

**TSWANA FIRST LANGUAGE  
INTERFERENCE ON ENGLISH VOWELS**

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# **TSWANA FIRST LANGUAGE INTERFERENCE ON ENGLISH VOWELS**

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## SUMMARY

### TSWANA FIRST LANGUAGE INTERFERENCE ON ENGLISH VOWELS

It has been indicated that the vowel system of Respectable South African English contains 12 primary vowels (Lass, 1990), whereas the Tswana vowel system consists of seven primary vowels (Krüger & Snyman, 1986). This can be the cause of under-differentiation (a form of negative language transfer) in the English vowels of Tswana speakers, which can lead to impairment of intelligibility. In order to test this hypothesis, perception tests were conducted, involving native speakers of Tswana and English. The perception of the vowels as pronounced by a Tswana reader would give an indication as to how they are pronounced. The focus of this study was on the vowels /ɪ/ (*it*), /ɪ/ (*miss*), /ɜ:/ (*nurse*), /æ/ (*trap*) and /ɜ:/ (*strut*), which do not occur in the Tswana vowel system. Consequently, these vowels can be called "new" to the Tswana mother-tongue speaker. Certain "similar" vowels, i.e. /i:/ (*fleece*), /e/ (*dress*) and /o:/ (*thought*) were included in the research to test Flege's hypothesis that "equivalence classification prevents experienced L2 learners from producing similar L2 phones, but not new L2 phones, authentically" (Flege, 1987:47).

Under-differentiation was, in fact, found to be a phenomenon in Tswana English, involving all of the above-mentioned vowels in one way or the other. The "new" vowels of the TL1 reader were not perceived accurately, but were confused with other vowels, whereas the "similar" vowels of the same speaker were perceived much more accurately (except in the case of /e/, which is probably due to the fact that this vowel is also used to represent /æ/ and /ɜ:/, and therefore readily confused with these sounds). The results obtained seem to contradict Flege's hypothesis (Flege, 1987), although further research, e.g. in the light of the SDRH (Major & Kim, 1996) may clarify these apparent incongruities. Concerning the extent to which intelligibility is influenced or impaired, however, it was found to be

impossible to draw any decisive conclusions from a study with such limited scope.

**KEYWORDS:** English, Tswana, intelligibility, vowels, phonetics, phonology, accent

## OPSOMMING

### DIE INVLOED VAN NEGATIEWE TAALOORDRAG OP DIE ENGELSE VOKALE VAN TSWANA-SPREKERS

Daar is aangetoon dat die vokaalsisteem van "Respectable South African English" 12 primêre vokale bevat (Lass, 1990), terwyl die vokaalsisteem van Tswana uit sewe primêre vokale bestaan (Krüger & Snyman, 1986). Dit kan die oorsaak van onder-differensiasie ('n tipe van negatiewe taaloordrag) in die Engelse vokale van Tswana-sprekers wees, wat verstaanbaarheid nadelig kan beïnvloed. Persepsietoetse wat Tswana- sowel as Engels-moedertaalsprekers ingesluit het, is uitgevoer om hierdie hipotese te toets. Die persepsie van die vokale soos deur 'n Tswana-leser uitgespreek kan 'n aanduiding gee van hoe hulle uitgespreek word. In hierdie studie was die fokus op die vokale /ɪ/ (*it*), /ɪ/ (*miss*), /ɜː/ (*nurse*), /æ/ (*trap*) and /ɜː/ (*strut*). Hierdie vokale kom nie in die Tswana-klanksisteem voor nie, en kan derhalwe as "nuut" vir die Tswana-moedertaalspreker beskryf word. Sekere "soortgelyke" vokale, naamlik /iː/ (*fleece*), /e/ (*dress*) en /oː/ (*thought*), is in die navorsing ingesluit om Flege (1987) se hipotese dat ekwivalensie-klassifikasie ervare tweedetaalaanleerders verhoed om soortgelyke tweedetaalfone korrek uit te spreek, maar nie nuwe fone nie, te ondersoek.

Dit is inderdaad bevind dat onder-differensiasie 'n verskynsel in Tswana-Engels is, en dat dit al die bogenoemde vokale op die een of ander manier raak. Die Tswana-leser se "nuwe" vokale is nie akkuraat waargeneem nie, maar is met ander vokale verwar, terwyl die "soortgelyke" vokale van dieselfde spreker veel akkurater waargeneem is (behalwe in die geval van /e/, wat waarskynlik te wyte is aan die feit dat hierdie vokaal ook gebruik word om /æ/ en /ɜː/ weer te gee, en derhalwe geredelik met hulle verwar word). Dit wil voorkom dat die resultate wat verkry is Flege (1987) se hipotese weerspreek, alhoewel verdere navorsing, bv. in die lig van die *Similarity Differential Rate Hypothesis* (Major & Kim, 1996),

hierdie oënskynlike inkongruensies moontlik kan verklaar. Dit is egter bevind dat enige beslissende gevolgtrekkings oor die mate waarin verstaanbaarheid beïnvloed of benadeel word, onmoontlik is in 'n studie van hierdie beperkte omvang.

**SLEUTELTERME:** Engels, Tswana, verstaanbaarheid, vokale/klinkers, fonetiek, fonologie, aksent

## TABLE OF CONTENTS

<b>1.</b>	<b>INTRODUCTION</b>	<b>1</b>
1.1	General observations	1
1.2	Problem statement	2
1.3	Objectives	5
1.4	Basic hypothesis	5
1.5	Outline of the study	6
<b>2.</b>	<b>CONTEXTUALISATION</b>	<b>8</b>
2.1	Introduction	8
2.2	Theoretical background	8
2.2.1	Intelligibility	9
2.2.2	Language transfer	10
2.2.3	<i>Interlanguage</i>	12
2.2.4	The Similarity Differential Rate Hypothesis	14
2.3	The vowel system of Tswana	16
2.3.1	Linguistic classification	16
2.3.2	The vowels	17
2.3.2.1	Vowel raising (partial height assimilation)	19
2.4	The vowel system of English	21
2.4.1	The diversity in the SAE community	21
2.4.2	The vowels	25
2.5	The vowel systems of Tswana and Resp SAE compared	27
2.6	Summary	30
<b>3.</b>	<b>EMPIRICAL RESEARCH</b>	<b>32</b>
3.1	Introduction	32
3.2	Design	33
3.3	Procedure	34
3.3.1	Subjects	34
3.3.2	Instrumentation	35
3.3.2.1	Language background questionnaire	36
3.3.2.2	Stimulus material	40

**TABLE OF CONTENTS (continued)**

3.3.2.3	Recording of the stimulus material	43
3.3.2.4	Perception tests	44
3.3.2.5	Processing of data	45
3.4	Results	45
3.4.1	Perception accuracy	46
3.4.2	Responses to the individual vowels	47
3.5	Conclusion	54
<b>4.</b>	<b>INTERPRETATION OF RESULTS</b>	<b>55</b>
4.1	Introduction	55
4.2	Explanation of the data	55
4.2.1	Perception accuracy	56
4.2.2	"New" vowels	57
4.2.3	"Similar" vowels	60
4.3	Intelligibility of TE vowels	62
4.4	Summary	64
<b>5.</b>	<b>CONCLUSION AND RECOMMENDATIONS</b>	<b>66</b>
<b>6.</b>	<b>BIBLIOGRAPHY</b>	<b>69</b>

## LIST OF TABLES

Table 1	Language background questionnaire providing demographic details and information about attitudes of the subjects involved .....	36
Table 3	List of primary stimulus words. Prototypical words of each vowel are provided in brackets for each column. ....	41
Table 3	List of secondary stimulus words .....	41
Table 4	Categories of minimal pairs .....	43
Table 5	Perception accuracy of the two listener groups to the EL1 reader and the TL1 reader .....	46
Table 6	The “new” vowels as perceived by the two listener groups in response to the TL1 and EL1 readers. Examples of words containing the vowels in question are provided in brackets. ....	48
Table 7	Perception of the individual “new” vowels as read by the TL1 speaker. The different perceptions of the stimulus vowels are presented as individual vowels. ....	50
Table 8	The “similar” vowels as perceived by the two listener groups in response to the TL1 and EL1 readers. Examples of words containing the vowels in question are provided in brackets. ....	52
Table 9	Perception of the individual “similar” vowels as read by the TL1 speaker. The different perceptions of the stimulus vowels are presented as individual vowels. ....	53

## LIST OF FIGURES

Figure 1	Phonetic vowel chart for Tswana .....	18
Figure 2	Diversity in the SAE community .....	24
Figure 3	Phonetic vowel chart for Resp SAE .....	26
Figure 4	Phonetic vowel chart showing the TL1 pronunciation of the Resp SAE vowels /ɪ/ (it), /ɪ/ (miss), /ɜ:/ (nurse), /æ/ (trap) and /ɜ/ (strut) - a broken line indicates a perceived shift, whereas a solid line indicates shifts as they are considered by the author to have taken place. ....	60

## CHAPTER 1

### INTRODUCTION

*Thus, our conclusion must be that the most important interference from a first to a second language during the process of foreign language acquisition occurs at the level of phonetic implementation rather than at an abstract level of organisation based on features (Flege & Port, 1981:144).*

#### 1.1 GENERAL OBSERVATIONS

In a multilingual country such as South Africa, different varieties of a given language are bound to develop if such a language is used as a medium of communication by speakers of other languages. This is the case with English in South Africa. Lanham (1976:281) has identified and described five distinct varieties of English in South Africa. One such variety is South African Black English (SABE), which is claimed to have a distinct accent and an obvious origin in the common, salient features of Bantu phonology (see Lanham, 1978a:23).

Although the sound systems as well as the morphological and syntactical make-up of the nine official Bantu languages spoken in South Africa have a great deal in common, it is questionable whether speakers of those different languages actually would speak English as if they all had one mother tongue in common. The term SABE is at present used indiscriminately to refer to the English of black South African speakers. To prove or disprove the concept of SABE is not the direct aim of this dissertation, but the possible differentiation of varieties of SABE does have some bearing on the scope of the present study, in that the primary focus will here be on Tswana English (TE) only, that is, English as spoken by Tswana mother tongue speakers. The concept of different varieties of SABE is, therefore, a starting point for such an extensive comparison.

## 1.2 PROBLEM STATEMENT

There are many areas in which TE possibly differs from the English of first language speakers (EL1); the area of concern for this study is phonetics, i.e. the Tswana rendering of English sounds. If the pronunciation of the sounds of a language deviates from the standard of the target language to such an extent that they are unidentifiable, intelligibility may be lost (see Jacobs, 1994; Lanham, 1990). Jacobs (1994:16) indicates the "harmful effects which poor verbal interaction has on the quality of courses at universities, technikons and teacher training colleges", which clearly shows the gravity of loss of intelligibility. Therefore, a study such as this has scientific and practical implications for the present South African language and communication scene, because deviation from the "standard" South African English (SAE) pronunciation (EL1) can be so great as to cause misunderstanding, which breaks down communication efficiency in the spoken medium (see Lanham, 1967:11; Jacobs, 1994:16). A deeper understanding of the nature of and possible explanation for mispronunciation (according to L1 standards) can lead to more effective teaching in the area of phonetics to second language (L2) speakers. It is clear, then, that the results of such a study may shed some light on communicative and pedagogical issues. Also on a theoretical level, possible explanations can be offered for the phenomena and problems concerning first language interference in the pronunciation of an L2.

The very term "standard" South African English poses another problem. What exactly is that standard (if there is a standard at all)? Lass (1990) has proposed a "standard" South African vowel system, which proves quite useful. In this study, Lass's "standard" South African vowel system will be used as a starting point to compare EL1 to TE, but whether this vowel system is in fact a "standard", remains to be investigated.

Another point worth mentioning because of its possible influence on accentedness, is attitude toward such a standard. It may be the case that Tswana speakers have a negative attitude towards what may be called Respectable South African English (see Lanham, 1978b:146), so that they may be reluctant to imitate that standard, and actually

prefer to speak SABE. Language attitude, however, is not the focus of this study, and its effect on accent needs to be researched<sup>1</sup>.

Lanham (1967:11) has found that “the vowel system is the point of major disruption” in African English - which he calls “South African Black English” in more recent publications (e.g. Lanham, 1990). In this study the focus will also specifically be on the vowels as pronounced by Tswana speakers of English. Glaser (1995) has conducted a similar perception study on what she calls “Nguni first language interference” on certain English vowels. She found that there was a significant difference in the overall accuracy of identification of vowels between speakers of Nguni<sup>2</sup> and English responding to English speakers, although the difference in response to Nguni speakers was insignificant. It would seem from this study that the Nguni listeners could not correctly identify English vowels to the same extent as EL1 speakers, but that the English vowels as pronounced by Nguni L1 speakers were identified with the same measure of accuracy by EL1 and Nguni L1 speakers. Of the vowels she studied, viz. /e/, /æ/ and /ø/, the most accurately identified vowel for all cross-linguistic speaker-listener groups was /e/, which is, as she points out, the only vowel shared by both English and Nguni (Glaser, 1995:17). This is probably an indication that vowels that are similar in the L1 and the L2 will be pronounced more accurately than those that differ in terms of duration and/or quality (see the discussion on “new” and “similar” vowels in Chapter 2 – 2.2.3).

Flege’s research (Flege, 1987:59) has shown that “an upper limit exists on the extent to which L2 learners approximate the phonetic norms of the L2 for similar but not new phones”. According to him, the interlingual identification of L1 and L2 phones causes L2 speakers to produce similar L2 phones authentically, but not new L2 phones (Flege, 1987:47). He also claims that “phonetic specification of speech sounds in a foreign language seems to be the output of an ‘interlanguage’ rather than simply the product of interference between L1 and L2” (Flege, 1980:133).

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<sup>1</sup> Language attitude not being a central issue in the present study, it is merely mentioned here. In Chapter 3, the results of a Language Background Questionnaire are presented, serving as part of a general background to the study. A proper Language Attitude Test would have to involve a greater number of subjects than those of this study (see Chapter 3 – 3.3.2.1).

<sup>2</sup> Although the vowel systems of Zulu, Swati and Xhosa appear to be similar (in the light of available publications), it is questionable whether the term “Nguni” may be applied in a scientific sense to the

On this point, the results offered by Glaser (1995) and Flege (1987) seem to support differing hypotheses<sup>3</sup>. Glaser's results "support the hypothesis that phonic interference, in the form of underdifferentiation occurs in the English speech of Nguni speakers" (Glaser, 1995:30), which implies that English phones that do not occur in Nguni are realised in terms of the phones of Nguni. Flege, on the other hand, maintains that L2 phones unknown in the L1 are pronounced more accurately than phones similar to those of the L1 (see Flege & Hillenbrand, 1984; Flege, 1987). Gass and Selinker (1992:7), however, state: "There is now overwhelming evidence that language transfer is indeed a real and central phenomenon that must be considered in any full account of the second language acquisition process". This seems to be corroborated by Lewis's findings in his study on phonetic aspects of Xhosa second language speech communication (Lewis, 1998:138): "Xhosa L2 learners transfer their L1 (that is, positive or negative transfer) to Xhosa sounds they perceive to be similar to their respective L1s". The results of the present study will shed some more light on the exact nature of cross-language interference, specifically in the case of TE.

