]	% of [ṭ]	No. of [ṭ]	% of [ṭ]	No. of [t]	% of [t]	No. of [t]	% of [t]
A (0-2)	285	19.99	265	18.58	193	8.05	213	8.89
B (2-5)	187	13.11	166	11.64	293	12.23	312	13.02
C (5-10)	151	10.59	146	10.24	328	13.69	327	13.65
D (10 & more)	111	7.78	115	8.07	366	15.28	364	15.19
TOTAL	734	51.47	692	48.53	1180	49.25	1216	50.75

otherwise. The percentage of occurrence of [t̪] is more in formal speech (8.07%), and the percentage of [t̪] is less in informal speech (7.78%). The difference in percentage, however, is very marginal (.29%).

The high-prestige norm [t] occurs more frequently in formal speech and less frequently in informal speech in categories A and B - for instance, the percentage of occurrence is 8.89% and 13.02% in groups A and B in formal contextual style; and 8.05% and 12.23% in groups A and B in informal contextual style (refer to Table 5). However, in categories C and D the percentage of occurrence of [t] is higher in informal speech (13.69% in C and 15.28% in D) and lower in formal speech (13.65% in C and 15.19% in D). Again, the difference in the percentage of occurrence of [t] between formal and informal styles of speech is marginal.

Table 5 also shows that the difference in percentage of occurrence of [t̪] and [t] between the two contextual styles is more in groups A and B and decreases in groups C and D. However, the total difference is negligible and is, therefore, not statistically significant.

4.2.3 ACCOMMODATION TO INTERLOCUTORS AND /t/

The figures in Table 6 confirm hypothesis c. in section 2.4.3: due to accommodation of speakers to their interlocutors' speech, the American English variant [t] occurs more frequently in informants' speech when speaking with an American English speaking interlocutor and less frequently when speaking with an Indian English speaking interlocutor. Inversely, the Indian English variant [t̪] occurs more frequently when speaking with an Indian English speaking interlocutor than when speaking with an American English speaking interlocutor.

The Indian immigrants studied accommodated to the speech of

Table 6 : Distribution of [ṭ] and [t] when correlated with accommodation to interlocutors' speech.

CATEGORY (in years)	OCCURRENCE OF [ṭ]				OCCURRENCE OF [t]			
	INDIAN I		AMERICAN I		INDIAN I		AMERICAN I	
	No. of [ṭ]	% of [ṭ]	No. of [ṭ]	% of [ṭ]	No. of [t]	% of [t]	No.of [t]	% of [t]
A (0-2)	321	22.51	229	16.06	145	6.05	251	10.48
B (2-5)	195	13.68	158	11.08	283	11.81	322	13.44
C (5-10)	169	11.85	128	8.97	306	12.77	349	14.56
D (10 & more)	132	9.26	94	6.59	355	14.82	385	16.07
TOTAL	817	57.30	609	42.70	1089	45.45	1307	54.55

I - INTERLOCUTOR

American interlocutors, both male and female, by lowering the frequency of the Indian English variant [t̪] in their speech to 42.70% when speaking with American interlocutors. When speaking with "homefolks" (Indian interlocutors), however, the frequency of [t̪] is higher (57.30%). Along with lowering the frequency of [t̪], subjects increased the frequency of the American English variant [t], when speaking with American interlocutors (54.55%), and lowered the frequency of [t] in their speech when speaking with Indian interlocutors (45.45%).

The significance of the above result is additionally confirmed by the t-test for statistical significance. Table 12, 4.3.1 shows the parameter estimates for [t̪] and [t] when correlated with X_4 - Accommodation in the speech of speakers to interlocutors of different ethnic identities (Indian and American). The parameter estimate for [t̪] is -.2356, and for [t] it is .2431. The probability of the hypothesis being rejected is .0001 for [t̪] and [t] showing that accommodation as an independent variable has a significant effect on the dependent variable /t/.

The maximum difference in the percentage of occurrence of [t̪] and [t] due to accommodation in the speech of subjects is seen in category A (0-2 years). In the speech of subjects in category A, the percentage of occurrence of [t̪] when speaking with Indian interlocutors is 22.51%, and when speaking with American interlocutors is 16.07%. The difference between these two percentages is 6.46%. Also, in category A, the percentage of occurrence of [t] is 6.05% in speakers when communicating with Indian interlocutors and 10.48% when speaking with American interlocutors. The difference between these values is 4.43%. Thus, the speech of subjects in category A shows maximum fluctuation.

From Table 6 it can be seen that, in category D speakers raise the number of [t] in their speech minimally by 1.25% (16.07% - 14.82%), when speaking to American interlocutors, indicating most linguistic security in the speakers of that category. However, when [t̪] is considered it is not speakers of category D but those in category B who lower the occurrence of [t̪] in their speech minimally, when speaking with American interlocutors (2.60%), which is unexpected. However, the difference in the percentage of [t̪] between categories B, C, and D is marginal: in category B it is 2.60%; in C it is 2.88%; and in D it is 2.67%. Thus, the difference is not significant.

4.2.4 SPEAKERS' ATTITUDES TO THEIR NEW SOCIO-CULTURAL ENVIRONMENT AND /t/

The positive and negative values for this independent variable were determined based on subjects' responses to question 2 (refer to the appendices). Subjects who responded positively to question 2 are included under 'positive attitude', and subjects who responded negatively to question 2 are included under 'negative attitude' in Table 7. The attitude of four subjects toward their new environment could not be determined. Out of 24 subjects studied, 12 were determined as having a positive attitude and 8 were determined as having a negative attitude.