Flege and Port (1981:143) state that "we cannot account for foreign accent strictly in terms of segmental phonemic or phonetic differences between languages [...], for even non-segmental differences in temporal implementation carry over from one language to another". Jacobs (1994:25) agrees with this statement, mentioning that "intelligibility is determined by the configuration of many phonological elements". Although this is undoubtedly true, a study such as this one which focuses on one segmental element, can still be of some value. It clearly cannot account for the whole range of elements which impede the intelligibility of TE, but - in shedding some light on one element - it contributes to some extent to a comprehension of the whole. The vowels (in the opinion of the writer; see also Lanham 1967:11) are an extremely important aspect of the question concerning the intelligibility of TE.

From the above, the following questions may be formulated:

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language group as having one shared vowel system. In discussing Glaser's findings, the term "Nguni" will, however, be used in the same way as in Glaser's study.

<sup>3</sup> The seemingly contradictory results of Glaser (1995) and Lewis (1998) on the one hand, and Flege (1987) on the other hand, can possibly be explained in the light of the fact that they worked in different

- a) **How does the pronunciation of vowels in TE differ from that of EL1?**
- b) **How can these differences be explained in terms of L1 interference?**
- c) **To what extent do the differences in the pronunciation of vowels affect the intelligibility of TE?**

### **1.3 Objectives**

On the basis of these questions, the following objectives were pursued in this study:

- a) **To provide a theoretical discussion (based on existing literature) of some relevant hypotheses about L2 pronunciation, as well as the vowel systems of Tswana and Respectable South African English (see Chapter 2 – 2.4.1).**
- b) **To conduct perception tests in order to identify the differences in pronunciation of English vowels by L1 speakers and Tswana speakers.**
- c) **To study these differences in order to provide (a) possible explanation(s) for their existence.**
- d) **To investigate the extent to which the differences in pronunciation of vowels affect the intelligibility of TE.**

### **1.4 Basic hypothesis**

Because the documented vowel system of Tswana consists of seven vowels with four variants (see Krüger & Snyman, 1986:82), as opposed to the “standard” South African English vowel system proposed by Lass (1990), containing twenty-two vowels and diphthongs, it will be understandable if Tswana speakers fail to differentiate between

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language families (Indo-European, Semitic, etc. in Flege’s case, and Bantu in the case of Glaser and Lewis).

certain English vowels. Since the vowel systems of Tswana and Nguni (as used by Glaser, 1995) are similar, the results of this study can be expected to be quite similar to Glaser's. The following hypotheses have been formulated for this study:

- a) **Different English vowels will be represented by a single Tswana vowel.**
- b) **Vowels which do not occur in the Tswana vowel system will be replaced by the closest Tswana equivalent.**
- c) **Listeners (both Tswana- and English-speaking) will be unable to identify correctly some of the vowels as pronounced by Tswana speakers, which will have a negative influence on intelligibility.**

### **1.5 Outline of the study**

A general theoretical background will be provided in Chapter 2, where intelligibility, negative language transfer, the concept of an "interlanguage" (see Flege 1980) and the Similarity Differential Rate Hypothesis (Major & Kim, 1996) are discussed. The vowel systems of Tswana and English as represented in existing literature are also considered.

In Chapter 3, the empirical research of this study is presented. In order to find answers to the problem questions identified above, a one-shot cross-sectional design was employed in the research. A recording was made of the vowels of English as pronounced by an EL1 speaker and a Tswana speaker. The responses of both Tswana- and English-speaking listeners to the recorded vowels were analysed statistically, and the results will be presented in this chapter.

The results presented in Chapter 3 are interpreted in Chapter 4, and possible explanations are offered for the variant pronunciations of Tswana speakers. Some remarks concerning the issue of the intelligibility of TE vowels are also made.

In Chapter 5, the conclusion of this study is offered, as well as recommendations for further study and research in the light of answers not provided in the present study.

## CHAPTER 2

### CONTEXTUALISATION

*Over time dialects change, becoming different rather than better or worse. For instance, a speaker of a modern dialect of English would find the Old English that has been preserved in books unintelligible. All normal speakers of a dialect are able to use more than one variety of the language. Depending on how quickly socio-cultural barriers follow the breakdown of political barriers in South Africa, there will be further intermingling of dialects and languages in this country (Sarinjeive, 1996:106).*

#### **2.1 Introduction**

This chapter provides the background to the study from a theoretical perspective. The concept of intelligibility, as well as some existing theories concerning foreign accentedness in an L2 will be discussed. An exposition of the vowel systems of Tswana and SAE will be provided, after which these vowel systems will be compared in order to determine the focus of this study. This theoretical background will serve to elucidate the hypotheses stated in Chapter 1, and provide a general idea of the direction of the study.

#### **2.2 Theoretical background**

Various theories have been put forward to account for foreign accentedness. Lewis (1998:17-18) summarises hypotheses concerning a critical period for language learning, the loss of flexibility of the speech organs, inadequate phonetic input, and failure to perceive the L2 sounds correctly. A critical period for language learning, the loss of flexibility of the speech organs and inadequate phonetic input will not be discussed here, since their influence on the accent of the Tswana speakers used in the present study cannot be determined. These theories can only be adequately validated in a longitudinal study that covers different age groups or specific subjects over an

appropriate period of time. Before some theories relevant to this study are discussed, the concept of intelligibility will be explained. As it involves the very core of communication, intelligibility is an extremely important (if not the most important) incentive for studying foreign accentedness. A discussion of this phenomenon is presented here, after which follows the presentation of theories related to the learning of an L2.

### 2.2.1 Intelligibility

Major and Kim (1996:466) point out that “many researchers have observed that adults learning a second language (L2) have difficulty achieving native speaker (NS) levels of accuracy”. A great number of L2 speakers may, in fact, never attain a pronunciation proficiency level equal to that of their L1<sup>4</sup>, since “phonologists have yet to demonstrate that anyone who has learned an L2 after puberty can pass for native 100% of the time in all areas for which NSs pass for native 100% of the time” (Major & Kim, 1996:466). When a speaker’s L2 pronunciation proficiency level is not the same as that of L1 speakers, such a person is said to speak with an accent<sup>5</sup>. While it is apparent from the above quotation that few adult second language speakers may ever attain an L1 pronunciation proficiency level, an L2 speaker should at least try to pronounce the L2 in such a way as to be understood as clearly as possible by native speakers. The influence of the phonological structure of a speaker’s mother tongue on his pronunciation of an L2 is called language transfer (which may be positive or negative; see 2.2.2 below), and “not only leads to irritation on the side of the hearer, but in many cases to unintelligibility” (Haasbroek & Van Wyk, 1996:163).

When a speaker’s accent is so strong that it renders his or her speech unintelligible, the whole purpose of speech, i.e. communication, is lost. Jacobs (1994:16) quotes an Economics professor as saying:

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<sup>4</sup> Haasbroek and Van Wyk (1996:163) claim that “studies in second language acquisition show that the majority of adult second language (L2) speakers never attain a pronunciation proficiency level comparable to that of their mother tongue (L1)”.

<sup>5</sup> In this case, “accent” is defined as “pronunciation which differs from the standard” (Shibles, 1995:365).

We are constantly being urged by future employers to teach students critical thinking skills, but this is impossible without spontaneous conversation. How are we to develop students' capacities for thought and judgement if they do not understand our speech and we do not understand theirs, even though we all speak English?

It is clear, then, that where L2 pronunciation deviates too greatly from that of native speakers, intelligibility is lost and communication severely impeded. The present study is exactly concerned with this phenomenon, but it is restricted to the realisation of English vowels by Tswana speakers. Since 57% of Zulu teachers in Jacobs' study spoke an English that was "more or less incomprehensible", one may conclude that "the allegation of WSAE [White South African English] academics that the English pronunciation of many matriculated Zulus is too broad to be understood may have some justification" (Jacobs, 1994:24). Jacobs has a rather general approach, which at times is somewhat impressionistic. This study will be a more precise attempt at discovering the effects of TL1 interference on EL2 pronunciation. Whether the pronunciation of TE poses a problem, remains to be verified.

It can be seen from the arguments mentioned above that accent or broad pronunciation of an L2 can exercise significant influence on intelligibility. Consequently, existing theories concerning accentedness also need to be considered.

### **2.2.2 Language transfer**

Lewis (1998:18) states: "One of the most important factors governing L2 learning is L1 cross-language transfer to L2 pronunciation." It would seem that the concept of language transfer is indeed an important consideration in the study of foreign accentedness, and it will be employed when the results of this study are discussed.

Corder (1973:132) states that "when people learn a second language they are not acquiring language, they already possess it." For this reason, a language learner will

apply the already familiar rules<sup>6</sup> of his/her L1 to the L2. Unless the learner perceives the differences between the rules of the L1 and L2, he/she will continue to apply the rules of the L1 to the L2. "This is what is meant by 'transfer'; learners transfer what they already know about performing one task to performing another and similar task" (Corder, 1973:132). The concept of transfer is divided by Corder (1973:132) into negative transfer or *interference* (making errors in the second language) and positive transfer or *facilitation* (where the rules of the L1 and L2 happen to be the same)<sup>7</sup>. Interference or negative transfer will be discussed below as a phenomenon that may influence the TL1 pronunciation of English.

Weinreich (1953:14) describes interference (negative transfer) as follows:

The problem of phonic interference concerns the manner in which a speaker perceives and reproduces the sounds of one language, which might be designated secondary, in terms of another, to be called primary. *Interference arises when a bilingual identifies a phoneme of the secondary system with one in the primary system and, in reproducing it, subjects it to the phonetic rules of the primary language.*

In discussing interference resulting from contact between two distinct phonological systems, he distinguishes between four basic types (Weinreich, 1953:18-19):

- a) **Under-differentiation of phonemes** occurs when two sounds of the secondary system whose counterparts are not distinguished in the primary system are confused.
- b) **Over-differentiation of phonemes** involves the imposition of phonemic distinctions from the primary system on the sounds of the secondary system, where they are not required.
- c) **Reinterpretation of distinctions** occurs when the bilingual distinguishes phonemes of the secondary system by features which in that system are merely concomitant or redundant, but which are relevant in his primary system.

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<sup>6</sup> The term "rules" is used here to include the conventions of pronunciation (or whatever area of language) as mastered by the speaker. This does not imply that vowel production is necessarily governed by "rules".

- d) **Actual Phone substitution**, in the narrow sense of the term, applies to phonemes that are identically defined in two languages but whose normal pronunciation differs.

This distinction seems to be most useful in studying the nature of negative language transfer, and will be applied in the present attempt to identify and explain Tswana mother-tongue interference on English vowels. It is hypothesised that the results of this study will be effectively interpreted by using Weinreich's classification, as has been done by Glaser in the case of Xhosa vowels (Glaser, 1995).

Flege (1980) put forward some interesting views on "interlanguage" as confirmed by his research. Since some aspects of his theory differ from the concept of negative language transfer as discussed above, it is now necessary to highlight some of Flege's views.

### 2.2.3 Interlanguage

Whereas authors such as Weinreich (1953), Corder (1973) and Selinker (1992) (see also Glaser, 1995; Haasbroek and Van Wyk, 1996; Lewis, 1998) are exponents of the theory that the copying of L1 patterns into the L2 has various consequences in L2 pronunciation, Flege (1980) supports a different concept of "interlanguage"<sup>8</sup> (IL). Although IL has been recognised for some time, and is taken into account by the above-mentioned authors, Flege seems to move away, to some extent, from the language transfer theory. He states: "Phonetic specification of speech sounds in a foreign language seems to be the output of an 'interlanguage' rather than simply the product of interference between L1 and L2" (Flege, 1980:133), and explains his view in the following way:

The present study suggests that individual adult learners of a foreign language may modify pre-existing phonetic patterns at somewhat differing rates, make slow progress in

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<sup>7</sup> Although Corder does not specifically refer to pronunciation or phonology, these principles can apply to other areas of language learning (see Major & Kim, 1998:493).

acquiring the phonetic norms of a target language, and adopt somewhat different phonetic strategies for producing new or phonetically different sounds in L2 (Flege 1980:133).

This theory is substantiated by the finding that "a learner's mispronunciations will not always match sounds found in L1 and L2" (Flege, 1980:117). According to Flege and Hillenbrand (1984:48), a speaker may taxonomise the phones acoustically in an L2 as "identical", "similar", or "new". They (Flege & Hillenbrand, 1984:58-59) define a *similar phone* as "an L2 phone which is realized in an acoustically different manner than an easily identifiable counterpart in L1", and a *new phone* as "an L2 phone which does not have a counterpart in L1, and may therefore not be judged as being the realization of an L1 category". The results of Flege's research "suggest that the phonetic space of adults is restructured during L2 learning, and support the hypothesis that equivalence classification<sup>9</sup> prevents experienced L2 learners from producing similar L2 phones, but not new L2 phones, authentically" (Flege, 1987:47). Consequently, an adult L2 learner will be able to reproduce L2 phones unknown to L1 accurately, but not those which have an easily identifiable counterpart in L1.

Flege (1980:120) concludes that, if L2 pronunciation is the output of an interlanguage, we might expect to find that:

1. the L2 sounds produced by language learners are phonetically intermediate to similar sounds in L1 and L2;
2. L2 sounds (including mispronunciation) are produced fairly consistently in the same phonetic context by language learners; and
3. individual learners may adopt different phonetic strategies to produce L2 sounds.

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<sup>8</sup> "Interlanguage" is a term used to describe a speaker's foreign language competence, which assumes a process where the learner's linguistic competence only gradually approximates that of native speakers of the L2 (see Flege, 1980:118-119).

<sup>9</sup> "Equivalence classification is a basic cognitive mechanism which permits humans to perceive constant categories in the face of the inherent sensory variability found in the many physical exemplars which may instantiate a category" (Flege, 1987:49).

The Similarity Differential Rate Hypothesis, as suggested by Major and Kim (1996), is a development of the IL concept as has been discussed earlier. Some consideration will now be given to this hypothesis.

### 2.2.4 The Similarity Differential Rate Hypothesis

Major and Kim put forward the Similarity Differential Rate Hypothesis (SDRH), which they define as follows (Major & Kim, 1996:475):

The SDRH claims that a dissimilar phenomenon is acquired more quickly than a similar one but markedness<sup>10</sup> is a mediating factor; that is, given a similarity differential, a greater degree of markedness will decrease rate of acquisition.

This hypothesis builds on Flege's concept of interlanguage, as well as Eckman's Markedness Differential Hypothesis (MDH) (Eckman quoted in Major & Kim, 1996:475). With the SDRH, Major and Kim, over and above similarity / dissimilarity, also take into consideration the following factors: the markedness of the sounds in question, the level of experience that the L2 learner has attained, time, overgeneralisation and interaction of phenomena:

When similarity / dissimilarity specifications are held constant, relatively more marked phenomena will exhibit slower rates than relatively less marked ones (Major & Kim, 1996:489).