The results given in Table 7 show that the hypothesis d. postulated in 2.4.3 was supported: informants' positive attitude towards American society, its people, its culture, and its lifestyle, is reflected in the higher frequency of [t] and a lower frequency of [t̪]. Informants' negative attitude towards American society is reflected in the relatively higher

Table 7 : Distribution of [ṭ] and [t] in subjects' speech in relation to their attitude towards their new socio-cultural environment.

ID. NO.	SPEAKERS WITH A POSITIVE ATTITUDE		ID. NO.	SPEAKERS WITH A NEGATIVE ATTITUDE		ID. NO.	SPEAKERS WHOSE ATTITUDE WAS NOT DETERMINABLE	
	No. of [ṭ]	No. of [t]		No. of [ṭ]	No. of [t]		No. of [ṭ]	No. of [t]
3	75	85	1	75	83	4	94	64
6	87	73	2	112	48	9	99	61
7	54	106	5	107	53	14	63	95
10	100	59	8	11	149	24	53	107
11	37	123	15	96	63			
12	52	107	17	63	92			
13	24	135	20	74	86			
16	29	130	23	56	99			
18	22	138						
19	3	157						
21	22	139						
22	18	142						
12	523	1385	8	594	673	4	309	327
av.	43.58	115.42	av.	74.25	84.13	av.	77.25	81.75

av. = average number of [ṭ] or [t] per speaker.

occurrence of the IE variant [ṭ] and a lower occurrence of the American English [t].

The effect of speakers' attitude can be seen in the difference in the average number of [ṭ] and [t] per person between subjects with a positive attitude toward their environment and subjects with a negative attitude.

The average number of [ṭ] per person for subjects with a positive attitude is 43.58, and the average number of [t] per person is 115.42. For speakers with a negative attitude, the average number of [ṭ] per person is 74.25 and the average number of [t] is 84.13.

The significance of this result is substantiated by the statistical analysis. The parameter estimates when speakers' attitude - X_5 was correlated with the variable /t/ are as follows (refer to Table 12, 4.3.1) -.4454 for [ṭ] and .4517 for [t]. The probability of the hypothesis being rejected for both [ṭ] and [t] is .0001, showing that the results are significant.

The results, therefore, show that subjects with a positive attitude to their new socio-cultural environment have a higher average occurrence of [t] and a lower average occurrence of [ṭ] than subjects who have a negative attitude toward their new environment.

4.2.5 SUBJECTS' GENDER AND /t/

Table 8 gives the distribution of [ṭ] and [t] in the speech of male and female subjects within categories A (0-2 years), B (2-5 years), C (5-10 years), and D (10 years & above). The total percentage of occurrence of the Indian English variant [ṭ] in the speech of male subjects is 55.54%, which is higher than the percentage of occurrence in female subjects

Table 8 : Distribution of [ṭ] and [t] between male and female subjects in categories A, B, C, and D.

CATEGORY (in yrs.)	OCCURRENCE OF [ṭ]				OCCURRENCE OF [t]			
	MALE SUBJECTS		FEMALE SUBJECTS		MALE SUBJECTS		FEMALE SUBJECTS	
	No. of [ṭ]	% of [ṭ]	No. of [ṭ]	% of [ṭ]	No. of [t]	% of [t]	No. of [t]	% of [t]
A (0-2)	306	21.46	244	17.11	174	7.26	232	9.68
B (2-5)	251	17.60	102	7.15	227	9.47	378	15.78
C (5-10)	142	9.96	155	10.87	336	14.02	319	13.32
D (10 & more)	93	6.52	133	9.33	388	16.20	342	14.27
TOTAL	792	55.54	634	44.46	1125	46.95	1271	53.05

(44.46%).

Inversely, the total percentage of occurrence of the American English variant [t] is higher in the speech of female subjects (53.05%) and lower in the speech of male subjects (46.95%). These results support hypothesis e. stated in 2.4.3: allowing for other sociological factors, in general, the frequency of [ṭ] is higher in the speech of male Indian informants than in female Indian informants. Inversely, the frequency of [t] is higher in womens' speech than in mens' speech.

The significance of this result is confirmed by the t-test that was conducted to test the hypothesis. The parameter estimates for [ṭ] and [t], as given in Table 12 in 4.3.1, when correlated with X_2 - Subjects' gender, are .31324 for [ṭ], and -.2975 for [t]. The p-value or probability of the hypothesis being rejected is .0001 for [ṭ] and [t]. The above values indicate that the independent variable, subjects' gender, has a significant effect on the variance of the dependent variable /t/.

Within the four categories, there is considerable variation from the general trend in the occurrence of [ṭ] and [t], particularly within the speech of female subjects in category B. The frequency of [ṭ] decreases from A (17.11%) to group D (9.33%) with one exception - female subjects in group B have the lowest frequency of [ṭ] among female subjects (7.15%). This is because, in group B subject No. 8 (see Table 4) has only 11 [ṭ] in her speech. The individual characteristic of this subject strongly affects the percentage of [ṭ] in group B.

In male subjects, the percentage of [ṭ] is maximum in group A (21.46%) decreasing in that order to a minimum of 6.52% in group D without any deviations. The decrease, however, is not gradual because the decrease in the percentage of [ṭ] between group B and C is 7.74%.

The same exception in linguistic behavior can be seen in the frequency of [t], in the alveolar phonetic variant, in the speech of female subjects in group B. The frequency of [t] increases from 9.68% in group A to 14.27% in group D. However, the increase is not steady, as group B has the highest frequency of [t] in the speech of females (15.78%). Then, between group B and group C, there is a decrease of 2.46%, from 15.78% to 13.32%.

In the speech of male subjects, however, there is an increase from group A to group D, from 7.26% to 16.20%, in that order. Again, the increase in the percentage of [t] is more rapid (4.55%) between group B and group C than between the other groups (see Table 8).

4.2.6 INTERVIEWERS' GENDER AND /t/

The results illustrated in Table 9 confirm hypothesis f. stated in 2.4.3: the total percentage of [t̪] is higher in the speech of informants when the interlocutor is male than when the interlocutor is female. The inverse is true of [t].

The total percentage of occurrence of the Indian English variant [t̪] is more (54.28%) in the speech of subjects when the interviewers (interlocutors) are male irrespective of the interlocutors ethnicity. When, the interviewers are female the total percentage of [t̪] in the speech of Indian subjects is less (45.72%). Conversely, the American English variant [t], the high-prestige norm occurs less (47.50%) in subjects when they communicate with male interlocutors. And [t] occurs more in subjects' speech when they communicate with female interlocutors (52.50%).

This result is statistically significant. The parameter estimates

Table 9 : distribution of [t̤] and [t] in the speech of subjects in relation to interviewers'(interlocutors') gender.

CATEGORY (in yrs.)	OCCURRENCE OF [t̤]				OCCURRENCE OF [t]			
	MALE I		FEMALE I		MALE I		FEMALE I	
	No. of [t̤]	% of [t̤]	No. of [t̤]	% of [t̤]	No. of [t]	% of [t]	No. of [t]	% of [t]
A (0-2)	292	20.48	258	18.09	186	7.76	220	9.18
B (2-5)	199	13.96	154	10.80	281	11.73	324	13.52
C (5-10)	164	11.50	133	9.33	314	13.11	341	14.23
D (10 & more)	119	8.34	107	7.50	357	14.90	373	15.57
TOTAL	774	54.28	652	45.72	1138	47.50	1258	52.50

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given in Table 12, 4.3.1 are as follows. When [t̪] and [t] are correlated with X_3 - Interviewers' gender, the estimate for [t̪] is .13868 and the estimate for [t] is -.1344. The probability of the hypothesis being rejected is .0130 for [t̪] and .0161 for [t]. As mentioned in 4.2.1 a p-value of .05 or less is accepted as significant.

There is a decrease from categories A to D in the occurrence of [t̪] when interviewers are male as well as when the interviewers are female. However, there is a rapid decrease in [t̪] of 6.52% from 20.48% in category A to 13.96% in category B in subjects when interlocutors are male. Also, there is a rapid decrease of 7.29% from A (18.09%) to B (10.80) in the occurrence of [t̪] in speakers when the interlocutors are female.

The opposite trend is observed in the difference in frequency of [t] between groups A and B. With male interlocutors the frequency of [t] increases from category A to B by 3.97%. Thereafter, the percentage of occurrence increases very gradually to 13.11% in C and to 14.90% in group D. When the interviewers are female, there is an increase of 4.34% between group A (9.18%) and group B (13.52%) in the percentage of [t]. In groups C and D, once more, the increase in [t] is gradual (from 14.23% to 15.57%). A possible explanation for this pattern of occurrence is given in 4.3.2.

4.2.7 SUBJECT-INTERVIEWER GENDER INTERACTION AND /t/

The figures in Table 10 confirm the hypothesis g. postulated in 2.4.3: due to interaction of subject (S)-interviewer (I) gender, the percentage of [t̪] decreases and that of [t] increases.

The decreasing order of the total percentages of [t̪] when correlated

Table 10: Distribution of [ṭ] and [t] in male and female subjects in speech exchanges with male and female interlocutors (I).

CATEGORY	PERCENTAGE OF OCCURRENCE OF [ṭ]				PERCENTAGE OF OCCURRENCE OF [t]			
	MALE SUBJECTS		FEMALE SUBJECTS		MALE SUBJECTS		FEMALE SUBJECTS	
	MALE I	FEMALE I	MALE I	FEMALE I	MALE I	FEMALE I	MALE I	FEMALE I
A	11.85	9.60	8.63	8.48	2.96	4.30	4.80	4.88
B	9.68	7.92	4.28	2.88	4.26	5.22	7.47	8.30
C	5.05	4.91	6.45	4.42	6.97	7.05	6.13	7.18
D	3.50	3.02	4.84	4.48	7.97	8.22	6.93	7.35
TOTAL	30.08	25.45	24.19	20.26	22.16	24.79	25.33	27.71

with subject-interviewer gender interaction confirms the order of subject interviewer gender combinations predicted. The order for [ṭ], therefore, is - Male S/Male I (30.08%) > Male S/Female I (25.45%) > Female S/Male I (24.19%) > Female S/Female I (20.26%).

Inversely, the order of subject (S)/interviewer (I) gender combinations increases in the following order as given in g., 2.4.3. The order for [t], therefore, is - Male S/Male I (22.16%) < Male S/Female I (24.79%) < Female S/Male I (25.33%) < Female S/Female I (27.71%).

The regression analysis shows, however, that this interaction is not significant. The parameter estimate for [ṭ] (see Table 12, 4.3.1) when correlated with $Z_1 = X_2$ (subjects' gender) and X_3 (interviewers' gender) is .007. The probability of the hypothesis being rejected is very high (.8866). The parameter estimate for [t] is -.0065 and the probability is .9058. These values indicate that the interaction does not have an effect on the percentage of occurrence of [ṭ] and [t]. This can be seen in the marginal difference between Male S/Male I (30.08%) and Female S/Male I (20.26%) for [ṭ], and Male S/Male I (22.16%) and Female S/Female I (27.71%) for [t].