Thus, true beginners tend to perform better for similar sounds (albeit not native-like) than for dissimilar sounds. Later, as learners start to acquire more of the L2, their proficiency for dissimilar sounds can increase and even surpass their proficiency for similar sounds (Major & Kim, 1996:484).

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<sup>10</sup> A vowel that has the positive value of a feature (e.g. [+nasal]), can be described as "marked". "Markedness" may also refer to "having a feature or a value of a feature which is not that predicted or expected, by some general principle, e.g. from other features" (Matthews, 1997:217-218). Thus, if back vowels are normally rounded, a back vowel pronounced with lip-spreading will be called "marked". "Marked" sounds are usually the less natural sounds, those that children acquire last, and that do not occur in many languages.

Complete overgeneralization is a merger or unity between two or more phenomena. For example, consider the acquisition of English liquids. A speaker whose L1 has /l/ but no /r/ (e.g., Korean) produces /l/ for both /l/ and /r/ in English. As acquisition proceeds, interaction of /l/ and /r/ occurs, although attempts at /r/ become more *r*-like, attempts at /l/ also become more *r*-like but less *l*-like (Major & Kim, 1996:488).

On the one hand, the theory of negative language transfer (language interference) claims that pronunciation errors occur because of L1 patterns being transferred to L2. On the other hand, Flege's concept of an iL implies a gradual development of linguistic ability towards the target language, implying that new phones are pronounced neither according to L1 nor to L2 norms, but somewhere in-between. The SDRH of Major and Kim also holds that "dissimilar phenomena are acquired faster than similar ones and, *ceteris paribus*, that markedness is merely a mediating factor affecting rate" (Major & Kim, 1996:492). It may be noted at this point that Selinker (1992:259) suggests "that there are certain needs that must be included in current IL thought, especially a *richer language transfer perspective* (italics mine - CMvdH). The present study may shed some light on the relationship between these different hypotheses. As indicated in the problem statement (Chapter 1), this study will endeavour to discover the differences in the pronunciation of vowels in English L1 and TE. Once those differences have been identified, an attempt will be made to explain these differences in the light of the above-mentioned theories.

All of the above-mentioned theories that account for foreign accentedness can, apart from production tests and acoustic analyses, also be investigated by means of perception tests. The way that a person perceives a sound can be indicative of the way it was produced. In this case, it means that the more problems an L2 learner has with pronouncing a specific vowel, the more likely it will be that other people will have difficulty in perceiving what is said. The present study will employ perception tests in order to establish the nature of first language interference on the vowels of English as produced by TL1 speakers.

The vowel systems of Tswana and English will now be discussed, in order to provide the background to the scope of this study.

## 2.3 The vowel system of Tswana

Before the individual vowels of Tswana are discussed, a brief introduction concerning the place of Tswana within the Bantu language family is presented.

### 2.3.1 Linguistic classification

Cole (1955:xv ff.) explains the linguistic classification of Tswana as follows: Tswana is a Bantu language belonging to the Sotho group of the South-eastern zone of Bantu languages. It is the most widely dispersed Bantu language in Southern Africa. The South-eastern zone of Bantu languages is divided into the following five groups:

- a) Nguni, including Zulu, Xhosa, Swazi, etc.;
- b) Sotho;
- c) Venda;
- d) Tsonga, including Ronga, Shangana-Tsonga, Tswa, etc.;
- e) Inhambane, including Chopi and Tonga.

The Sotho group consists of the following languages and dialect clusters:

- a) Tswana
- b) Southern Sotho (of Basutoland<sup>11</sup> and Orange Free State<sup>12</sup>);
- c) Northern Sotho (of central and Northern Transvaal<sup>13</sup>; includes Pedi, Kone, Tau, Kgaga, Kwena, Tlokwa and other dialects);
- d) Lozi (Rotse or Kololo, of Barotseland, Northern Rhodesia<sup>14</sup>);
- e) Kgalagadi (of central Bechuanaland Protectorate<sup>15</sup>; includes Ngologa, Koma, Kuwe and other dialects);

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<sup>11</sup> Now Lesotho

<sup>12</sup> Now Free State

<sup>13</sup> Now Gauteng and Northern Province

<sup>14</sup> Now Zambia

<sup>15</sup> Now Botswana

- f) Lobedu, Phalaborwa, Phai, Kutswe, Pulana, etc. (of northern and eastern Transvaal<sup>16</sup>; not yet satisfactorily classified<sup>17</sup>).

The Tswana cluster of dialects consists of four divisions, viz. Central, Southern, Northern and Eastern. The Central, Southern and Northern divisions together constitute the Western Tswana dialects. According to linguistic affinities (not genealogical and traditional relationships between tribes), the dialects of Tswana are classified in the following manner:

1. **The Central division** - Rolong, Hurutshe, Ngwaketse
2. **The Southern division** - Tlhaping, Tlhware (Tlharo)
3. **The Northern division** - (Western) Kwena, Ngwato, Tawana
4. **The Eastern division** - Kgatla, (Eastern) Kwena, and minor tribes such as Fokeng, Tlokwa, Lete, Tlhako, Phalane, Phiring, Kubung, Kolobeng, Tloug, etc.

The standardised, written form of Tswana is based on the closely allied Central dialects, because they are geographically central and show the least evidence of influence by other Bantu languages (see Cole, 1955:xix).

### 2.3.2 The vowels

The common vowel system employed by the Sotho group of languages consists of seven vowels with four variants. As a member of the Sotho language group, Tswana shares these vowels. In his study on the phonology of the Central, Eastern and Southern dialects of Tswana, Malepe (1966:61-62) indicates that one vowel system applies to all the Tswana dialects. The dialects in which variations in pronunciation do occur merely substitute one vowel in the system for another, but never is a vowel

<sup>16</sup> Now Northern Province and Mpumalanga

<sup>17</sup> Van Wyk (1966:37) has classified Pulana and Kutswe as Eastern Central Sotho, Phai as Eastern Sotho, and Lobedu and Phalaborwa (together with Roka, Hlabeng, Kone and Kgaga) as North-eastern Sotho.

introduced as foreign to the system<sup>18</sup> (see Malepe, 1966:62). The vowels of Tswana are given below (see Krüger & Snyman, 1986:77-78).

1. /a/ mid-low vowel, e.g. –araba /-araba/ *answer*
2. /ɔ/ mid-low back vowel, e.g. phôlôgôlô /pʰɔlɔxɔlɔ/ *animal*
3. /o/ mid-high back vowel, e.g. go tsoma /xo-ts'oma/ *to hunt*
4. /u/ high back vowel, e.g. go dula /xo-dula/ *sit*
5. /e/ mid-low front vowel, e.g. go lèbêlêla /xo-lebelela/ *look*
6. /ɛ/ mid-high front vowel, e.g. go lema /xo-lema/ *plough*
7. /i/ high front vowel, e.g. lefifi /leɸiɸi/ *darkness*

According to Krüger and Snyman (1986:82), "liprounding is an accompanying feature of all the back vowels" in Tswana, as is the case in most other languages. The vowels of Tswana may be represented on the vowel chart as follows (see Krüger & Snyman, 1986:82):

front	centre	back	
[i]		[u]	high
[e]		[o]	mid-high
[ɛ]		[ɔ]	
[ɛ]		[ɔ]	mid-low
	[a]		low

**Figure 1:** *Phonetic vowel chart for Tswana*

The diacritical symbols that are used here, are explained in the discussion to follow.

<sup>18</sup> Interestingly, in the Sekoma and - to some extent - the Sekenyè dialects of Kgalagadi, the seven basic vowels of Kgalagadi (which correspond to those of Tswana) occur, but in nasalised form (see Krüger &

### 2.3.2.1 Vowel raising (partial height assimilation)

The four mid-vowels each has a raised variant, i.e. /e/, /e/, /o/ and /ɔ/, which occurs in specific phonological environments. According to Krüger and Snyman (1986:117), these vowels are raised if the following syllable contains vowels and consonants with more palatal or velar features than themselves. These environments are:

#### *Vowels*

- the closer (high) vowels /i/ and /u/;
- the semi-close (mid-high) vowels /ɛ/ (sic)<sup>19</sup> and /ɔ/.

#### *Consonants*

- the continuants /n/, /ɲ/, /ŋ/ when they are syllabic, in which case they are the result of causative and locative formation;
- the continuants /ɲ/ and /ŋ/ when they are also non-syllabic;
- the alveolar consonants /s/, /ts'/, /ts/<sup>20</sup> when they are the products of palatalisation caused by the causative /-y-/;
- the palatals /j/, /tʃ'/, /tʃ/.

Krüger and Snyman (1986:117-118) state the general rule for vowel raising as operating “retrogressively to the preceding syllable(s) provided that the linear order between the vowels (to be raised) and consonants and vowels which cause the raising, is from *lower* to *higher* respectively”. The following categories and examples elucidate this rule (see Krüger & Snyman, 1986:118-119)<sup>21</sup>:

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Du Plessis, 1977:1). Kgalagadi, however, belongs to a different classification of the Sotho language group, and therefore does not affect the uniform vowel system of Tswana.

<sup>19</sup> This mid-high vowel is /ɔ/.

<sup>20</sup> From an analogy with the palatal consonants /j/, /tʃ'/, /tʃ/, as well as the fact that Krüger and Snyman (1986) do not mention the consonant /ts/ anywhere else, it appears that this is a misprint which should read /tsʰ/.

<sup>21</sup> Some additional examples which do not occur in Krüger and Snyman (1986) have been provided. These are marked with \*.

(a) *Raising of the semi-close vowels /e/, /ɔ/*

When followed in the next syllable(s) by /i/, /u/ or /ŋ/, these vowels are raised to /ẹ/ and /ɔ̣/ respectively, e.g.:

-lema /lema/ (sic) <sup>22</sup>	>	-lemilê [-lɛ̣mɪlɛ̣] <i>ploughed</i>
		-lemisa [-lɛ̣mɪsɪsɪ] <i>cause to plough</i>
		-lemiwa [-lɛ̣mɪwɪwɪ] <i>be ploughed</i>
noka /nok'a/	>	nokêng [nok'ɛ̣ŋ] <i>at the river</i>

(b) *Raising of the semi-open vowels /ɛ/, /ɔ/*

These vowels will be raised to /ɛ̣/ and /ɔ̣/ respectively when followed in the next syllable(s) by one of the following:

/i/, /u/, /e/, /o/

/n/, /ŋ/, /ɲ/

/s/, /ts'/, /tsʰ/, /tʃ' / /tʃʰ/

e.g.:

tsêbê /ts'ebɛ/	>	tsêbêng [ts'ɛ̣bɛŋ] <i>in the ear</i>
tirô /t'irɔ/	>	tirông [t'irɔ̣ŋ] <i>at work</i>
*-rêka /rɛk'a/	>	rêkisa [rɛ̣k'ɪsɪsɪ] <i>sell</i>
*-tôpa /t'ɔp'a/	>	-tôtšwa [t'ɔ̣tʃ'wɪ] <i>be darned, mended (clothing)</i>

The vowels /e/ and /ɔ/ are also raised when they occur as final vowels of the following:

- monosyllabic auxiliary verbs, e.g. -nê [-nɛ̣], -nô [-nɔ̣];
- demonstrative and relative pronouns, e.g. tsê [ts'ɛ̣], jô [dʒɔ̣];
- impersonal deverbatives and subjunctive and imperative verbs if the preceding syllable includes the higher variants [ɛ̣], and/or [ɔ̣], e.g.:

o-ikêtlê<sup>23</sup> [o-ik'ɛ̣tl'ɛ̣] *you must wait*

pôntshô [p'ɔ̣ntsʰɔ̣] *a show*

<sup>22</sup> /lema/ (see Krüger & Snyman, 1986:78).

<sup>23</sup> The semi-conjunctive orthography, as proposed and used by Krüger & Snyman (1986) is used, where (subject) morphemes are connected to verb stems with a hyphen, as opposed to the disjunctive orthography used for the Sotho languages (morphemes and verb stems are written separately) or the conjunctive orthography used for the Nguni languages (morphemes and verb stems are written as one word).

The vowel /ɛ/ is also raised in the final position of the perfect endings, e.g. –ilê [-iɛ] and –itsê [-its'ɛ].

Pretorius, Roux and Wissing (1998) have found that /ɛ/ is sometimes raised to /i/ in the negative form of the hortative, subjunctive and imperative verbs.

The discussion will now turn to the vowel system of English, in order to compare it with that of Tswana.

## **2.4 The vowel system of English**

Before the vowel system of English that will be used in this study is presented, a brief overview of the diversity in the SAE community is provided. This will assist in the choice of an English vowel system appropriate for the present study.

### **2.4.1 The diversity in the SAE community**

Describing the vowel system of English for the purposes of this dissertation is not quite as simple as doing so for Tswana. The comparison between the different vowel systems of the two languages is aimed at finding possible explanations for instances of negative language transfer in the English of Tswana speakers. This implies that the vowels concerned must be those belonging to English as it is spoken in the region where Tswana speakers live. Extensive work has been done on RP (Received Pronunciation), and the vowels of this British lect have been scientifically documented (e.g. in Kreidler 1989). Shibles (1995:357) points out, however, that "RP is improperly and ambiguously defined, uses inconsistent phonetic transcriptions, lacks standard vowel and articulatory charts, uses and substitutes generic phonemic transcription for actual phonetic transcription, is not based on a clear policy as to its appropriate areas of application or relationship to other dialects, is not established on the basis of enlightened majority rule, and serves to impose a tiny minority and arbitrary standard on a vast worldwide majority, thereby producing intolerance and linguistic oppression or what is called "linguistic imperialism". Although some controversy still exists about

various aspects of this standard of pronunciation, it has been far more thoroughly studied and documented than some variants of South African English, e.g. Black South African English.

The very term "Black South African English" raises some questions. Is there a uniform BSAE, or can Tswana English be distinguished from, for example, Zulu English or Venda English? Would it be scientific to use one term covering the English accent of speakers of different languages that have different sound systems, in spite of salient similarities? Can the English accents of a German speaker, a French speaker and an Italian speaker be grouped together under the term "European English" or "Continental English", without any further distinction? Or can there be such an English as "Romance English", covering the accents of French, Italian, Spanish, Portuguese, etc. speakers, as if the speakers of this language group had but one English accent?

South African English pronunciation, however, does not comply with all the standards of RP, and English in the North West Province can be much less expected to do so. As long ago as 1978, Lanham (1978b:147) already pointed out that RP is no longer the common standard in South Africa, but rather the lect of a diminishing social group:

R St [Received Standard] is a lect with pronunciation norms approximating those described by Gimson (1962) as 'British general RP', correlating with a social group progressively less well-defined and greatly diminishing in number since the Second World War. (Many R St speakers in the SAE community are in fact British-born.) South African-born speakers with adequate control of the lect as a pattern are likely to be: over 45; educated in the top seven of exclusive private schools; members of the most exclusive social sets in the upper class in English cities mostly known to one another - many, in fact, are descendants of the mining plutocracy at the turn of the century; strongly orientated culturally towards Britain with which close links are maintained.