Once again, among the four groups A (0-2 years), B (2-5 years), C (5-10 years), and D (10 years & above), female subjects in group B have the minimum frequency of [ṭ]; 4.28% when the interlocutors are male and 2.88% when the interlocutors are female. Also, the female subjects in group B have the highest percentage of [t] in their speech; 7.47% when speaking with male interlocutors and 8.30% when speaking with female interlocutors. As the number of male and female subjects in each group is only three, the possibility of the individual characteristics of one subject affecting the occurrence of either variant [ṭ] or [t] is very high.

This is a possible reason for the deviation seen in the speech of female subjects in group B, which may be due to the particular characteristics of subject No. 8 (see Table 4).

Also, the percentage of occurrence of [t̪] in the speech of female subjects actually increases in group D, when speaking with female interlocutors which is contrary to the usual trend of decrease in the frequency of [t̪] from category C to D. The increase, however, is very marginal and does not affect the total percentage.

4.2.8 SUBJECT-INTERVIEWER GENDER AND ETHNICITY INTERACTION AND /t/

The following order of subject (S)-interviewer (I) gender and ethnicity combinations was proposed in hypothesis h., 2.4.3. The descending order of occurrence of [t̪] in the S-I gender and ethnicity combinations is:

Male S/Male Indian I > Male S/Male American I > Male S/Female Indian I > Male S/Female American I > Female S/Female Indian I > Female S/Male American I > Female S/Female Indian I > Female S/Female American I.

The ascending order of occurrence of [t] in the following S-I gender and ethnicity combinations is:

Male S/Male Indian I < Male S/Male American I < Male S/Female Indian I < Male S/Female American I < Female S/Male Indian I < Female S/Male American I < Female S/Female Indian I < Female S/Female American I.

The above orders were based on the assumption that subjects' and interviewers' sex would have more influence on the decrease in [t̪] and

Table 11: Distribution of [t̪] and [t] in the speech of male and female subjects when speaking with male and female interlocutors (INT) both Indian (I) and American (A).

CAT-EG-ORY	PERCENTAGE OF OCCURRENCE OF [t̪]								PERCENTAGE OF OCCURRENCE OF [t]							
	MALE SUBJECTS				FEMALE SUBJECTS				MALE SUBJECTS				FEMALE SUBJECTS			
	MALE INT		FEMALE INT		MALE INT		FEMALE INT		MALE INT		FEMALE INT		MALE INT		FEMALE INT	
	I	A	I	A	I	A	I	A	I	A	I	A	I	A	I	A
A	6.80	5.05	5.40	4.21	5.75	2.88	4.56	3.93	.96	2.0	1.79	2.50	1.50	3.30	2.21	2.67
B	5.05	4.63	4.63	3.30	2.17	4.56	1.82	1.63	2.0	2.25	2.17	3.05	3.72	3.76	3.92	4.38
C	2.74	2.31	2.74	2.17	3.79	2.67	2.60	1.82	3.34	3.63	3.34	3.72	2.76	3.38	3.34	3.84
D	1.82	1.68	1.54	1.47	3.09	1.75	1.67	1.61	3.97	4.0	4.09	4.13	3.0	3.92	3.34	4.0
TO-TAL	16.41	13.68	14.30	11.15	14.80	9.40	11.78	8.49	10.27	11.89	11.39	13.40	10.98	14.36	12.81	14.90

the increase in [t] in subjects' speech than the ethnicity of the interviewers. For instance, the percentage of [t̪] in the combination Male S/Male American I was predicted to be higher than in the combination Male S/Female Indian I. This assumption underestimated the influence of ethnicity of interlocutors on the the speech of Indian informants.

The results show in Table 11 that interlocutors' ethnicity was the dominating factor; both male and female subjects accommodated to the speech of American interviewers (interlocutors) by lowering the occurrence of [t̪] in their speech, and simultaneously, increasing the frequency of the American English variant [t], in their speech.

The new descending order, of subject-interviewer gender and ethnicity combinations, in which [t̪] occurs is:

Male S/Male Indian I (16.41%) > Female S/Male Indian I (14.80%) > Male S/Female Indian I (14.30%) > Male S/Male American I (13.68%) > Female S/Female Indian I (11.78%) > Male S/Female American I (11.15%) > Female S/Male American I (9.40%) > Female S/Female American I (8.49%).

Female subjects accommodate more than male subjects to the speech of American interlocutors; for instance, the frequency of [t̪] in the speech of female subjects decreases by 5.90% (14.80% - 9.40%) and by 3.29% (11.78% - 8.49%), whereas the decrease in the speech of male subjects is only 3.03% (16.41% - 13.38%) when speaking with the male American interviewer and 3.15% (14.30% - 11.15%) when speaking with the female American interviewer. Also, female subjects accommodate more to the male American interviewer (5.90%) and male subjects accommodate more when speaking to the female American interviewer (3.15%).

When speaking with Indian interviewers the percentage of [ṭ] is higher in the speech of subjects than when speaking with American interviewers (see Table 11).

Correspondingly, Indian subjects increase the frequency of the American English variant [t] in their speech when speaking with American interlocutors in the following ascending order of subject (S)-interviewer (I) gender and ethnicity combinations:

Male S/Male Indian I (10.27%) < Female S/Male Indian I (10.98%) < Male S/Female Indian I (11.39%) < Male S/Male American I (11.89%) < Female S/Female Indian I (12.81%) < Male S/Female American I (13.40%) < Female S/Male American I (14.36%) < Female S/Female American I (14.90%).

Once again, female subjects accommodate more in their speech to that of American interlocutors than male subjects. The percentage of [t] increases by 3.38% (14.36% - 10.98%) in the speech of female subjects when speaking with the male American interviewer, and by 2.09% (14.90% - 12.81%) when the interlocutor is a female American. Once more, female subjects accommodate more to the male American interlocutor (3.38%) than to the female American interlocutor (2.09%), and male subjects accommodate more to the female American interlocutor (2.01%) and less to the male American interlocutor (1.62%).

When speaking with Indian interlocutors the percentage of occurrence of [t] is lower in the speech of subjects than when speaking with American interlocutors.

These differences in percentages, however, are very marginal. The results of this interaction are, therefore, not statistically significant. This is indicated in Table 12, 4.3.1, which gives the parameter

estimates. The estimate for [ṭ] when correlated with Z_2 the interaction of X_2 (subjects' gender), X_3 (interviewers' gender), and X_4 (accommodation in the speech of subjects due to ethnicity of the interviewer) is .04, and that of [t] is -.0433. The probability of the hypothesis being rejected is .4513 for [ṭ] and .4350 for [t], which is very high.

Thus, while the difference in percentages are interesting because they refute the hypothesis postulated, they are not significant.

4.3.1 STATISTICAL SIGNIFICANCE AND INTERPRETATION OF ANALYSIS

Table 12 was obtained from the multiple linear regression analyses conducted. It is evident from the table in both models (for [ṭ] and [t]) that variables X_1 to X_5 are significant and X_6 and the interactions Z_1 and Z_2 are not statistically significant. However, some interesting patterns, as described in 4.2 were observable even within the insignificant parameters. Since the number of observations was only 24, and the total number of occurrences of [ṭ] and [t] are subdivided under the interactions as indicated in Table 10 and 11, the statistical analysis did not find the interactions significant as it did with variables X_1 to X_5.

The effect of each of the significant independent variables on the occurrence of [ṭ] and [t] may be interpreted as follows:

a. X_1 : as the period of residence of subjects in the United States increases, [ṭ] in subjects' speech decreases and [t] increases.
b. X_2 : In the speech of female subjects [ṭ] is lower, and [t] is higher. In the speech of male subjects [ṭ] is higher and [t] is lower.
c. X_3 : In the speech of subjects when speaking with female interviewers [ṭ] is lower and [t] is higher. When speaking with male interviewers [ṭ] is higher and [t] is lower.

Table 12 : Statistical significance of independent variables and interactions.

VARIABLE	LABEL	RETROFLEX [ṭ]		ALVEOLAR [t]	
		PARAMETER ESTIMATE	p-VALUE	PARAMETER ESTIMATE	p-VALUE
X_1	PERIOD OF RESIDENCE OF SUBJECTS IN THE U.S.	-.3867	.0001	.3781	.0001
X_2	SUBJECTS' GENDER	.31324	.0001	-.2975	.0001
X_3	INTERLOCUTORS' GENDER	.13868	.0130	-.1344	.0161
X_4	ACCOMMODATION IN SUBJECTS' SPEECH DUE TO INTERLOCUTORS' ETHNICITY	-.2356	.0001	.2431	.0001
X_5	SUBJECTS' ATTITUDE TO THEIR NEW SOCIO-CULTURAL ENVIRONMENT	-.4454	.0001	.4517	.0001
X_6	CONTEXTUAL STYLE	-.0484	.3815	.0446	.4213
Z_1	INTERACTION BETWEEN X_2 AND X_3	.007	.8866	-.0065	.9058
Z_2	INTERACTION BETWEEN X_2, X_3, AND X_4	.04	.4513	-.0433	.4350

R-SQUARE FOR THE MODEL - [ṭ] - .4411, [t] - .4395.

SIGNIFICANCE OF THE MODEL - [ṭ] - .0001, [t] - .0001.

d. X_4: When speaking with Indian interviewers [ṭ] is higher in subjects' speech and [t] is lower. When speaking with American interviewers [ṭ] is lower and [t] is higher.

e. X_5 : If the speakers' attitude toward their new socio-cultural environment is negative, [ṭ] is higher and [t] is lower. If the speakers' attitude is positive, then [ṭ] is lower and [t] is higher.

4.3.2 SOCIOLINGUISTIC EXPLANATION OF RESULTS

In section 2.4.3, in the hypotheses, and in previous sections, certain factors were assumed to affect the frequency of occurrence of the variants [ṭ] and [t]. The numerical pattern of occurrence of these variants reported in 4.2, therefore, suggests the definite presence of sociolinguistic phenomena which are the result of the underlying sociological factors.

The decrease in the percentage of the Indian English variant [ṭ] when the period of residence of subjects in the United States increases, as seen in Table 4 in categories A to D from 38.57% to 15.85%, and simultaneously, the increase in the percentage of [t], the American English variant, from 16.94% to 30.47% suggest the following. This pattern of occurrence is due to the transition in process in the speech of the Indian immigrants studied, from Indian English acquired in India, to American English which is currently being acquired by those speakers. The state of flux in the dialect of these first generation immigrants is evident in the fluctuation between [ṭ] and [t], facilitated by other factors such as gender, and accommodation to speakers of different ethnic groups.

The figures in Table 4 also suggest that the above transition is

maximum between categories A (0-2 years) and B (2-5 years); the percentage of decrease in [ṭ] is 13.82 (38.57% - 24.75%) from A to B. The percentage of increase of [t] is 8.39 (25.33% - 16.94%) from A to B. The decrease in [ṭ] and the increase in [t] in categories C and D is relatively gradual (see Table 4).

It is possible to conclude from the above figures that the transition in the dialect, or an attempt towards bidialectalism, occurs most in group B and not in groups C or D. This conclusion seems reasonable when the social status of these speakers in the current society is considered. Speakers studied in groups C (5-10 years) and D (10 years & more) were professionals, mostly professors who are well established within American society. The subjects considered in those groups were either permanent residents or citizens of the United States and, therefore, are socially secure. Their socioeconomic stability is reflected in the relative stability in their dialect usage. This in turn, indicates their linguistic security, which is evident when compared with subjects in group B.