If the social context of RP in South Africa was already diminishing in 1978, it is now (1999) much more the case.

The "English cities" referred to are: Johannesburg, Cape Town, Durban and Port Elizabeth (Lanham, 1978b:140). With the exception of Johannesburg, which lies on the

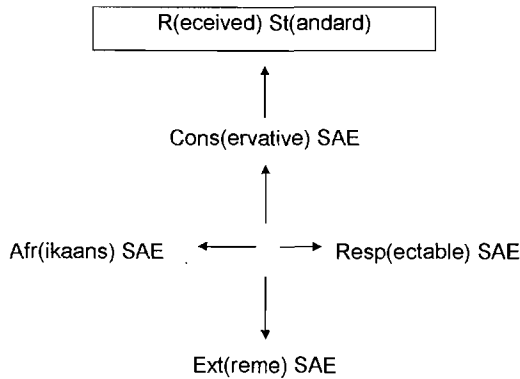
border of the Tswana-speaking area, the other "English cities" are nowhere near any such area. The contexts in which RP is used also seem to be quite limited, as Lanham (1978b:147)<sup>24</sup> continues to say:

R St is no longer offered as a vernacular model [even] in exclusive upper-class sectors of society where it existed as such before the Second World War. Young speakers of R St therefore have such special social experiences as, for example, attending school or university in Britain. R St is still the norm for the professional stage and serious radio announcers, although it is now disappearing from the latter.

It is clear that the English generally spoken in the areas where Tswana speakers live, cannot be a variety conforming to RP standards. Writers such as Hacksley (1994) and Sarinjeive (1996) note that the standard English of Britain is no longer to be considered a model for the South African situation. For this reason, it would appear somewhat absurd to compare the vowel system of Tswana with that of an English lect which is seldom, if ever, heard by most Tswana speakers. The obvious course to take, would be to concentrate on the SAE vowel system. It is, however, not that straightforward, as Lass (1990:272) states: "South African English' (SAE) is an enormously complex and grossly under-described dialect cluster, comprising both mother-tongue and L2 varieties." Thus, the term SAE does not refer to any one lect (as in the case of the term RP), but it rather acts as a collective term. Lanham (1978b:146) represents the diversity in the SAE community in the following manner:

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<sup>24</sup> RP has since 1978 even been more limited in its usage in a South African context. Some would even



**Figure 2:** *Diversity in the SAE community*

It is interesting to note that Black South African Black English (BSAE)<sup>25</sup> is not included in this representation of the SAE community, which clearly indicates that it was not considered to be an "official" lect of SAE by Lanham in 1978.

Lanham and MacDonald (1979:30) point out the following associations between what he calls "social variables and the three socially significant accents of SAE":

*Cons SAE* - upper class, associations with Britain, older than 45, female

*Ext SAE* - lower class, Afrikaner descent, male

*Resp SAE* - least apparent as a differential between social groups; the strongest association is with a small group identified by the conjoint set: European Jewish, female, younger than 45, without associations with Britain

Of the above-mentioned accents of SAE, Cons SAE does not seem to be a suitable standard for the English generally spoken<sup>26</sup> in the Tswana-speaking area. The reason for this is that a minority of the people are upper class and have associations with

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have [Black] South African English become the standard in South Africa (see Ndebele, 1987).

<sup>25</sup> See footnote no. 17.

<sup>26</sup> Some television and/or radio presenters may speak this variety of SAE. It is the impression of the author, however, that they are not a majority, and that a great number of television and radio

Britain. Ext SAE likewise appears unsuitable, since the standard of English pronunciation in this area would hardly be determined by the lower class sector of Afrikaans descent, especially not in the media. When interpreting the given data, it has to be borne in mind that the associations which Lanham has recorded are merely that. The speakers of SAE who use the different accents are not necessarily confined to the associations established in perception tests.

Resp SAE does, however, seem the most likely standard of SAE spoken in the Tswana-speaking area, because it "is least apparent as a differential between social groups" (Lanham & MacDonald, 1979:30), and it is not regionally marked in the same way as the Ext SAE of the Eastern Cape, for example. Lass (1990:272) describes Respectable White Cape Town English as a "local but (intuitively) highly typical standard SAE variety". For this reason, Resp SAE will be used in this dissertation as a standard for SAE in the Tswana-speaking area. It is important to bear in mind that many people who speak or teach English in this area are themselves EL2 speakers, with Afrikaans or Tswana as L1. Until the pronunciation of English L1 in this area has been ascertained scientifically, Resp SAE would seem a viable choice.

#### **2.4.2 The vowels**

A vowel chart of Resp SAE, based on Kreidler's (1989:57) vowel chart of English and adapted with data from Lass's discussion on "A 'standard' South African vowel system" (1990), is proposed below:

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stations/programmes that are popular with Tswana speakers are actually presented by Africans who speak BSAE.

	front	central	back	
	i			high
	ɪ	i u ʊ	ɤ	mid-high
	e	ɛ ə	o:	mid-low
	æ		ɑ:	low

**Figure 3 :** *Phonetic vowel chart for Resp SAE*

The following phonetic description of the vowels as represented above is based on the 'standard' South African vowel system, as proposed by Lass (1990:274-278)<sup>27</sup>, although the order in which the vowels are treated has been adapted. This vowel system of Lass's is used for lack of a more accurate one, and where the author does not agree with Lass, it is so indicated in footnotes. Kreidler's (1989:58-61) phonetic descriptions of RP vowels have throughout been consulted as a standard. Vowels which occur in the onset of diphthongs (e.g. /ɔɪ/, /aɪ/, /ɪə/ and /ɔɪ/), have not been included in the list below, since the present study is only concerned with the cardinal vowels.

1. /i:/ long, close front vowel, e.g. /fli:s/ *fleece*
2. /ɪ/<sup>28</sup> short, lax high-front vowel, e.g. /ɪt/ *it*
3. /ɪ/<sup>29</sup> short, high-central (occasionally somewhat lowered) vowel, e.g. /mɪs/ *miss*
4. /u:/ long, close, central rounded vowel, e.g. /gu:s/ *goose*
5. /ʊ/ short, lax high-central, weakly rounded vowel, e.g. /fʊt/ *foot*
6. /ɤ/<sup>30</sup> short, mid-high back vowel, e.g. /wɤl/ *will*
7. /e/ short or long, half-close front vowel (often retracted or centralised), e.g. /dres/ *dress*, /skwe:/ *square*

<sup>27</sup> Only the monophthongs have been taken into consideration, and the vowels of loan words (mainly Afrikaans) have been excluded.

<sup>28</sup> Occurs initially, after /ɪ/, before or after velars, usually before palato-alveolars but rarely after them (see Lass, 1990:275).

<sup>29</sup> An allophone of /ɪ/ which occurs in most other environments where /ɪ/ doesn't (see Lass, 1990:257).

8. /ʊ:/<sup>31</sup> long, half-close, front rounded vowel, e.g. /nʊ:s/ *nurse*
9. /ɜ:/<sup>32</sup> short, central vowel, e.g. /strʌt/ *strut*
10. /ɔ/ short, half-close central vowel (in unstressed syllables), e.g. /kɒmə/ *comma*
11. /o:/ half-closed, rounded back vowel, e.g. /θo:t/ *thought*
12. /æ/ long or short, half-open front vowel, e.g. /træp/ *trap*
13. /ɑ:/ long, open back-central vowel, e.g. /bɑ:θ/ *bath*
14. /ɒ/ less-than-open, centralised, weakly rounded back vowel, e.g. /lɒt/ *lot*

## 2.5 The vowel systems of Tswana and Resp SAE compared

A most salient fact which may be noticed when comparing the vowel systems of Tswana and Resp SAE, is that Tswana has fewer vowels than does Resp SAE. The vowel system of Tswana consists of 11 vowels (7 vowels with 4 variants), whereas the Resp SAE vowel system has 14 vowels (12 primary vowels and 2 variants - see 3 and 6 above). This might cause Tswana speakers to mispronounce various English vowels by rendering them in terms of the more limited vowel system of their native tongue (under-differentiation; see 2.2.2 above).

Only the primary Resp SAE vowels and their variants will be considered in this study. The higher variants of the four mid-vowels of Tswana will also be excluded from this discussion, since their occurrence is, to a great extent, influenced by specific phonetic and morphological features of Tswana. To the best of the author's knowledge, no such higher variants of the mid-vowels occur in English, and therefore the influence of vowel raising of this kind wouldn't severely affect intelligibility, this difference being phonetic, rather than phonemic. A comparison between the vowels of Tswana and Resp SAE as described above, may be represented as follows<sup>33</sup>:

<sup>30</sup> An allophone of /ɪ/ which occurs before /l/ in syllable codas, and after /w/ (see Lass, 1990: 257).

<sup>31</sup> A more appropriate representation for this sound would be /œ:/.

<sup>32</sup> The RP /ɜ/ is not uncommon in SAE.

<sup>33</sup> It must be borne in mind that this comparison is not based on acoustically measured sound values, but on the sound systems of Resp SAE and Tswana as they have been described in literature in what seems to be an impressionistic manner. Conclusions drawn from this comparison, therefore, will merely provide a general background to the study, not conclusive arguments. These sound systems will have to be

*Vowels shared by Tswana and Resp SAE: /i/, /e/, /o/*

*Vowels occurring only in Tswana: /e/, /a/, /ɔ/, /u/*

*Vowels occurring only in Resp SAE: /ɪ/, /ɜ:/, /æ/, /ɪ/, /ʌ:/, /ʊ/, /ɜ/, /ɔ/, /ɨ/, /ɘ/*

Of the 14 Resp SAE primary vowels, only three occur in the sound system of Tswana. It is highly probable that they will be produced fairly accurately in the English of a Tswana speaker. The reason for this assumption is that the speaker merely has to reproduce the vowels of his mother tongue. These vowels could be classified as "similar" according to Flege and Hillenbrand's (1984) use of the term (see 2.1.3).

There are four vowels in the sound system of Tswana which do not occur in Resp SAE. It is possible that some of these vowels will be used when they approximate vowels in the English sound system, but this theory remains to be corroborated by the empirical research.

The remaining 10 vowels of Resp SAE do not appear in the sound system of Tswana. They may be termed "new" sounds for the TL1 speaker (see 2.1.3). In attempting to reproduce them, the Tswana speaker may resort to under-differentiation and/or pronouncing them as vowels which occur in Tswana with similar phonetic characteristics (phone substitution). In a perception test, listeners may then be unable to differentiate between minimum word pairs containing these vowels alongside with similar Tswana vowels. It is on such vowels, then, that the focus will fall in this study. These vowels may be pared down to five, viz. /ɪ/, /ɨ/, /ɜ:/, /æ/ and /ɜ/, for the following reasons:

- The vowels /ɜ:/ and /ʊ/ do not - to the best of the author's knowledge - occur in minimal word pairs where mispronunciation may result in a breakdown of intelligibility. Even if they were pronounced as /u/, which is the closest equivalent in the Tswana vowel system, they would probably be identified quite easily, because they do not approach any other English vowel.

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studied in production tests and described acoustically. If measured acoustically, the *dress* vowel /e/ of

- As for /ə/, no matter how it is pronounced, it cannot alter the meaning of a word, since it merely acts as a weak variant of many other unstressed cardinal vowels (not being a phoneme of English)<sup>34</sup>. It does not occur in monosyllabic words, such as the word pairs used in this study.
- The vowel /ɨ/ as an allophone of the KIT vowel /i/ (see Lass, 1990:275) will not be considered separately, but rather included in the /i/ minimal pairs. Thus, *hill* : *heel* were included in the same class as *sit* : *seat*.
- Finally, /ɸ/ will be excluded from this study. Although it could probably be mistaken for /o/ in Tswana speech (e.g. *cot* : *caught*, *rot* : *wrought*), minimal pairs containing these vowels were not included in the perception tests.

The focus of this study will be on the vowels /ɪ/, /i/, /ɨ:/, /æ/ and /ɜ/. Some “similar” vowels (i.e. /i:/, /e/ and /o:/) will, however, also be included in the research to act as a test of Flege’s theory concerning the pronunciation of “new” and “similar” phones (Flege, 1987).

Another aspect of the English vowel system which deserves to be mentioned here, is the duration of vowels, i.e. vowel length. Some vowels are distinctly long, e.g. /i:/, whereas others are distinctly short, e.g. /ɪ/. In the case of under-differentiation (e.g. /i/ and /ɪ/ both pronounced as /ɪ/, i.e. vowel quality is not properly distinguished), duration may be the only characteristic of the vowel which differentiates between word pairs such as /sit/ *sit* and /si:t/ *seat*. When duration is not recognised, both may be pronounced /sit/, and the minimal pair is lost.

Tswana speakers are liable to fail to differentiate between long and short vowels in English<sup>35</sup>, since vowel length does not play a significant role in distinguishing words in Tswana. Cole (1955:55-56) identifies three degrees of vowel length in Tswana, viz.:

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Resp SAE (and more so the RP /e/) may be rather close to the Tswana /e/ as in *-rêka*, for example.

<sup>34</sup> Shibles points out that the schwa “does not refer to a specific sound” (1995:370), and calls [ə] a “pseudo-symbol” (Shibles, 1995:369).

<sup>35</sup> As indicated by Dreyer, Wissing and Wissing (1996).

- (a) *full length*: occurs in the penultimate syllable of a word pronounced in isolation or at the end of a sentence, as well as in the verb tense formatives *-a-* and *-tla-* and in concords preceding monosyllabic word stems in the present participial tense forms;
- (b) *half length*: occurs in the penultimate syllable of a word in non-final sentence position; and
- (c) *normal or short length*: occurs in final and non-penultimate syllables, and in some monosyllabic words.

It is apparent from the above that vowel length in Tswana occurs regularly in specific syntactic circumstances, and does not serve as a means of distinguishing word pairs, i.e. vowel length in Tswana is phonetic and not phonemic. This is probably the reason why Tswana speakers have difficulty distinguishing between long and short vowels. Dreyer, Wissing and Wissing (1996:52) have found in their study on the relationship between cognitive styles and pronunciation accuracy that "the Tswana-speaking group, all cognitive styles taken into account, were incapable of distinguishing between the vowel lengths".

## 2.6 Summary

This chapter provides a theoretical background for the present study. It has been noted that three theories in particular will be considered in the interpretation of the results obtained, viz. the concepts of negative language transfer, IL and SDRH. The vowel systems of Tswana and Resp SAE were discussed according to existing literature, and, after providing a comparison of the vowel systems concerned, the vowels /i/, /i:/, /ɨ:/, /æ/ and /ɜ:/ were identified as the focus of this study.

These vowels were recorded by a TL1 speaker and an EL1 speaker, and used in perception tests. It is hypothesised that the TL1 speaker will fail to differentiate between the vowels concerned, and replace them with one another (or another vowel that does occur in the sound system of Tswana). The reason for this hypothesis is that the TL1 speaker will apply the rules<sup>36</sup> of the Tswana sound system in producing these "new"

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<sup>36</sup> See footnote 5.

vowels, which are alien to his L1. The results obtained are expected to be similar to those of Glaser 's (1995) study of Nguni vowels.