Speakers in group B were graduate students (on a foreign student visa). This sample of the population is in the process of establishing itself within the society. Within this group there is thus a crucial motivation to be accepted by the majority community of native Americans, depending on whether or not the speaker has a genuine liking for the social environment (see 2.3.2.1 and 4.2.4). Hence, the transition in the speech of group B is more drastic. Also, their relative socioeconomic instability and social insecurity as members of an unfamiliar society are reflected in the linguistic insecurity in their speech seen in the maximal fluctuation in speech due to sociological factors.

Relative linguistic security/insecurity is, therefore, directly related to the rate at which a particular social stratum within the society undergoes a change in its speech patterns, or the extent to which it responds to social factors. The more linguistic security, and thereby, social stability, there is, the less it is susceptible to linguistic fluctuations; the less linguistic security and therefore social stability there is, the more it will respond to linguistic change. For instance, the relative linguistic insecurity of subjects in group A accounts for the high percentage of the Indian English variant [t̤] (22.51%) in group A (0-2 years) in Table 6, when speakers communicate with Indian interlocutors, and the relatively lower percentage of [t̤] (16.06%) when the same speakers accommodate to the speech of American interlocutors. The maximum speech convergence is found in category A - 6.45% for [t̤] and 4.43% for [t], and the minimum convergence in speech is found in group D - 2.67% for [t̤] and 1.25% for [t].

In the study of English in New York City, Labov (1972:122-142) discusses the phenomenon of hypercorrection by the lower middle class. The phenomenon is explained in, for instance, the usage of (r), the prestige norm of that society, by the lower middle class in phonological environments where it is not normally used, as a result of an "extreme sensitivity to the norms of an exterior reference group" (52). The lower middle class is determined as that strata within the society which has the least linguistic security.

In the current study, in 3.4.1, it was noted that only subjects in groups A and B used the lateral affricate [tɬ], originally a British English phonetic variant of /t/, in their formal speech. Using the same rationale as in Labov (1972) it can be argued that the occurrence of [tɬ] in the

groups which have the least linguistic security is an instance of 'hyper-accommodation'[1]. The phenomenon of 'hyperaccommodation' differs from that of hypercorrection as [tɬ] is not an existing norm of the exterior reference group of native American English speakers. However, [tɬ] is used by the informants in categories A and B, probably, as a better alternative to the Indian English [ṭ] and as the next best alternative to American English [t], in an attempt to accommodate to the dialect of the exterior reference group. Thus, it is the very existence of [tɬ] and not the occurrence of [tɬ] in an unusual phonological environment that is in question. The explanation for the existence of [tɬ] in the informants' speech is given in 3.4.1.

The influence of subjects' gender and interlocutors' gender on /t/ can be interpreted as follows. The study of [ṭ] and [t] in relation to subjects' gender (Table 8) and interviewers' gender (Table 9) shows maximum differences in percentages in groups A and B, indicating once more that there is maximum linguistic insecurity in these groups. The change in frequency from group C to D is more gradual, indicating maximum linguistic security.

From Table 8 and Table 9 one can conclude that subjects' gender as an independent variable is more effective than interlocutors' gender in influencing the occurrence of [ṭ]/[t] in speakers. Out of the total number of /t/ (3840), 1426 were [ṭ] and 2396 were [t] in the speech of subjects studied. Out of 1426 [ṭ], correlation with speakers' gender elicited 55.54% in the speech of male subjects and 44.46% in the speech of female subjects. Of the 2396 [t] 46.95% occurred in the speech of male subjects and 53.05% in that of female subjects.

The result of the correlation of /t/ with interlocutors' gender was

as follows. Out of 1426 [ṭ], 54.28% occurred when subjects spoke with male interlocutors and 45.72% occurred when subjects spoke with female interlocutors. Of 2396 [t], 47.50% occurred when the interlocutors were male and 52.50% occurred when the interlocutors were female.

Lastly, the study confirms the presence of integrative motivation discussed in 2.3.2.1. A positive attitude in Indian immigrants toward their current environment - its culture, its people and lifestyle- provides an incentive to acquire the American English dialect. On the contrary, a negative attitude inhibits the process of acquisition of the new dialect. In this study, [ṭ] and [t] are reliable indicators of the extent of retention of Indian English and the extent of acquisition of American English. Thus, a positive attitude is represented by a higher average occurrence of the American English [t] - 115.42 per person, and a low average occurrence of Indian English [ṭ]- 43.58 per person (see Table 7). A negative attitude is represented by a relatively lower average occurrence per person of [t] - 84.13, and a higher average occurrence per person of [ṭ] - 74.25.

Chapter 5 considers the implications that the above phenomena have for certain linguistic theories.

NOTES

1. To date there is no documentation of the different norms of the IE /t/. Perhaps, [t$^{\text{ɻ}}$] is a hyper-prestige norm of Indian English as it is originally a British English phonetic variant of /t/. [t$^{\text{ɻ}}$] may be fossilized in IE as the postvocalic (r-ø) of /r/ (Sahgal and Agnihotri 1988) and is used in the speech of only those IE speakers whose proficiency is relatively high.

   The term 'hyperaccommodation' is used here to refer to the phenomenon when (immigrant) speakers of a social stratum with the least linguistic security use the norm of a previous exterior reference group, in this case standard British English speakers or high-prestige IE speakers, to accommodate to the speech of the current exterior reference group of American English speakers, in formal speech styles.

CHAPTER 5

CONCLUSION

5.1 INTRODUCTION

This chapter has three major subdivisions in sections 5.2, 5.3, and 5.4.

Section 5.2.1 deals with ways in which this study could have been improved, so as to achieve better results. 5.2.2 discusses topics for further research.

Section 5.3 discusses the implications this study has for certain theories proposed in the areas of Sociolinguistics and Second Language (dialect) Acquisition.

Section 5.4 concludes this thesis with a brief summary and discussion.

5.2.1 SUGGESTIONS FOR IMPROVEMENT ON THE CURRENT STUDY

This study has certain shortcomings, especially in the experimental design, which may be avoided in future research of a similar nature.

1. Physical Setting : A more informal environment than that of a classroom could have allowed for more free flowing conversation, and thereby, everyday speech within the interview situation. It is not clear, however, that this was the cause of the difficulty in obtaining much difference between formal and informal contextual styles in this study.
2. Sample Size : A larger sample size would have been desirable. For the study of difference in language use based on gender within the

four categories A, B, C, and D, only 3 male and 3 female subjects were used in each cell. Inspite of the small number of observations the result was significant (see 4.2.5). The small numbers within each category resulted in the insignificance of subject-interviewer gender interaction and subject-interviewer gender and ethnicity interaction. Studying speech within a larger number of male and female speakers, however, would strengthen the possibility of capturing regularities in the speech patterns of male and female subjects within each category: the chances of the interactions being significant are more when the number of observations is large.

3. Reliability : A second phonetically trained ear, besides myself, would have provided a check on the accuracy of my judgement as to the phonetic nature of /t/. An acoustic analysis would have further ascertained the phonetic nature of /t/.
4. Contextual Style : The scale of formality/informality, in section 3.3.3, shows that the contextual styles used in this study - conversation during an interview (informal speech), and the reading of a phrase list (formal speech) - are too close to each other on the scale. While informal speech was obtained, most formal speech was not obtained due to 'the practice effect' discussed in 2.3.3. This perhaps was the reason that speech in these two styles did not show much difference in the occurrence of [t̪]/[t]. Two contextual styles further apart on the scale, such as casual speech and minimal pairs, could have shown greater variance between formal and informal styles.
5. Duration of Sessions : Section 3.3.1.2 discusses the time taken for each session. The first session was 8 1/2 hours long while the second was only 3 1/2 hours and the third was only 2 hours long. It

is possible that long sessions such as the first caused interviewer fatigue. As a result there probably were some interviews in which interviewers did not actively participate. This in turn could have caused the subjects not to speak as in a regular conversation. This is not evident in the study as it can be noted that many of the last interviews in the first session were long interviews. Because interviewers encouraged subjects to speak, subjects dominated the conversation, and were not affected by interviewer fatigue, if any. However, this factor could affect interviews and it would, therefore be desirable to have shorter sessions of equal length.

6. Tape Recordings : All tape recorders were checked before each session and were in good working condition. The tape recorders were interchanged between sessions but were not interchanged between interviews. As the three sessions were not of equal duration it is possible that the quality of the recording was biased towards a particular set of interviews depending on which tape recorder was used.
7. The Phrase List : This was identical for all interviews and for the four interviews of each subject. Although the interview questionnaire was identical, speakers were asked to choose between three questions. Thus, there was more flexibility in answering questions than in reading the phrase list. The same target words used in different phrases could have reduced the effects of 'subject fatigue' and 'practice due to learning'.
8. Determination of speakers' attitudes : This factor was determined based on whether or not subjects said that they liked or disliked the United States, its people, its culture and its lifestyle. The deciding

factor was whether speakers intended to stay in the United States or wanted to return to India. However, this method to determine speakers' positive or negative attitudes was not sufficiently valid. More recent studies on attitude research need to be consulted and better methods of evaluation could be used.

5.2.2 SUGGESTIONS FOR FURTHER RESEARCH

1. During the course of this study other possible variables were observed. These variables occur due to the specific nature of the phones of Indian languages which in turn results in the particular nature of English spoken by Indians. Thus, a number of variables may be studied in the speech of Indian immigrants in the United States. The existence of the following variables needs further substantiation in the form of a pilot study prior to a large scale study.

a. The voiced counterpart of /t/ which is /d/ in English is pronounced in IE as retroflex [ɖ] - for instance, in 'dinner' as [ɖɪnə]. [ɖ] like [ʈ] is likely to undergo a transition in the speech of immigrants in the United States which may be studied.

b. Indo-Aryan and some Dravidian languages such as Kannada, (in Tamil, a dravidian language, aspirated stops do not occur) differentiate phonemically between aspirated dental stops such as /t̪h/, and unaspirated dental stops as /t̪/. Native speakers of Indian languages may use either [t̪h] or [t̪] in Indian English in the place of the voiceless interdental fricative [θ] of American English, in words such as 'thin' and 'theater'. The use of [t̪h] or [t̪] along with [θ] in the speech of Indians in the United States can form the basis for

monitoring variation and sound change in their speech.

c. In Indian languages, there is no phonemic distinction between [w] and [v]. In environments where American English clearly requires distinguishing between [w] and [v] as in 'wine' and 'vine', IE seems to rely entirely on context to distinguish between such minimal pairs. Firstly, the factors that condition the pronunciation of either [w] or [v] in Indian languages and as a consequence in IE, if any, needs examination. Secondly, if these phones are not phonetically conditioned allophones in IE, then this seemingly arbitrary use in the English of the immigrant population, and a transition, if any, may be studied using [w] and [v] as possible indicators, and by measuring a change in their use. At present the entire topic is available for an empirical study.

d. In Indian English, the long, central, low vowel [a:] is used in the environment of C ___ $sC_{\#}$[1] and C ___ $s_{\#}$ as in, for instance, 'fast' - [fa:st], and 'pass' - [pa:s]. Standard American English speakers use [æ] in these environments. A study of [a:]/[æ] in the speech of first generation Indian immigrants is, therefore, possible.

e. Finally, /r/ in Indian languages is either a trill or a flap. As a result, Indian English speakers use [ř] in all environments where standard American English speakers use [r̩] which is a retroflex consonant. Sahgal and Agnihotri (1988) mentions the fossilization of the post-vocalic (r-ø) in IE. Thus, the transition from (ř)/(r-ø) to [r̩], if any, could be studied in the speech of the immigrant population.