In Chapter 3, the design of the empirical research, as well as the results and statistical analysis of the same, will be presented.

## CHAPTER 3

### EMPIRICAL RESEARCH

*In other words, applied linguists are involved in all experimental studies of language teaching, but not all experimentation in language teaching is an evaluation of applied linguistic techniques. What is common to all experiments in language teaching is the measurement of the learner's knowledge of the target language. This is done by tests, the making of which is an activity of the applied linguist (Corder, 1973:353).*

#### 3.1 Introduction

By means of the tests described in this chapter, the present study is an attempt to measure the perception of the English of TL1 speakers, specifically with regard to the vowels /ɪ/, /i/, /ɒ:/, /æ/ and /ɜ:/, as explained in Chapter 2. It is hoped that these perception tests will provide an indirect indication of the pronunciation of TE. Although this does not strictly imply knowledge of the target language (English) as stated in the above quotation, it does concern acquired skill (which, incidentally, may very well be improved by knowledge of the phenomena which influence pronunciation).

In this chapter, the method of research followed in the present study is explained. After elucidating the design of the research, as well as the procedure employed in examining the problems stated in Chapter 1, it will focus particularly on the presentation of the results obtained. A statistic analysis of the results is offered in order to validate the hypotheses put forward for this dissertation. Possible explanations for these results will be discussed in Chapter 4.

The following three problem questions have been identified in Chapter 1:

- a) **How does the production of vowels in TE differ from that of EL1?**
- b) **How can these differences be explained in terms of L1 interference?**

- c) **To what extent do the differences in the pronunciation of vowels affect the intelligibility of TE?**

To follow is an explanation of the steps which have been taken to test the hypotheses put forward in this study, viz.:

- a) **Different English vowels will be represented by a single Tswana vowel.**
- b) **Vowels which do not occur in the Tswana vowel system will be replaced by the closest Tswana equivalent.**
- c) **Listeners (both Tswana- and English-speaking) will be unable to identify correctly some of the vowels as pronounced by Tswana speakers, which will have a negative influence on intelligibility.**

The testing of these hypotheses will provide possible answers to the above-mentioned questions. The design of the study is presented, the choice of subjects and stimulus sets explained, and the instrumentation and means of processing data are reported.

### **3.2 Design**

A one-shot cross-sectional design was used, where the perception of both groups was tested in response to both readers, i.e. EL1 and TL1. An EL1 reader and a TL1 reader each read a stimulus set on cassette, which was played to a listener group consisting of EL1 and TL1 speakers. The listeners had to identify words produced by the EL1 and the TL1 reader, which would indicate their perception of the vowels focussed on in this study. Thus, the perception of both EL1 and TL1 listeners of the vowels in question, as produced by the EL1 as well as the TL1 speaker was studied. This testing is described in more detail in 3.3 below, where the procedure followed in this study is presented.

### 3.3 Procedure

The research conducted in this study consisted of several phases, viz.:

- a) **recording a list of words containing the target vowels<sup>37</sup> of Resp SAE;**
- b) **determining the intelligibility of TE vowels by means of perception tests; and**
- c) **statistical analysis of the results.**

The subjects involved, the experimental conditions and the stimulus material are discussed in more detail below.

#### 3.3.1 Subjects

Two groups of subjects were involved, viz. (a) a group of eight TL1 speakers and (b) a group of eight EL1 speakers. The involvement of each group was as follows:

- a) **All involved (TL1 and EL1 speakers) completed a language background questionnaire (see 3.3.2.1) in order to establish their views concerning a “standard” SAE.**
- b) **The TL1 speaker and the EL1 speaker were used to record words containing the SAE vowels focussed on in this study.**
- c) **The TL1 and EL1 listener groups were involved in perception tests to establish the intelligibility of the material recorded by the TL1 and EL1 speakers; thus, the perception of each language group was tested in the case of both readers.**

Since the groups of subjects should be as homogenous as possible, eight Tswana-speaking and eight English-speaking pupils of Potchefstroom Boys’ High School were involved in the study. The following criteria were used for selecting the subjects:

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<sup>37</sup> See Chapter 2 – 2.5.

- a) **TL1: grade eight pupils of Potchefstroom Boys' High School who attended a primary school in the North West Province and who speak Tswana at home<sup>38</sup>.**
- b) **EL1: grade eight pupils of Potchefstroom Boys' High School who attended an English medium primary school in the North West Province and who speak English at home.**

The groups of subjects thus selected are availability samples, and cannot necessarily be regarded as representative of the Tswana speakers of the North West province. The subjects were selected from the only English medium high school in Potchefstroom, where this study was conducted.

The individual subjects involved in recording the English words were taken from the above-mentioned groups of TL1 and EL1 listeners. Each speaks the given language (Tswana or English) at home and has been a resident of North West Province for the past five years. These two subjects were chosen at random, without prior evaluation of their pronunciation. This was done in order to prevent a subjective choice on the side of the researcher, in an attempt to choose subjects who would "ideally" fit his hypothesis.

Subjects were remunerated for their participation.

### **3.3.2 Instrumentation**

The language attitude test, stimulus material, recording equipment and experimental conditions are presented here.

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<sup>38</sup> The ideal would be to have involved boys who attended an English medium primary school. The group involved in this study, however, consisted of some who attended a Tswana medium primary school, as

### 3.3.2.1 Language background questionnaire

Subjects were asked to complete a questionnaire (see Table 1) containing carefully selected questions to determine their language background and attitudes. Although this is not the primary focus of the present study, it was done to provide a backdrop for the main part of the research<sup>39</sup>. In Chapter 4, where possible explanations for the Tswana pronunciation of English are offered, the results obtained from this test are taken into consideration. The attitude of a speaker may very well influence his/her pronunciation. If a speaker favours a "standard" variety, he/she may strive to eliminate speech phenomena which could identify him/her with a specific social group. In the present case, a TL1 speaker who regards Resp SAE as representative of wealth, power, education, etc. may strive to emulate this accent. A speaker of Tswana, however, who is proud of his cultural identity (possibly considering Resp SAE as the language of political suppression and exclusiveness), may on purpose speak a strongly "flavoured" SAE, *thereby implying his/her allegiance to a certain socio-political grouping*. It is clear, then, that determining the background and attitude of a speaker towards the language in question can be valuable in a study such as this one. In Chapter 4, when the results of this study are discussed, some consideration will be given to the responses to this questionnaire.

**Table 1:** *Language background questionnaire providing demographic details and information about attitudes of the subjects involved*

1. Name
2. Age
3. Date of birth
4. Place of birth
5. Home language

well as others who attended an English medium primary school. The reason for this is that it was not possible to find enough participants from just one of the above-mentioned backgrounds.

<sup>39</sup> As indicated, this test was performed as a background to the subjects involved in the present study, and not in an attempt to study the attitudes and perceptions of the Tswana-speaking population of this region at large.

6. Where did you live before the age of 6?

7. Where did you attend primary school?

8. Where did you learn English?

9. Was your teacher English-speaking at home?

10. Do you think it is important to know English? Why / why not?

11. Do you think that the way (correct or incorrect) you speak English is important?

12. Would you like to improve your English? Why / why not?

13. Do you think that it is necessary to imitate the pronunciation of English-speaking people, or is any accent (e.g. Afrikaans, Tswana) OK?

14. On a scale from 1 to 10 (1 is completely wrong, 10 is perfect), evaluate the correctness<sup>40</sup> of the English spoken by:

- President Nelson Mandela
- Mangosuthu Buthelezi
- Popo Molefe
- Stevie Wonder
- The headmaster
- Felicia Mabuza-Suttle

15. Can you differentiate between the English pronunciation of a Xhosa speaker and a Tswana speaker?

16. Indicate your understanding of different English accents, using the following words:  
perfectly; well; with difficulty; not at all

- Tswana
- English
- Afrikaans

<sup>40</sup> The term "correctness" is used here for describing the way subjects perceive the language usage of the persons in question (including syntax, lexicon, pronunciation, etc.). It is possible that the subjects would rather evaluate their attitude towards the people and what they symbolise than towards their speech. Another possibility that has to be borne in mind is that all of the subjects may not have heard each of the people in question speak, which would render the results to this question quite inaccurate. However, this

• Xhosa

17. Do you think that difference in accent could be a problem in communication? Why / why not?

18. Do you think that there should be a norm or a standard of English that everyone should strive towards?

19. What should be the standard of English, and why?

20. Does the accent of other people when they speak English bother you? Why / why not?

The responses to this language background questionnaire yielded interesting results, which may clear up some problems as explained above. Since the English of TL1 speakers is the focus of this study, and their language attitude therefore important, only the responses of the TL1 subjects are taken into consideration here. The responses to the above-mentioned questionnaire are presented below.

100% of the respondents indicated that they thought it was important to know English, and 100% thought that the way one spoke English was important. Of the 8 respondents, only one indicated that he was satisfied with his English, and would not like to improve it<sup>41</sup>. From these results it appears that the majority of TL1 speakers involved consider their English ability as important, and strive to improve it.

What do they strive towards? All of the subjects regarded a difference in accent as a possible problem in communication. Out of 7 responses, 4 indicated that the English accent of others disturbed them, whereas 3 were not bothered. They also seemed to be quite sensitive to different accents, as all of them indicated that they could differentiate between the English pronunciation of a Xhosa L1 speaker and a Tswana

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test was included, as indicated, merely to provide some background that may prove helpful in interpreting the results obtained in the perception tests.

<sup>41</sup> When the results are studied, this particular person did not do particularly well (86% in reply to the ER, whereas the average for the TL group was 83% in reply to the ER). In fact, compared to the EL1 subjects, he fared rather poorly (they scored an average of 97% in response to the ER). Thus, his notion of not needing to improve his English is no indication of his superior perception (compared to the TL group as a whole).

L1 speaker<sup>42</sup>. If this is true, it would contradict the concept of the monolithicality of SABE, i.e. that speakers of the different South African indigenous languages pronounce English in the same way. This, however, will have to be the focus of more exact research. Seven responded that there should be a norm or standard that everyone should strive towards, and one thought it unnecessary (one didn't respond to the question). As to exactly what that standard or norm should be, there doesn't seem to be any unanimity. Of the 6 responses obtained, 2 opted for South African English, 2 for "good"/"high" English, and 2 for American English. The evaluation of different famous persons by the subjects (question no.14) may be indicative of the respondents' perception of different varieties of English. The averages of the respondents' evaluation of the "correctness" of the different persons' English<sup>43</sup> are presented here. The highest score was awarded to Felicia Mabuza-Suttle (90%), a well-known black South African talk-show hostess. Stevie Wonder, a black American actor, was awarded 81%, and the headmaster of Potchefstroom Boys' High School, a white South African (originally from Zimbabwe), 75%. The remaining black South Africans (all politicians) received rather low scores: President Nelson Mandela – 50%; Popo Molefe (premier of the North West Province at the time of this research) – 40%; and Mangosuthu Buthelezi (important leader of the Inkatha Freedom Party) – 28,5%. With the exception of Felicia Mabuza-Suttle, the subjects involved seem not to regard the English spoken by the black politicians mentioned above, as "correct". The reason for Felicia Mabuza-Suttle's high score is probably because she speaks a clearly understandable, good SAE<sup>44</sup>, although her popularity may also play a role. This, however, is doubtful, since Nelson Mandela is definitely also quite popular. Stevie Wonder's American English was regarded as more "correct" than that of the headmaster (a quite "standard" Resp SAE<sup>45</sup>), which points to the apparent popularity of American English among the subjects involved, as seen from question no.19. The headmaster's English, however, was regarded as rather more "correct" than that of the SABE speakers (President Nelson Mandela, Mangosuthu Buthelezi and Popo Molefe). It would seem viable to suggest that the subjects are inclined to regard SABE as less "correct" than white SAE, although American English seems to be favoured. The high score of Felicia Mabuza-Suttle may indicate that well-

<sup>42</sup> Of the two big African language groups spoken in Potchefstroom (where the research was conducted), i.e. Nguni and Sotho, Xhosa and Tswana respectively are the most important representative languages.

<sup>43</sup> See footnote 39.

<sup>44</sup> This, of course, is only a subjective impression of the author, which is open to criticism.

<sup>45</sup> Another impressionistic judgement of the author.

spoken, not strongly accented, SABE is a desirable variety of English to the subjects of this study.

No clear-cut, scientifically proven answers can be provided from the language background test that was conducted. A proper language attitude test would require many more subjects; Bowie and Bond (1994) used 75 people, for example. Some interesting background information was gained, however. It appears that the TL1 speakers involved are not negatively inclined towards Resp SAE<sup>46</sup>, and that they are not specifically attempting to use SABE in order to express their allegiance to a specific socio-political grouping.

### 3.3.2.2 Stimulus material

The subjects were requested to read a word list containing selected, but randomly ordered, minimal pairs. Minimal pairs are pairs of similar words, which are distinguished only by one phoneme. In the case of vowels, they may differ in terms of vowel length, quality, or both. For this study, word pairs were chosen where two vowels occur in the same consonantal context, e.g. [bæd] and [bed]. If a speaker, therefore, fails to distinguish between the two vowels concerned, or does so too slightly, the difference between the constituents of the minimal pair will be lost, and the listener will perceive the two words as homophones. For this reason, minimal pairs were used in the perception test, as the listeners' responses would be indicative of the possible effect of first language interference on the English of TL1 speakers.

In Chapter 2, it was indicated that the focus in this study would be on the vowels [i], [iː], [ɔː], [æ] and [ɜ] (see 2.5). The words containing these vowels (primary stimulus words) are listed in Table 2 below. Table 3 contains the other words (secondary stimulus words) used in minimal pairs alongside with those in Table 2. The primary stimulus words are those including the focus vowels of this study, whereas the secondary stimulus words contain all the other vowels occurring in the minimal pairs. These were included as complementary members of minimal pairs.

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<sup>46</sup> For the use of this term, see Chapter 2 – 2.4.1.

**Table 2:** List of primary stimulus words. Prototypical words of each vowel are provided in brackets for each column.

1. [ɪ] (it)	2. [ɪ̃] (miss)	3. [ʊ:] (nurse)	4. [æ] (trap)	5. [ɔ̃] (strut)
It	Sit	Work	Bad	Come
Wick	Still	Heard	Tan	Hum
Chick	Lip	Turn	Hat	
Hill	Bit	Bird	Had	
Hit	Live	Hurt	Ham	
Hip	Will			
Him	Fill			

**Table 3:** List of secondary stimulus words

1. [ɒ] (lot)	2. [i:] (fleece)	3. [ɑ:] (bath)	4. [o:] (thought)	5. [e] (dress)
Hot	Wheel	Harm	Walk	Bed
	Heap	Hard		Head
	Feel	Calm		Well
	Eat	Heart		Ten
	Seat	Hard		Hem
	Steal			
	Weak			
	Cheek			
	Leap			
	Beat			
	Heel			
	Leave			
	Heat			

Minimal pairs may be categorised in terms of the way in which the vowels (in the case of this study) differ. The vowels in these minimal pairs may differ in (a) length, (b) quality, or (c) a combination of both. In this study, no examples of minimal pairs that differ only in terms of length were used<sup>47</sup>. In SABE the qualitative difference of a word pair is sometimes lost (as is indicated further on from the results presented in this chapter), in which case length remains as the only distinguishing characteristic. Vowel length, however, does not occur as a phonemic characteristic in Tswana (see Chapter 2 – 2.5), and Dreyer, Wissing and Wissing (1996:52) have indicated that TL1 speakers are incapable of controlling vowel length. As a result, all differences between the constituents of such a word pair will be lost, as was hypothesised in Chapter 1. In Table 3 below, the minimal pairs used for this study are presented in the categories of quality and a combination of quality and vowel length:

From Table 4 below it may be noted that no minimal pairs that differ only in length were included in the stimulus material. Where difference in vowel length does occur, it is also accompanied by difference in quality. In Chapter 4 these categories will again be considered when offering (a) possible explanation(s) for the results of the empirical research.

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<sup>47</sup> It is doubtful, in fact, whether any such minimal pairs do exist, whether in Resp SAE or in RP. It is possible, however that minimal pairs which differ only in terms of duration may occur in TE, e.g. *sit* [sit] vs. *seat* [si:t]

**Table 4:** *Categories of minimal pairs*

I. Difference in quality	II. Combination of quality and vowel length
Hem – ham – him*	It – eat
Work – walk	Heard – head – had*
Hot – hat	Bad – bird – bed*
Hard – heard	Sit – seat
Well – will	Come – calm
Hurt – heart	Still – steal
Heard – hard	Wick – weak
	Wheel – will
	Chick – cheek
	Turn – ten – tan*
	Lip – leap
	Harm – hum
	Heap – hip
	Bit – beat
	Feel – fill
	Hill – heal
	Live – leave
	Hit – heat

\* These are not minimal pairs (consisting of only two items), but they are presented here in groups so as to save space, instead of presenting each of the individual combinations in pairs.

### 3.3.2.3 Recording of the stimulus material

Recordings were made in a classroom at Potchefstroom Boys' High School. This was done after school hours with the windows and door shut, so as to minimise disturbances

from outside<sup>48</sup>. A Technics recorder and a Shure SM48 (14K Hz Dynamic) microphone were used to record the words. A total of 102 items were recorded (2 subjects X 51 words).

Instructions were given to the readers to read each word clearly, leaving a five second pause (which was indicated to them by a gesture) before the following word. Two lists containing the same words, but in different order, were used - one for the Tswana reader and one for the English reader. The words were put on the lists in random order, so that no pattern (especially the distinction between minimal pairs) would be apparent.

### 3.3.2.4 Perception tests

Subjects listened to the speech samples in a sound-proof language laboratory at the Potchefstroom University for Christian Higher Education, indicating in writing the words which they perceived. They were given an open as well as a forced-choice test on each of the readers' words. In the open test, they had to write down each word as they perceived it. All the questions in the forced-choice tests contained three items with the same consonantal structure, but different vowels (e.g. *sit* - *sat* - *seat*), from which the listeners had to select the word they heard. A third item (or detractor) was added in order to make the choice less simple, i.e., to avoid a 50-50 chance of guessing the correct response. The open test was conducted first so as to make for an as "innocent" as possible perception, i.e. readers had to listen and write down what they heard, without options being provided.

An answer in the open tests was regarded as correct if it was a word containing the appropriate vowel, even if some of the consonants were perceived incorrectly (e.g. *feet* instead of *seat*), since the focus of this study is on the vowels of Tswana English. In the case of the forced-choice tests, only the words that were read on the cassette were regarded as correct, since the other options contain different vowels. Statistics were then performed on the data obtained, as explained below.

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<sup>48</sup> It is true, however, that external noise is not an important hindrance in this type of test, and some researchers even add some noise to make the test more difficult.

### 3.3.2.5 Processing of data

The data was analysed by means of the *Statistica for Windows* programme. Descriptive statistics were performed in order to obtain totals and percentages. Subsequently, inferential statistics in the form of one-way ANOVA (Analysis of Variance) and post-hoc comparison of means using the Tukey HSD, were performed. The p-values were considered as the standard of significance, where  $p < 0.05$  is statistically significant, and  $p < 0.001$  is statistically highly significant.

## 3.4 Results

The results obtained from the perception tests (see 3.3.2.3) will now be presented with some clarifying remarks. Firstly, the data pertaining to perception accuracy is presented. This data is particularly important in terms of the aims of the present study, because from it several trends related to the English pronunciation of TL1 speakers may be deduced: (a) it can be seen whether the TL1 renderings of English vowels are perceived as accurately as those of an EL1 speaker, which can be an indication whether TL1 speakers differentiate sufficiently in the production of the vowels in question, i.e. whether the TL1 speakers pronounce the vowels “correctly”; (b) it can be seen whether TL1 speakers perceive English vowels as accurately as EL1 speakers do, which may indicate a possible cause of under-differentiation, as hypothesised in Chapter 1; (c) it will also become clear whether (if under-differentiation does occur in the pronunciation of the TL1 speaker) this under-differentiation is a hindrance in comprehensibility to both TL1 and EL1 speakers, or merely to EL1 speakers, which would be an indication that TL1 speakers do differentiate – in their pronunciation – between the vowels to the extent that TL1 listeners can perceive such differentiation.

Secondly, the responses to the individual vowels will be presented with some clarifying remarks. From this it is hoped that the nature of the TL1 rendering of “new” English vowels (see 2.2.3) will become clearer. Some tendencies may be observed, and the hypotheses put forward in Chapter 1 can be validated in the light of these results.

Possible explanations for the results presented here, will be offered in Chapter 4.

### 3.4.1 Perception accuracy

The perception accuracy of the different listener groups to the different readers is presented in Table 4 below. This is represented by the percentage<sup>49</sup> of correct perceptions of stimulus words. The difference between the open and forced-choice perception tests was found not to be statistically significant ( $p > 0.106391$ ); results to follow were, therefore, calculated by including the responses to both open and forced-choice perception tests conflated.

**Table 5:** *Perception accuracy of the two listener groups to the EL1 reader and the TL1 reader*

	EL1 Listeners	TL1 Listeners	Total	p-values <sup>50</sup>
<b>EL1 Reader</b> (n=1536)	97%	83%	90%	**
<b>TL1 Reader</b> (n=1568)	59%	61%	60%	n.s.
<b>Total</b>	78%	72%	-	-

The total percentage of correct responses to the English reader (90%) was higher than that of the correct responses to the Tswana reader (60%), with  $p < 0.000009$ , a highly significant difference. The English listeners perceived 78% of the items correctly, whereas the Tswana listeners perceived 72% correctly. This difference is statistically highly significant ( $p < 0.000230$ ).

When the responses to the English reader are considered, it can be seen that the EL1 reader was nearly perfectly understood by the EL1 listeners (97% correct). The TL1 listeners understood the EL1 reader correctly in only 83% of the cases. This difference is statistically highly significant, with  $p < 0.000009$ .

<sup>49</sup> All percentages have been rounded off to the nearest integer.

<sup>50</sup> The following symbols will be used to represent statistical significance: \* = significant; \*\* = highly significant; n.s. = not significant.

In responding to the TL1 reader, the EL1 and TL1 listeners understood virtually equally badly (59% and 61% respectively). The difference is not statistically significant ( $p > 0.3$ ).

From the foregoing, the following may be noted: (a) the vowels of the EL1 reader were identified more readily than those of the TL1 reader; (b) the EL1 listeners perceived the vowels in the stimulus words more accurately, except in the case of the TL1 reader, where there is no significant difference between the scores of the listener groups.

More comments will be made on these results in Chapter 4. The results for the individual vowels are now presented.

### 3.4.2 Responses to the individual vowels

The results obtained in the perception tests are presented in the following tables (Tables 6 to 9). In Tables 6-7, the perception of the vowels /ɪ/ (as in *it*), /ɪ/ (as in *miss*), /ɪ̯:/ (as in *nurse*), /æ/ (as in *trap*) and /ɜ/ (as in *strut*) is presented in terms of the percentage of accurate perception. These are the vowels on which this study focuses, "new" vowels (see 2.5) to the TL1 speaker, i.e. they do not occur in the sound system of Tswana. The results for the "similar" vowels (see 2.5) /i:/ (as in *fleece*), /e/ (as in *dress*) and /o:/ (as in *thought*) are given in Tables 8-9. They are called similar, because they appear identical in the sound systems of Tswana and English (see 2.4). Although these vowels are not the focus of the present study, their results are included to act as a test of Flege's theory concerning the pronunciation of "new" and "similar" phones (Flege, 1987).

**Table 6:** The “new” vowels as perceived by the two listener groups in response to the TL1 and EL1 readers. Examples of words containing the vowels in question are provided in brackets.

Vowels	Reader	English Listeners	Tswana Listeners	P-values <sup>51</sup>	N-values
<i>/ɪ/ (it)</i>	EL1 Reader	93%	78%	0.001 **	224
	TL1 Reader	38%	38%	0.9	224
<i>/ɪ/ (miss)</i>	EL1 Reader	99%	88%	0.001 **	192
	TL1 Reader	59%	57%	0.8	192
<i>/ɪ̯:/ (nurse)</i>	EL1 Reader	100%	99%	0.3	160
	TL1 Reader	69%	60%	0.2	160
<i>/æ/ (trap)</i>	EL1 Reader	85%	73%	0.03 *	192
	TL1 Reader	38%	45%	0.3	192
<i>/ɜ:/ (strut)</i>	EL1 Reader	97%	75%	0.01 *	64
	TL1 Reader	47%	31%	0.2	64
<b>Total</b>	EL1 Reader	74%	66%	0.0007 **	832
	TL1 reader	69%	62%	0.006 *	832

Concerning the “new” vowels in Table 6 above, viz. */ɪ/*, */ɪ/*, */ɪ̯:/*, */æ/* and */ɜ:/*, the following may be noted (results on the individual vowels follow after this discussion):

The EL1 listeners’ lowest score in responding to the EL1 reader was 93% (for */ɪ/*), but their highest score in response to the Tswana reader was 69% (for */ɪ̯:/*). The TL1 listeners, on the other hand, scored 73% at the lowest when listening to the English reader (for */æ/*), but didn’t identify any vowel of the Tswana reader more correctly than 60% (which was */ɪ̯:/*). It is also noteworthy that the EL1 listeners in most cases (except for */ɪ/* and */æ/*) perceived more vowels correctly in response to the TL1 reader than the TL1 listeners did. The significance and possible explanations for these results will be discussed in Chapter 4.

<sup>51</sup> The following symbols will be used to represent statistical significance: \* = significant; \*\* = highly significant; n.s. = not significant.

The statistical analyses of the results reveal that the vowels in words produced by the EL1 subject were identified more accurately in all cases by the EL1 listeners (98% correct vs. 85% of the Tswana listeners). This difference is statistically highly significant ( $p < 0.000009$ ). In the case of the Tswana reader, the EL1 listeners identified 48% of these vowels correctly, whereas the TL1 listeners succeeded in identifying only 46% of the vowels correctly. With the p-value at 0.6, this difference is seen not to be statistically significant.

The vowels of the English reader were identified more accurately (91%) than those of the Tswana reader (47%). The difference between these is statistically highly significant ( $p < 0.000009$ ).

From the above-mentioned remarks, the following tendencies concerning "new" vowels are salient: (a) the EL1 listeners identified the vowels more correctly than the TL1 listeners in all cases; (b) the vowels of the EL1 reader were perceived more accurately than those of the TL1 reader; (c) the vowels of the TL1 reader were perceived incorrectly in more cases than they were perceived correctly.

Each of the individual vowels was perceived as a variety of vowels by the different listeners. In Table 6 the perception of the individual vowels as read by the TL1 reader, is indicated. The results are presented in terms of the way the stimulus vowels were perceived, i.e., the different responses to the stimulus vowels are indicated.

**Table 7:** Perception of the individual “new” vowels as read by the TL1 speaker. The different perceptions of the stimulus vowels are presented as individual vowels.

Perceived vowels	Stimulus vowels									
	<i>/i/</i>		<i>/ɪ/</i>		<i>/ɛ:/</i>		<i>/æ/</i>		<i>/ɜ:/</i>	
	EL <sup>52</sup>	TL <sup>53</sup>	EL	TL	EL	TL	EL	TL	EL	TL
<i>/i/ (it)</i>	38%	38%	-	-	-	-	-	-	-	-
<i>/ɪ/ (miss)</i>	-	-	59%	57%	-	-	-	-	-	-
<i>/ɛ:/ (nurse)</i>	-	-	-	-	69%	60%	28%	20%	-	-
<i>/æ/ (trap)</i>	-	-	-	-	3%	10%	28%	33%	-	-
<i>/ɜ:/ (strut)</i>	-	-	-	-	-	-	-	-	47%	31%
<i>/e/ (dress)</i>	-	1%	-	1%	29%	26%	44%	44%	-	-
<i>/i:/ (fleece)</i>	62%	61%	41%	42%	-	-	-	-	-	-
<i>/ɑ:/ (bath)</i>	-	-	-	-	-	1%	-	3%	53%	66%
<i>/o:/ (thought)</i>	-	-	-	-	-	3%	-	-	-	3%

From this table, the following trends concerning incorrect perception are salient:

In most cases, both listener groups were almost equally unable to perceive the vowels of the TL1 reader correctly, and in most cases the percentages for correct responses were the same or very close for both listener groups. Both listener groups perceived the vowels equally poorly in most cases. The perception of the individual vowels may be summarised as follows:

- */i/* was perceived as */i/* (38%) or, more often, */i:/* (62%) by both groups (also as */e/* by one TL1 listener)
- */ɪ/* was mostly perceived as */ɪ/* (58%), and sometimes as */i:/* (42%) by both groups (also as */e/* by one TL1 listener)
- */ɛ:/* was mostly perceived as */ɛ:/* (65%), and sometimes as */e/* (28%) (also */æ/* in a few cases) by both groups

<sup>52</sup> In this table, EL refers to EL1 listeners.

<sup>53</sup> In this table, TL refers to TL1 listeners.

- /æ:/ was perceived as /æ:/ (31%), /ɸ:/ (24%) or, more often, /e/ (44%) by both groups (also /ɑ:/ in a few cases of the TL1 listener group)
- /ɜ:/ was perceived as /ɜ:/ (39%) or, more often, /ɑ:/ (60%) by both groups (also /o:/ by one TL1 listener)

In the case of /ɪ/, the perception was more that of the longer vowel /i:/ than /ɪ/. Confusion also exists between /ɪ/ and the longer /i:/, although not to the same extent as with /ɪ/. The vowel /ɜ:/ was also perceived as the long /ɑ:/ in the majority of the responses. This underscores the findings of Dreyer, Wissing and Wissing (1996:52), where they indicate that the TL1 group in their study “were incapable of distinguishing between the vowel lengths”, and proves the hypothesis put forward in Chapter 2 (2.5), i.e. that minimal pairs will be lost by this failure of TL1 speakers to account for vowel duration in their pronunciation of English.