2. The current study raises the following methodological question which could be a topic for further study. An analysis could be done of where the the critical sample of casual speech is most likely to

occur within the four interviews of each subject. One could speculate that the sample of the most informal speech would occur either in the beginning of the first interview when the subject is first given an opportunity to speak on one or more broad based questions, or beyond a point in the conversation when the subject is overcome by fatigue and does not care to self-monitor anymore. This is most likely to happen in the third or fourth interview. Studying the data for signs of most uninhibited verbal behavior could substantiate the above speculation.

5.3 IMPLICATIONS FOR THEORIES OF SOCIOLINGUISTICS AND SECOND LANGUAGE (DIALECT) ACQUISITION

Based on the results obtained in this study it would be desirable to make general inferences about the entire population of first generation Indian immigrants. However, due to the small sample size used in this study it is not possible to make such generalizations. If, in the future, similar studies of other variables in the English spoken by Indian immigrants support the same theories as this study, then the possibility of generalizations would be strengthened. At this point it must suffice to say that the study of /t/ within the 24 samples supports certain theories in the field of sociolinguitics and supports a theory of second language acquisition.

The study supports the theory proposed in Bailey (1973) and Giles (1979) that in a language (dialect) contact situation, given time, a sound change will take place in the direction of the language or dialect which is spoken by the majority community in a native capacity, and, therefore is the favored language or dialect of that majority community

(see 2.3.2.2 for discussion and 4.2.1 for results).

The study strongly supports the theory of speech convergence proposed in Giles and Powesland (1975) and Giles (1979). Refer to 2.3.2.3 for discussion on interpersonal accommodation. The degree of accommodation of immigrants to speakers of the majority community once again, among other factors, depends on speakers' attitudes to their new environment.

The current study also favors the proposition in Trudgill (1974) that allowing for other factors, women tend to use the standard variety more than men (refer to sections 2.3.2.4 and 4.2.5).

The extent to which a new language or dialect is acquired is directly related to the speaker's attitude to his/her new environment and definitely depends on whether or not the speaker is integratively motivated to acquire the language or dialect (see section 2.3.2.1 for discussion and 4.2.4 for results). In the current study, all subjects had acquired IE formally as a second language and had immigrated to the United States only after the age of 18 (see section 3.2.1c). Although, a comparative study between adult and child immigrants would give a better perspective, the study shows that at least some adults are able to successfully acquire the American English pronunciation(s) of /t/ . The crucial factor determining the rate of acquisition as observed in this study and as proposed in Falk (1979), is whether or not the speaker possesses integrative motivation, instrumental motivation or no motivation at all. For instance, subject No. 19 (see Table 4, 4.2.1) possessed integrative motivation, therefore, her rate of acquisition of the American English pronunciation was higher than, for instance, subject No. 20 (see Table 4) who did not possess integrative motivation

i.e., an inherant liking for the new environment.

5.4 SUMMARY AND DISCUSSION

The current study shows a sound change in process from [ṭ] to [t] and, thereby, a transition in progress from Indian English to American English in the speech of first generation Indian immigrants. Given time, it is possible that the transition will be complete. The data in this study, however, do not indicate a completion as can be seen in the study of other immigrant populations. The following is perhaps the reason for the incomplete sound change. Immigration of Indians to the United States, when compared with other ethnic groups, is a relatively recent phenomenon which began in the 1950's and became popular in the 1960's and 1970's. Due to the new laws of immigration and naturalization in effect in the United States since the 1980's, the proportion of permanent immigrants (permanent residents and naturalized citizens) to that of temporary immigrants (students who return to India on completing their education) in the United States since that time, has decreased though not considerably.

Hence, studying the transition in the speech pattern of permanent immigrants would give a more realistic picture of the extent of sound change in the speech of the population of first generation immigrants. This would, however, exclude from the study, the student population and perhaps others who have resided in the United States less than five years.

In conclusion, an extensive study of a number of variable phonemes in transition would monitor more clearly the acquisition of American English by first generation Indian immigrants.

NOTES

1. C denotes - consonant, s refers to /s/, and # indicates word boundary.

APPENDICES

APPENDIX A

QUESTIONNAIRE

Please answer ONE OR MORE questions speaking for approximately 10 minutes.

1. How did you feel about the United States when you first came here?

2. Do you like /dislike the United States, its people, the culture, the lifestyle, etc.? Please elaborate.

3. Have you had an experience in your life which has caused or seemed to cause danger to your life? If yes please narrate.

Please read ALOUD the following phrases.

as wet as the weather

as light as a petal

the wide western desert

a water pistol

a winter storm

what a content person

a widely practiced custom

one particular waiter

for contempt of court

with potential skills

the United States Postal Service

the Post and Telegraphs Department

a nice teacher

APPENDIX B

SUBJECT LIST

ID. NO	SUBJECTS' GENDER	PERIOD OF RESIDENCE (in months)
1	female	6
2	male	9.5
3	female	10
4	female	15
5	male	17
6	male	21
7	female	26
8	female	31
9	male	34
10	male	45
11	female	50
12	male	57
13	male	71
14	female	78
15	male	83
16	female	95
17	female	100
18	male	106
19	female	138
20	male	192
21	female	247
22	male	288
23	female	300
24	male	420

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