The vowels /ɸ:/, /æ:/ and /e/ seem to have been readily confused. Although /ɸ:/ was perceived accurately by TL1 and EL1 listeners (65% average), it was also perceived as /e/, and in a few cases as /æ/. The results for /æ:/ indicate that it was perceived as /e/ in more cases (44%) than as /æ:/ (31% average), or /ɸ:/ (24% average). This almost certainly points to under-differentiation (see Chapter 2 – 2.2.2), where the known or “familiar” vowel /e/ is used to represent the English /e/ as well as the “new” /ɸ:/ and /æ/.

These results will be interpreted in more detail in Chapter 4.

The percentages of correct perception of the “similar” vowels /i:/ (as in *leece*), /e/ (as in *dress*) and /o:/ (as in *thought*) are presented in Table 8 below.

**Table 8:** The “similar” vowels as perceived by the two listener groups in response to the TL1 and EL1 readers. Examples of words containing the vowels in question are provided in brackets.

Vowels	Reader	English Listeners	Tswana Listeners	P-values <sup>54</sup>	N-values
<i>i:/ (fleece)</i>	EL1 Reader	96%	79%	0.000009 **	N=384
	TL1 Reader	69%	75%	0.2	N=384
<i>e:/ (dress)</i>	EL1 Reader	94%	79%	0.005 *	N=160 <sup>55</sup>
	TL1 Reader	48%	64%	0.03 *	N=176
<i>o:/ (thought)</i>	EL1 Reader	100%	100%	-	-
	TL1 Reader	100%	100%	-	-
Total	EL1 Reader	97%	83%	0.000009 **	N=1536
	TL1 Reader	59%	61%	0.4	N=1568

The following phenomena concerning the “similar” vowels may be noted in Table 8, after results were analysed statistically:

The English listeners identified the vowels as pronounced by the English reader more accurately than the Tswana listeners (96% and 63% respectively), but the Tswana listeners identified the vowels of the Tswana reader more accurately than the English listeners (72% and 63% respectively). For the English reader, the difference is statistically highly significant ( $p < 0.000009$ ). The difference for the Tswana reader is also significant, with  $p < 0.02$ .

When the averages of the results are considered, it can be noted that the “similar” vowels of the English reader were perceived more accurately (88%) than those of the Tswana reader (68%), as in the case of *i:/*, *ɪ/*, *ɪə:/*, *ɪæ/* and *ɪʒ/*. This difference is statistically highly significant ( $p < 0.000009$ ).

<sup>54</sup> The following symbols will be used to represent statistical significance: \* = significant; \*\* = highly significant; n.s. = not significant.

<sup>55</sup> The n-values for this vowel are different, because of a reading error on the part of the EL1 reader, causing that minimal pair to be disregarded in the statistic analysis.

It would seem as if the "similar" vowels of the TL1 reader were perceived more accurately (68%) than the "new" vowels (47%). The difference is indeed statistically highly significant with  $p < 0.000009$ . This point will be discussed in more detail in Chapter 4.

It is notable that the vowel /o:/ was perceived correctly in 100% of the cases.

In the following table the perception of the individual vowels as read by the TL1 reader, is indicated:

**Table 9:** Perception of the individual "similar" vowels as read by the TL1 speaker. The different perceptions of the stimulus vowels are presented as individual vowels.

Perceived vowels	Stimulus vowels					
	/i:/		/e/		/o:/	
	EL <sup>56</sup>	TL <sup>57</sup>	EL	TL	EL	TL
<i>/i:/ (fleece)</i>	69%	75%	-	-	-	-
<i>/e/ (dress)</i>	-	1%	43%	60%	-	-
<i>/o:/ (thought)</i>	-	-	-	-	100%	100%
<i>/ɪ/ (miss)</i>	17%	11%	16%	8%	-	-
<i>/ɪ/ (it)</i>	14%	13%	1%	-	-	-
<i>/ɒ:/ (nurse)</i>	-	-	19%	21%	-	-
<i>/æ/ (trap)</i>	-	-	21%	11%	-	-

From this table, the following trends concerning incorrect perception are salient:

- /i:/ was perceived mostly as /i:/ (72%), and sometimes as /ɪ/ (14%) or /ɪ/ (14%) by both listener groups (also as /e/ by one TL1 listener);

<sup>56</sup> In this table, EL refers to EL1 listeners.

<sup>57</sup> In this table, TL refers to TL1 listeners.

- /e/ was perceived mostly as /e/ (52%, although the EL1 listeners only perceived it correctly in 43% of the cases), and sometimes as /i/ (12%), /ɘ:/ (20%) or /æ:/ (16%) by both listener groups (also as /i/ by one TL1 listener); and
- /o:/ was perceived correctly in 100% of the cases.

Concerning /i:/, the same confusion as with /i/ and /ɪ/ occurred (see Table 6) in terms of vowel length. For /e/, /ɘ:/ and /æ:/, see also the discussion of Table 6. It can be noted that /e/ was in a few cases perceived as /i/ by both listener groups. These results will be discussed and interpreted in more detail in Chapter 4.

### 3.5 Conclusion

In this chapter, the procedures followed in and results obtained from research were presented. It has been pointed out that the TL1 subjects involved in the present study are not negatively inclined towards Resp SAE, and do not seem to strive towards a markedly SAE variant for any socio-political or other reasons. The results as presented here also revealed that the vowels of the EL1 speaker were perceived more correctly than those of the TL1 speaker, and that the “familiar” vowels of the TL1 reader were perceived more accurately than the “new” vowels. In Chapter 4, a discussion of these results is provided, and possible explanations are offered for the trends discussed here. In this discussion, reference is made to the theoretical background as discussed in Chapter 2.

## CHAPTER 4

### INTERPRETATION OF RESULTS

*What we learn from such measurement and from such comparisons is of no interest in itself. It is what one can infer from it that is of interest and importance. This is the difference between measurement and evaluation (Corder, 1973:351-352).*

#### 4.1 Introduction

It is expected that some interesting and important trends will be inferred from the results of this study, as the quotation above explains the difference between measurement and evaluation. Thus, the measurements of Chapter 3 will be the object of evaluation in this chapter, in order to formulate some answers and prove (or disprove) the hypotheses underlying the present study.

In this chapter, an attempt will be made to explain the data given in Chapter 3. This will be done within the theoretical framework of Chapter 2, i.e. results will be compared to those of Flege (1980; 1987), and Flege and Hillenbrand (1984), who propose an "interlanguage" (IL) over against Glaser (1995), who explains her results in the light of negative language transfer. The Similarity Differential Rate Hypothesis (SDRH) proposed by Major and Kim (1996) will also be taken into consideration. The results of the present study would seem to corroborate those of Glaser, rather than those of Flege and Hillenbrand. To follow is an evaluation of the data.

#### 4.2 Explanation of the data

Possible explanations are offered here for the results obtained from the perception tests, as described in Chapter 3. Incorrect perception is first discussed as a possible reason for inaccurate production of vowels by TL1 speakers. Then the results for "new" vowels, which are the focus of this study, are evaluated. The "similar" vowels included

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in the perception test are also discussed in order to provide a background for comparison with Flege and Hillenbrand's theory concerning "new" and "similar" sounds (see Flege & Hillenbrand, 1984).

#### 4.2.1 Perception accuracy

From the results of the "new" vowels (*/ɪ/, /i/, /ɛ:/, /æ/ and /ə/*) it is noticeable that the EL1 listeners perceived the vowels read by the EL1 reader significantly more accurately than the TL1 listeners, whereas the difference in perception accuracy in response to the TL1 reader is statistically insignificant. Glaser's research showed the same results, i.e. that "FLE<sup>58</sup> listeners performed significantly better than FLN<sup>59</sup> listeners" (Glaser, 1995:24) when responding to the EL1 listener, but "[t]he comparison of FLE listeners and FLN listeners' responses to FLN speakers [...] reveals no significant differences in overall accuracy of identification" (Glaser, 1995:22).

The above refers to the results regarding all the vowels regarded as "new". When the "similar" vowels (*/i:/, /e/ and /o:/*) are considered, the difference between the accuracy of perception of the EL1 listeners (who identified the vowels more correctly than the TL1 listeners) and the TL1 listeners responding to the EL1 reader is found to be statistically highly significant. The difference between the EL1 listeners and TL1 listeners in response to the TL1 reader, on the other hand, is not significant. Thus, these results are similar to those regarding the "new" vowels (see Chapter 2 - 2.1.3 for an explanation of Flege and Hillenbrand's use of the terms "new" and "similar", and 2.4 for an explanation of which vowels in Resp SAE are regarded as new, and which as similar).

It may therefore be postulated that one reason why TL1 speakers are unable to correctly pronounce certain English vowels, is because they do not perceive them correctly. More research, however, has to be done in this area to prove such a statement.

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<sup>58</sup> First language English

<sup>59</sup> First language Nguni

Why the accuracy of perception in response to the EL1 reader differs significantly between the listener groups, whereas the difference is insignificant when the TL1 reader is involved, is unclear. The fact that the mean for correct perception of TL1 vowels is significantly lower than that of the EL1 vowels, seems to indicate that the English vowels of the TL1 speaker are hard to perceive accurately, to EL1 and TL1 listeners alike (the difference was shown to be insignificant). When responding to the EL1 reader, the EL1 listeners score significantly higher, but the TL1 listeners not to such an extent, which would seem to indicate that the vowels which are clearly differentiated in Resp SAE are not perceived as such by the TL1 listeners.

The “familiar” vowels of the TL1 reader were perceived significantly more accurately than the “new” ones, which corroborates Glaser’s findings (1995:30):

The most accurately identified vowel for all cross-linguistic speaker-listener group combinations was /e/, a vowel common to English and Nguni. These results support the hypothesis that phonic interference, in the form of underdifferentiation occurs in the English speech of Nguni speakers.

The vowels studied by Glaser contain one “similar” vowel, viz. /e/ (*dress*), and two “new” ones, viz. /æ/ (*trap*) and /ʊ/ (*nurse*), and are all included in the present study.

It appears, then, that this is what happens in TE as well. TE vowels which are known to the sound system of Tswana are perceived more accurately than those which are foreign to it.

#### **4.2.2 “New” vowels**

The “new” vowels focussed on in this study are /ɪ/, /ɪ/, /ɒ:/, /æ:/ and /ɜ/. In this section, the perception of each vowel as read by the TL1 reader will be considered according to its statistics, and possible explanations offered for the phenomena represented in the data. Only the perception of the vowels as read by the TL1 reader is included here, since the focus of the present study is on the vowels of TE.

The vowel /ɪ/ (*it*) was perceived mostly as /i:/ (61%), and only in 38% of the cases as /ɪ/. This vowel as pronounced in Resp SAE, is a short, lax, high-front vowel, slightly lower and more towards the back than the Tswana /i/. In TE, /ɪ/ is drawn higher and to the front to conform with the familiar /i/. Confusion most certainly also resulted from weak or no distinction between vowel lengths (/ɪ/ being short and /i:/ long). This supports the theory of negative language transfer, where characteristics of the L1 sound system are carried over into that of the L2 (see Chapter 2 - 2.1.2).

The Resp SAE /ɪ/ is a short, high central vowel. The TE rendering of this vowel was perceived as /i:/ in 41% of the cases. Very similar to /ɪ/, this vowel was also raised and drawn forward to conform to the /i/ of Tswana. As in the case of /ɪ/, lack of recognition of vowel length once more is considered to have contributed significantly to this phenomenon. This is also in line with the negative language transfer theory.

In the case of /ɨ:/, it may be observed that it was perceived as /ɨ:/ in 64% of the cases, and as /e/ in 55% of the cases. This half-close, front rounded vowel was drawn forward and slightly raised in TE to conform with the familiar mid-high front /e/ of Tswana, which also confirms the theory of negative language transfer.

The half-open front vowel /æ/ of Resp SAE was identified correctly in only 30% of the cases. It was otherwise perceived as /ɨ:/ (24%) and /e/ (44%). This vowel, too, would seem to have been drawn forward and raised to the position of Tswana /e/. It is more likely, though, that it has merely been drawn forward and slightly raised to conform to Tswana /e/, which is a mid-low front vowel and thus closer in position to /æ/. It is here postulated that this vowel was, although being /e/, perceived as /e/, merely because the minimal pairs in English couldn't contain /e/. It is in general somewhat difficult for the untrained ear to distinguish clearly between Tswana /e/ and /e/. This once more coincides with the negative language transfer theory.

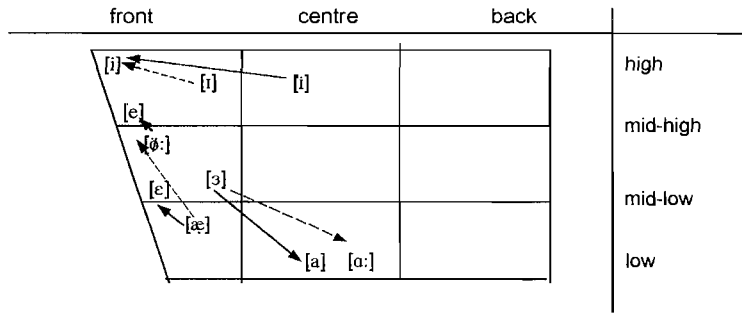
Exactly why /ɨ:/ was perceived correctly in most cases (65% average for both listener groups), and only 7% and 28% average as /æ/ and /e/, whereas /æ/ was mostly perceived as /e/ (44%), and only 31% (average) correctly as /æ/ and 24% (average) as /ɨ:/ is not clear. It is suggested here that the reason is the closer position of /æ/ to /e/

(see vowel chart below), which may more readily cause confusion between these two vowels than between /ɛ/ and /ɸ:/.

As for /ɜ/, the Resp SAE short, central vowel, the following may be observed: it was perceived as /ɜ/ in only 40% of the cases, and as /ɑ:/ in 59% of the cases. It is postulated that this is the case, because /ɜ/ has been lowered and more centralised to coincide with /ɑ/, which is familiar to Tswana. This vowel was then merely perceived to be /ɑ:/, the Resp SAE vowel which lies very close to /ɑ/. Failure to differentiate in terms of vowel duration (/ɜ/ being short and /ɑ:/ long) is also deemed to have contributed to this confusion. This is also indicative of negative language transfer.

In all of the above cases, the Resp SAE vowel seems to have been pronounced in a position approximating that of the closest Tswana vowel, which is a clear indication of negative language transfer. The results of this study would then coincide with Glaser's, i.e. that phonic interference in the form of under-differentiation also occurs in TE, as in "Nguni English" (see Glaser, 1995:30). This means that one Tswana vowel is used to represent more than one Resp SAE vowel: /i/ is used for /i:/, /ɪ/ and /i:/:; /e/ (and / or /ɛ/ - see the discussion on /æ/ above) represents /e/, /ɸ:/ and /æ/, and /a/ is used for /ɑ:/ and /ɜ/. On the basis of these findings, it may be hypothesised that Tswana /u/ will in the same way be used to represent the Resp SAE /ʊ/ (*foot*) and /u:/ (*goose*), whereas Tswana /ɔ/ may be used for Resp SAE /ɔ/ (*lot*) and /o/ for /o:/ (*thought*).

These observations are represented graphically on the following vowel chart:



**Figure 4 :** Phonetic vowel chart showing the TL1 pronunciation of the Resp SAE vowels /i/ (it), /ɪ/ (miss), /ɘ:/ (nurse), /æ/ (trap) and /ɜ/ (strut) - a broken line indicates a perceived shift, whereas a solid line indicates shifts as they are considered by the author to have taken place.

#### 4.2.3 “Similar” vowels

The discussion of the results of vowels considered to be similar is included here to compare the present results with those of Flege and Hillenbrand (1984, for the discussion of which see Chapter 2 - 2.1.3). The “similar” vowels included in this study are /i:/, /e/ and /o:/. As has already been noted in Chapter 3, the vowels of Resp SAE which are similar to their Tswana counterparts have been pronounced significantly more accurately than those which are new, or unknown to the Tswana sound system. This, then, seems not to correspond to Flege’s findings that “the phonetic space of adults is restructured during L2 learning, and [...] that equivalence classification prevents experienced L2 learners from producing similar L2 phones, but not new L2 phones, authentically” (Flege, 1987:47). The reason for this is not clear, and further research will have to be conducted in this field to shed more light on these seemingly incongruent findings.

With the SDRH (see 2.2.4), Major and Kim (1996) take into consideration, over and above similarity / dissimilarity, the markedness of the sounds in question, the level of experience that the L2 learner has attained, time, overgeneralisation and interaction of

phenomena. It would be impossible, however, to endeavour an evaluation of the present results in the light of the SDRH, since the subjects involved in this study were not tested over a period of time, evaluating their rate of learning or progress, nor has their level of experience been determined scientifically. As for the concept of markedness, Major and Kim (1996:492) observe that "markedness is merely a mediating factor affecting rate", and, since rate has not been taken into consideration in the present study, it is therefore not helpful in this evaluation. It is quite possible that research conducted over an extended period of time may prove the SDRH valid in this case, and clear up the apparent incongruity mentioned above.

Each of the "similar" vowels as read by the TL1 speaker will be briefly discussed, and possible explanations offered for the different results.

The vowel [i:] was perceived correctly in 72% of the cases. It is noticeable when this mean is compared to that of the vowel read by the EL1 speaker, which was perceived correctly in 88% of the cases. A possible reason for this is that Tswana does not use vowel length as a way of distinguishing different words (see Chapter 2 - 2.4). The TL1 reader may thus have pronounced the vowel with shorter duration than the Resp SAE norm, which may have caused slight confusion in some cases with the short /ɪ/ (13%) and /ɪ/ (14%). This hypothesis is also supported by the results of the same vowel as read by the EL1 speaker. The EL1 listeners perceived this vowel correctly in 96% of the cases, but the TL1 listeners perceived it correctly only in 79% of the occurrences, which may indicate that the TL1 listeners, not being able to distinguish between vowel length to the same extent as the EL1 listeners, were more easily confused in distinguishing minimal pairs.

As for /e/, it was seen that it was identified correctly in 51% of the cases. A likely explanation for the reason why this vowel was inaccurately identified more often than the other "similar" ones, is that it is readily confused with /æ/ (16%) and /ɛ:/ (20%). This is the case, not because the TL1 reader pronounced them as such, but rather because /e/ (and possibly /ɛ/) is used in TE to represent all these various vowels<sup>60</sup>. The listeners, therefore, being accustomed to this feature of TE, were probably more easily

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<sup>60</sup> See the discussion of [æ] under 4.2.2.

confused than would an “innocent” listener, i.e. one who is not familiar with the Tswana accent. Another factor is that the TL1 reader may possibly have slightly drawn back and lowered this vowel to compromise with the positions of /æ/ and /ɤ:/, thus creating a kind of “intervowel” to represent the different vowels concerned. This will have to be verified with acoustic analysis, but, if this were the case, it would account for the relative inaccurate perception of this vowel as compared to the other “similar” ones.

It is remarkable that /o/ has been identified 100% correct in all cases. The reason for this high level of perception accuracy is probably because no other vowel in the minimal pairs was close enough to /o/ to be confused with it. It was the only back vowel in the minimal set of *work*, *walk*, *weak*, for instance. Perception may have been less accurate if /o:/ had been contrasted with /ɔ:/, e.g. *wrought* - *rot*. It is probable in the light of the present results that a TL1 speaker would fail to differentiate between these two vowels, and pronounce them both as /o/. As in the case of /i:/, it is also likely that TL1 listeners will be more easily confused in responding to an EL1 reader, because Tswana does not distinguish words by means of vowel length. This, however, remains to be proved by empirical research.

### 4.3 Intelligibility of TE vowels

As discussed under 4.2.1 of this chapter, the difference in response to the EL1 reader (90% correct) and the TL1 reader (60% correct) is statistically highly significant. It is risky to speculate about the actual extent of unintelligibility which is caused by the under-differentiation of vowels, since vowel variation is merely one aspect of language which may impede intelligibility. Other segmental and suprasegmental factors which influence intelligibility are numerous, e.g. stress and intonation (see Lanham, 1990), consonantal variation (see Jacobs, 1994 and Van Rooy, 1995), vowel duration (see Dreyer, Wissing & Wissing, 1996), etc. Concerning the effect of under-differentiation of vowels on the intelligibility of TE, the author agrees with Jacobs’s view regarding consonantal variation, when she mentions the following points which should be borne in mind (Jacobs, 1994:25):

- a) [I]ntelligibility depends on specific ideolects - some are more and others less comprehensible;
- b) [I]ntelligibility is determined by the configuration of many phonological elements, not by consonantal variants alone; and
- c) [P]rescriptiveness is not advisable due to the close relationship between accent, national consciousness and self-identity.

These factors are to be borne in mind, also in considering the intelligibility of TE.

It is most probably the case with TE too that different ideo- and sociolects vary in terms of intelligibility. In her study, Jacobs (1994:18) mentions three lectal varieties of ZE (Zulu English), viz. acrolect (lecturers at tertiary institutions, broadcasters, politicians, top businessmen, specialists, etc.), mesolect (teachers, nurses, policemen, etc.) and basilect (labourers, domestic servants, hawkers, etc.). It is likely that, as in the case of ZE, the basilect of TL1 speakers will be less intelligible than the mesolect or acrolect, since the speakers' level of education is generally lower<sup>61</sup>. Therefore, given the different lectal varieties, it is an extremely complicated - if at all possible - task to give a general evaluation of the intelligibility of TE as such.

As has been mentioned, vowel variation is merely one aspect of foreign-accentedness, and a description of accuracy in the perception of TE vowels cannot give an accurate account of the intelligibility of TE as a whole.

It is also true that accent, national consciousness and self-identity are closely related. Thus, speakers of a language may prefer one variety to another because of political, social and even economic reasons. This chosen variety may or may not be what is regarded as the standard for the specific language. A recent example of this is the telephonic answering service at UNISA<sup>62</sup>, where callers are informed in English and Afrikaans that their call has been placed on a waiting list, and will be attended to. Whereas the Afrikaans voice speaks standard Afrikaans (with what may be

<sup>61</sup> A study involving speakers of these various lects will prove / disprove this hypothesis. The subjects of the present study, however, were selected to form as homogenous a group as possible (see 3.3.1), which makes an evaluation of the intelligibility of speakers of various lects of TE impossible.

<sup>62</sup> This has recently been changed, and an Indian lady's voice is now used, only in English. It may be the case that this specific English pronunciation is more acceptable to both EL1 speakers (not so markedly different from the "standard") and speakers of SABE (not the "standard" of white English).

impressionistically called an educated accent), the English voice is clearly African with a salient African pronunciation. Why hasn't a speaker with a more "standard" English accent been selected (which would possibly be more intelligible)? Probably because it is politically more correct to have an African voice on the answering service, which would also serve to promote the university's image among the great numbers of African students who enroll for their studies there. An African accent in the Afrikaans service would be unacceptable for many AL1 speakers, since Afrikaans is mainly used by those who speak it as native language, unlike English which serves as lingua franca in South Africa. This example shows how different varieties of language (and accent) may be used pragmatically. For this reason, speakers may choose to speak a given lectal variety, and be unwilling to "improve" (from the viewpoint of a "standard") their accent, which links them to certain social or national groups.

What may be said in the light of the present results, is that vowel variation does have a severe effect on the intelligibility of TE. This is at least the case where single words (removed from context which may aid intelligibility) are concerned, especially words containing "new" vowels, i.e. vowels unknown to the vowel system of Tswana. As to the effect on TE as spoken phrases in certain linguistic contexts, however, no definite conclusions can be drawn from the present study.

#### **4.4 Summary**

In this chapter it has been indicated that the vowels of the EL1 reader were perceived significantly more accurately than those of the TL1 reader. It is argued that this is the case, because TL1 speakers do not perceive the sounds of English correctly, i.e., they fail to differentiate between certain vowels where this distinction does not occur in their native language. The "new" vowels (*/ɪ/*, */i/*, */ɔ:/*, */æ/* and */ɜ:/*) of the TL1 reader were not perceived accurately, but were confused with other vowels. It has been indicated that under-differentiation occurs in TE, where a vowel which occurs in the Tswana sound system, is used to represent another vowel which does not (or even various other vowels). The "similar" vowels (*/i:/*, */e/* and */o:/*) of the TL1 reader were perceived much more accurately (except in the case of */e/*, which is probably due to the fact that this vowel is also used to represent */æ/* and */ɔ:/*, and therefore readily confused with the

same) than the “new” ones, which supports Glaser’s (1995) findings in terms of negative language transfer. This also seems to contradict Flege and Hillenbrand’s (1984) hypothesis that “new” vowels will be produced more accurately than “similar” ones. Research in the light of the SDRH (see Major & Kim, 1996) may clarify these apparent incongruities. A vowel chart representing the under-differentiation identified in the TE vowels is also offered to indicate the changes taking place in the vowels of TE. All these changes have been shown to have an effect on the intelligibility of TE, although the exact extent to which this amounts, cannot be inferred from the present study.

In Chapter 5 a general conclusion and summary of the results and evaluation of this study are offered, as well as suggestions for further research in this field.

## CHAPTER 5

### CONCLUSION AND RECOMMENDATIONS

*There is now overwhelming evidence that language transfer is indeed a real and central phenomenon that must be considered in any full account of the second language acquisition process (Gass & Selinker, 1992).*

In Chapter 4 it was clearly indicated that the vowels of the EL1 reader were perceived significantly more accurately than those of the TL1 reader. This is probably the result of inaccurate perception of the vowels of English by TL1 speakers, which, in turn, leads to inaccurate production of the same vowels. The vowels that are “new” to the sound system of Tswana were confused with other vowels when read by the TL1 reader. This was pointed out as under-differentiation, where a vowel which occurs in the sound system of Tswana, is used to represent another vowel which do not (or even various other vowels). The vowels regarded as “similar” to their counterparts in Tswana were perceived much more accurately when read by the TL1 reader (except in the case of /c/, which is a result of under-differentiation, /c/ being used to represent the “new” vowels /æ:/ and /ɛ:/). These findings seem to support the theory of negative language transfer, and specifically under-differentiation, rather than the hypothesis that “new” vowels will be produced more accurately than “similar” ones (Flege & Hillenbrand, 1984; Flege, 1987).

On the basis of the problem questions posed in Chapter 1, four objectives for this study were formulated, viz.:

- a) **To provide a theoretical discussion (based on existing literature) of some relevant hypotheses about L2 pronunciation, as well as the vowel systems of Tswana and Respectable South African English (see Chapter 2 – 2.4.1).**
  - b) **To conduct perception tests in order to identify the differences in pronunciation of English vowels by L1 speakers and Tswana speakers.**
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- c) To study these differences in order to provide (a) possible explanation(s) for their existence.**
- d) To investigate the extent to which the differences in pronunciation of vowels affect the intelligibility of TE.**

After providing a theoretical discussion of some relevant hypotheses concerning L2 pronunciation, as well as a comparison of the Tswana and Resp SAE sound systems, research was conducted to attain objectives (b), (c) and (d). The differences in pronunciation of English vowels by L1 speakers and Tswana speakers were discovered by means of the perception tests. As indicated above, negative language transfer in the form of under-differentiation affects the pronunciation of English vowels by a TL1 speaker. It was also postulated that the reason for this phenomenon is the inaccurate perception of "new" vowels, and the consequent production of the same in terms of the familiar vowels of the Tswana sound system. Thus, objectives (a), (b) and (c) have been attained.

It was not possible, however, to fully attain objective (d). Although the results obtained clearly indicate that vowel variation does severely affect the intelligibility of TE, the exact extent to which this is the case cannot be determined. The conclusion that can be drawn from this study, is that under-differentiation (especially of new vowels) impedes intelligibility of single words (removed from context). However, as to the effect on TE as spoken phrases in certain linguistic contexts, no definite conclusions can be drawn from the present study.

From these results and conclusions, several recommendations for further study can be made:

- There is a need to record and acoustically describe the sound system of Tswana (and more specifically the vowel system). It may be found from such a study that certain Tswana sounds (vowels) are closer to the "new" sounds (vowels) in, for example, English, than would appear from a mere literature survey. It may also be found that some of the "similar" sounds (vowels) which share one phonetic symbol, are, in fact, quite different.

- The vowel system of Resp SAE also needs to be described acoustically, for the same reasons as mentioned above.
- A longitudinal study covering different age groups or specific subjects over an appropriate period of time, while focussing on the same vowels, may provide more answers about the influence of a critical period for language learning, the loss of flexibility of the speech organs and inadequate phonetic input on TE<sup>63</sup>.
- When similarity (as in the present study) and markedness are taken into account in a longitudinal study, the Similarity Differential Rate Hypothesis (SDRH) of Major and Kim (1996) can be evaluated in the case of TE, and the apparent contradictions between the negative language transfer hypothesis and Flege's results concerning "new" and "similar" sounds (Flege, 1987) be explained satisfactorily.
- The attitude(s) of TL1 speakers in the North West Province (and even further abroad, e.g. Northern Cape, North Western Free State, Botswana) towards Resp SAE (a "white" variety of English) ought to be determined by means of a language attitude test involving a sufficient number of representative subjects, and the possible effects thereof on the TE accent be investigated.
- The Englishes of different indigenous South African groups have to be recorded and described acoustically in order to discover whether the term SABE (or any variation on that name) as an umbrella term for the English of speakers from different language groups (implying monolithicality), is really an appropriate one. It can then be indicated with more accuracy whether Nguni English is different from Sotho English or Venda English, etc. It may even be found that there are differences between the Englishes of members of the same language group (e.g. Sotho) who speak different languages (e.g. Tswana, Pedi, Southern Sotho).

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<sup>63</sup> See Major and Kim (1996).

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